

Communicating efficient irrigation practices in the horticultural industries

Anne Currey
Irrigation Australia Ltd

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HG10020

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Communicating efficient irrigation practices in the horticultural industries

December 2014

Anne Currey
Naturally Resourceful Pty Ltd

Research Provider: Irrigation Australia Ltd

Horticulture
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Project HG10020

Communicating Efficient Irrigation Practices in the Horticultural Industries

Project leader:

Anne Currey
Naturally Resourceful Pty Ltd
PO Box 688
BALLINA NSW 2478
P: 0414 878175
E: anne@naturallyresourceful.com.au

This report describes how Irrigation Australia Ltd has supported innovative approaches to efficient irrigation practices in the irrigation sector, particularly the amenity horticulture and commercial horticultural sectors, by developing a communications plan for the irrigation industry and generating relevant content in *Irrigation Australia* journal, *Backwash* newsletter and the IAL website as a result.

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December 2014

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Summary

The framework for this project, which commenced in January 2012, was the development of a communications plan (see [Appendix 1](#)) for the irrigation industry. The plan identified targets and IAL communications vehicles that could be used to promote messages about efficient irrigation practice. Surveys of horticulture growers and irrigation service providers and horticulture IDOs in 2012 were used to develop this plan, whose broad goal was:

Irrigation Australia Limited (IAL) to be highly regarded and widely recognised within horticulture industries as the provider of reliable, relevant and up-to-date information on best practice irrigation technology and water management.

The surveys were also used to identify current key irrigation issues and further refine messaging in IAL's communications vehicles.

In developing the plan, the value of IAL's three key communications vehicles – *Irrigation Australia* journal, *Backwash* newsletter and its website www.irrigation.org.au – was confirmed.

Since the project began, twelve editions of *Irrigation Australia* have been published (four editions are published a year, in February, May, August and November), as well as 33 editions of the monthly online newsletter *Backwash*. As the result of consultation at a HAL IDO meeting in 2012, most IDOS were added to the mailing list to receive *Backwash*. The IAL website has been updated and redesigned to enable easier access to information to do with irrigation and efficient irrigation practice.

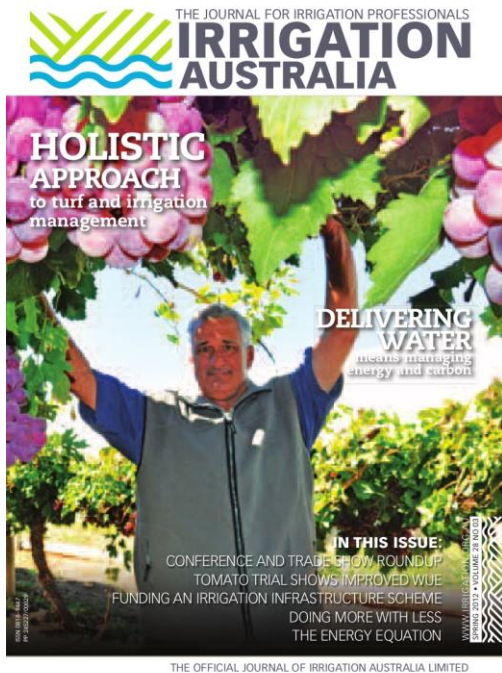
As required by the project, articles relevant to the commercial and amenity horticulture sectors featured in at least 75% of the journal, and the front covers of five editions featured horticulture and amenity irrigation specifically; seven were more generally focussed, i.e. covers promoting 2012 and 2014 *Irrigation Australia Conference and Exhibition*, or featuring agricultural irrigation. As well, the February 2014 edition of the journal featured horticulture case studies on efficient irrigation.

Results of the grower and service sector surveys in 2012 were used to update and redesign the IAL website. Feedback from this redesign was very positive and use increased.

The results of a reader survey of the journal and *Backwash* completed in mid-2014 were consistent with the results of previous surveys in 2008 and 2010 and indicated a high degree of reader satisfaction with the publications. Most readers (almost 70%) identify that the journal is a good source of information on irrigation; over 90% of these readers believe the appearance of the magazine is good or excellent; 90% rate article relevance as excellent or good; and 65% keep copies on file for future reference.

This feedback accords with feedback from another HAL project completed in 2009, *Australian Irrigation Industry: Industry Development Needs Assessment*, where members of IAL rated the journal highly as a source of information about irrigation and as a member benefit.

The journal, *Backwash* and IAL website are important sources of information about the irrigation sector and irrigation efficiency. They are unique in Australia in that content is developed by the irrigation industry and related service sectors. This results in the publication of relevant, practical information based on current technology and projects.



The front covers from two editions of the magazine published in 2012 and 2013. These editions featured articles on irrigation management in turf and soil and irrigation.

All editions of the magazine published from 2009 can be downloaded from the IAL website in PDF format as well as articles from Spring 2013 in page view format (<http://www.irrigation.org.au/IrrigationAustJnl.htm>).

The HAL logo appears in each edition of the journal on the contents page and on the footer of *Backwash*.

Introduction

Irrigation underpins the viability of the commercial and amenity horticulture sectors in Australia. In this context, communicating technical information about efficient irrigation practices to growers and the businesses and organisations that service them is crucial. This is especially the case with the increasing pressures on irrigation managers to implement and demonstrate water use efficiency.

The aim of this project has been to support the communication of information about efficient irrigation methods and technology to the irrigation industry in Australia, especially the amenity horticulture and commercial horticulture sectors.

The project followed these stages:

1. Complete a communications and gap analysis of both horticulture industries and the broader irrigation sector in Australia. The aim of this analysis was to identify current knowledge gaps about irrigation technology and practice and use this information to guide communication by IAL through its publications and website.
2. Develop a communications plan for the horticulture and amenity sectors of the irrigation industry.
3. Implement the communications plan, in particular developing content as a result of closer relationships with R&D corporations, the service sector and horticulture industries.

These are explained in detail in the following section, *Methods and activities*.

Methods and activities

Communications and gap analysis

This analysis was reported on in detail in Milestone 105. In summary, in June 2012 IAL conducted two extensive surveys to better understand and improve its communications in the horticulture sector. One survey was of horticulture growers, the other was of horticulture and irrigation industry personnel.

The majority of the farms operated by the grower respondents were located in Queensland and South Australia, Victoria, NSW and Western Australia. A very high proportion (52.9%), were involved in the turf industry followed by the macadamia, nut and fruit industries.

The vast majority (83.9%) said that having access to up-to-date irrigation information was important, very important or most important in comparison to having information on other farm activities (such as weed and pest control).

Irrigation topics in greatest demand by growers were:

- efficient ways of managing water
- system maintenance
- relationship between soil and irrigation
- system operation
- water security.

Other topics of lesser importance were: irrigation scheduling, managing allocations, developments on water policy and implications, system design, training, equipment performance e.g. results of tests and comparing performance, equipment standards, and irrigation and climate change.

Overall, horticulture industry organisations are considered by growers as the best source of irrigation information.

The majority of horticulture and irrigation industry personnel respondents were irrigation equipment manufacturers and suppliers/retailers. This was followed by industry development officers/managers (IDOs/IDMs). Most were located in Victoria, South Australia and Queensland. There are a broad range of industries represented by the respondents, e.g. vegetables, nursery, apple and pear, turf and citrus.

Three quarters said having access to up-to-date irrigation information was most important.

Irrigation topics in greatest demand by this group were:

- irrigation scheduling
- efficient ways of managing water
- equipment standards and performance e.g. results of tests and comparing performance
- training.

Overall, irrigation manufacturers (most of which are IAL members) are the most important source of information for industry personnel, followed by government agencies. Other key sources include equipment suppliers, private consultants, websites and industry organisations.

The majority of industry personnel regularly use all of IAL's information sources, except for the 'Essentials Search Engine' (note that this was offline being upgraded during the survey period). Suggestions for improved IAL information services include: collating information and making it easily available; an improved website and email alerts; working together with industry organisations and their extension platforms.

Industry communications plan

These results were incorporated into the communications plan. In particular, it was noted that:

- industry organisations are the most important source of irrigation information for growers
- manufacturers are the greatest source of irrigation information for industry personnel such as IDOs
- most industry personnel and know about and regularly access the IAL's information resources.

As a result of these findings it was decided that, as far as IAL was concerned, the most benefit for horticulture was to ensure close linkages between it and industry personnel such as IDOs and the irrigation retail and manufacturing sectors. This "second tier" of advisors is seen by growers as a credible source of advice in topics such as irrigation. It was through providing practical information to these advisors through its website, *Irrigation Australia* journal and *Backwash* that IAL could have most impact. It was based on this decision that the communications plan was developed.

Midterm review

The midterm review, conducted in June 2013, consisted of a two-step process as follows:

Step 1. Comparing a list of key topics of interest to horticulture (growers and industry personnel, including IDOs), as identified as part of the industry survey completed in July 2012 (Milestone 102), articles published in the journal to ensure they are meeting these priorities. These key topics are as follows:

- efficient ways of managing water (E)
- system maintenance (M)
- relationship between soil and irrigation (S)
- system operation (O)
- irrigation scheduling (T)
- equipment standards and performance e.g. results of tests and comparing performance; training (P)
- water security (WS)
- professional development and training (PD).

Step 2. Interviewing five industry staff via phone to elicit qualitative feedback on how well irrigation information produced by IAL in *Irrigation Australia* and *Backwash* and on the website meets their needs. Staff interviewed were:

- Richard Stephens, Turf Australia
- Liz Mann, Australia Processing Tomato Research Council
- Robbie Commens, Australian Macadamia Society
- Jesse Reader, Australian Apple and Pear Industry
- John McDonald, Queensland Nursery and Garden Industry.

Four of the five people interviewed received *Irrigation Australia* journal; the other asked to be included on the mailing list. Two of the five received *Backwash*; the three who didn't asked to be included on the mailing list. Three of the five accessed the IAL website irregularly (either going directly to it or via URLs included in *Backwash*). The other two identified that individuals (through QDAFF and Netafim) were the key ways they accessed information about irrigation. Both Netafim and QDAFF are members of IAL so the association could be regarded as a secondary source of information.

The highest priority topics identified by the five were: *efficient ways of managing water, system maintenance, the relationship between soil and irrigation, water security and irrigation scheduling.*

Three of the four people who received *Irrigation Australia* journal ranked it as a credible or highly credible source of information about irrigation. *Backwash* and the website are regarded as not as important but they are, nevertheless, seen as good source of information by those who access them.

“*Irrigation Australia* gives me a snapshot of what’s going on across different sectors to do with irrigation. I see it as an important source of information about application of new technology and different application of existing technology, as well as the basics of irrigation.”

“The journal, in particular, and *Backwash* and then the website are important and credible sources of information. I scan both the journal and *Backwash* when I receive them, and if there are any relevant articles in the journal I scan them and send them to my growers.”

When asked how IAL could improve information to make it more relevant to horticulture a number of suggestions were made, mostly about the journal. These were as follows:

- more articles about irrigation principles with a case study related to the industry, where appropriate
- more articles about container irrigation and its unique qualities
- more case studies
- the relationship of irrigation to maintaining or increasing production; its role in improving yield
- articles about managing fertigation, especially comparing drip and sprinkler systems
- matching crop growth stages to irrigation demand
- more articles on turf with information relevant to turf customers, e.g. gardeners, landscapers, golf course managers.

Specific actions were also nominated, as follows:

- More cross fertilisation of articles, i.e. reprinting articles from other industry magazines in *Irrigation Australia* and vice versa (note, this does already occur, however, this suggests that more effort needs to be put into this)
- Providing a link from their website to the journal
- Adding individuals who don’t receive the journal or *Backwash* to the mailing lists (completed).

As part of the mid-term review, technical articles in the Autumn and Winter 2013 editions of *Irrigation Australia* were then categorised based on which of these topics were covered in them (tables 1 and 2).

Table 1. Articles in Autumn 2013 edition of *Irrigation Australia* based on topic.

Article	Focus
Technology: Rural. Good practice irrigation (vegetables) makes a big difference	E, M
Technology: Urban. Landscaping in a desert environment	E, T
Making the change – succession planning for the family business (written by leader of Horticulture - Next Generation project)	N/A
Research feature: Banking water for the future	WS
Irrigation WA: introduction	WS
Sandalwood – growing industry for northern Australia	E, M, O
Adopting drip irrigation to cash in of trash blanket)	E, O
A new app for looking at the weather	E
Online and up to date	N/A
Getting to know soils better	S
Testing first step to product development and innovation	P
Potentiating energy efficiency savings	M, O
Training and professional development	PD
Soil characteristics and their effect on sports turf irrigation efficiency	E, S
Coal seam gas: just another land use in a big country	
The Big Issue: Director’s duties	
Around Industry	1
Contractors Corner (regular column for contractors involved in installing and managing landscape, golf and garden irrigation systems)	O

Note: efficient ways of managing water (E), system maintenance (M), relationship between soil and irrigation (S), system operation (O), irrigation scheduling (T), equipment standards and performance e.g. results of tests and comparing performance (P), water security (WS), professional development and training (PD).

Table 2. Articles in Winter 2013 edition of *Irrigation Australia* based on topic.

Article	Page/s
Technology: Rural. Match application to infiltration	E, S, O
Technology: Urban. Soil loss from excessive runoff (turf)	E, S, O, T
Soils and chemistry (soils feature)	S
Know your irrigation water quality (soils feature)	E, S
Managing soil water repellency in turfgrass on sands (soils feature)	E, S, O, T
Years of soil improvement boosts capsicum yields (soils feature)	E, S,
The living soil (soils feature)	S
Research feature: Effectively using water allocations for managing turfgrass in open spaces	E, WS
Feature on Irrigation Conference (supported by HAL)	
The Murrumbidgee Irrigation Area: a rich history	
Water company committed to customer service and efficiency	WS, O
Recycled water trial tests diluting recycled water with rainwater	E, O, WS
Fair Work Amendment Act 2012	
Tasmania – irrigation hotspot	WS
Potentiating energy efficiency savings (part 2)	E, O, P
Soil characteristics and their effect on sports turf irrigation efficiency	E, S
The Big Issue: Director's duties	
Training and professional development	PD
State Roundup (regular column on policy developments to do with irrigation)	WS
Contractors Corner (regular column for contractors involved in installing and managing landscape, golf and garden irrigation systems)	E, O

Note: efficient ways of managing water (E), system maintenance (M), relationship between soil and irrigation (S), system operation (O), irrigation scheduling (T), equipment standards and performance e.g. results of tests and comparing performance (P), water security (WS), professional development and training (PD).

From this, it can be seen that almost all technical articles in these two editions of the journal cover at least one key topic identified by growers and/or industry personnel as being important. This has set the benchmark for subsequent editions of the journal.

Website users have access to a great variety of irrigation content focused on needs as identified in the July 2012 survey. The EVENTS and CERTIFICATION pages provide information about training and professional development activities, including conferences that are run by IAL as well as other industry organisations. Technical content can be accessed through the TOOLS, SPECIAL INTEREST GROUPS and BOOKSHOP AND STORE PAGES. Policy information is located under the ABOUT US tab.

Content in *Backwash* is focused on industry news and providing updates on training provided by IAL and other industry providers. Training was identified in the July 2012 survey as a topic of key importance by the industry service sector, including IDOs and agency staff. As a result, changes to content in the newsletter were made to emphasise training available through the IAL and other providers, and other topics seen as less important such as general industry news, were dropped.

Project aims

Edit, publish and distribute the quarterly Irrigation Australia journal

Since the project began, twelve editions of *Irrigation Australia* have been published (four editions are published a year, in February, May, August and November).

As required by the project, articles relevant to the commercial and amenity horticulture sectors featured in at least 75% of the journal, and the front covers of five editions featured horticulture and amenity irrigation specifically; seven were more generally focussed, i.e. covers promoting 2012 and 2014 *Irrigation Australia Conference and Exhibition*, or featuring agricultural irrigation.

The February 2014 edition of the journal featured horticulture case studies on efficient irrigation. Articles included were as follows:

Technology: Urban. Good design and operation key to reducing water and energy use. An article examining how efficient and energy use are key drivers when designing irrigation systems in urban settings. The article confirms that uniformity of application (which comes in part from good design) and efficient management are crucial to systems that are both energy and water use efficient.

Technology: Rural. Expansion move double production for Stanthorpe growers. An article describing doubling of a family farm's tomato and capsicum production as a result of a decision to lease extra land to gain a more secure water supply.

Research. Using deficit irrigation strategies to optimise water use of almonds. In Victoria research has tested the use of deficit irrigation strategies as a way of reducing water use. A key finding was that reducing applications by 15% below normal plant requirement had no negative effect on kernel size or yield over the three seasons of the trial.

Waste water source offers nutrient rich irrigation. This article was reprinted from one published in *Turf Australia* magazine and featured a shift from surface water source to recycled water for turf production by a Wagga Wagga based turf growing company.

WaterSmart farms – an On Farm Irrigation Modernisation success story. This article describes a WaterSmart Farms project in the Hawkesbury-Nepean area that used incentive grants and education to horticulture and turf growers to improve water use efficiency and save water.

Growcom's Land and Water program. This article described the various elements of the Growcom program in Queensland. The program was established to help horticultural producers manage their land and water assets more efficiently to ensure profitability and environmentally sustainable practices.

An article on digital media in this edition of the journal was reprinted from *Australian Turfgrass Management Journal*.

Edit and distribute the monthly e-newsletter Backwash, which also acts as a portal into the IAL website

Thirty-three editions of the monthly online newsletter *Backwash* were published during the project. As the result of consultation at a HAL IDO meeting in 2012, most IDOS were added to the mailing list to receive *Backwash*. This mailing list has grown to include 3000 + recipients.

An analysis of *Backwash* metrics completed in August 2013 identified that the newsletter had an average unique open rate of 30%, which compares well with general benchmarks for online newsletters and is above the median for all categories (see Table 3).

Table 3. Unique open rates by industry.

Open rate (unique)	Mean	Median	Top quartile	Bottom quartile
Nonprofits	17.20%	16.80%	27.30%	6.30%
Computer hardware, telecom & electronics	13.40%	12.00%	38.10%	8.30%
Consumer services	21.20%	18.50%	35.90%	7.40%
Education	26.20%	19.40%	46.10%	7.50%
Financial services	22.00%	20.90%	34.30%	7.20%
Real estate & construction	20.90%	19.90%	32.10%	9.60%
Retail	21.30%	17.50%	39.60%	8.90%
Industrial manufacturing & services	17.80%	15.90%	31.80%	8.3

Source. Silverpop (www.silverpop.com).

The click rate measures how many subscribers click through to a link. IAL uses *Backwash* as a way of promoting IAL events and activities and to drive subscribers mainly to the IAL website, as well as to other sites of interest. Clicks are an important metric as they indicate what subscribers find interesting or valuable and provide clues to the sorts of information we should be including.

Table 4 shows the click through rate for the different topic areas included in the August 2013 edition of *Backwash*. While these click rates might not seem high, industry benchmarks indicate that a click rate of between 1 and 3% is standard.

Analysing the click rate provides a guide to what readers find most useful in the newsletter. From the clicks, the jobs directory is obviously the most popular link, followed by the CEO message, a regular item summarising IAL activities and policy priorities, and then regional news, conference and training activities.

Table 4. Clicks for the August 2013 edition of *Backwash*.

Link	Subscribers	Total clicks	% of total clicks	Clicks per subscriber
Job Spot	81	98	34.88%	1.209877
CEO message about advocacy	53	62	22.06%	1.169811
About Us – Regions	21	22	7.83%	1.047619
IAL Conference website	20	21	7.47%	1.05
IAL Professional Development	15	15	5.34%	1
WA WaterWise Expo	11	13	4.63%	1.181818
Smart WaterMark	9	11	3.91%	1.222222
Other Training	8	8	2.85%	1
Regional Wellbeing survey	4	4	1.42%	1
IAL Facebook site	4	4	1.42%	1
IAL home page	3	3	1.07%	1
Horticulture Australia Awards	3	3	1.07%	
YouTube video about Irrigation Conference	2	3	1.07%	1.5
Irrigation Australia Journal	2	2	0.71%	1

Edit and update the technical aspects of the IAL website www.irrigation.org.au

The IAL website has been updated and redesigned to enable easier access to information to do with irrigation and efficient irrigation practice.

Results of the grower and service sector surveys in 2012 were used to update and redesign the IAL website. Feedback from this redesign was very positive and use increased. Use statistics for the period March – May 2013 are as follows:

- 4,229 visits with 2,998 unique visits (visits from different IP addresses).

- Percentage of new visits 62.95% and average time spent is 2.04 minutes
- 11, 171 page views with peaks occurring after every conference mail out.

Include the Irrigation Essentials technical search engine on the IAL website

Irrigation Essentials <http://irrigation.org.au/tools/irrigation-essentials-search-engine> is an information tool that contains all the information generated from the Irrigation Futures CRC as well as research information generated since 1993 through NPSI (supported by HAL and a number of R&D organisations) and its predecessors. Irrigation Essentials can be accessed on the IAL website strengthening its role as the source of knowledge and information about irrigation.

As well as information from the [CRCIF](#), the portal searches hundreds of other irrigation sites nationally allowing users to find information about irrigation research, product and supply information, as well as information about events and local activities.

In 2012 the search engine was updated and revitalised.

Work in partnership with the National Program for Sustainable Irrigation or its successor to publish relevant technical articles

The Autumn, Winter and Spring 2012 editions of the journal included a column called *Irrigation insights*, which featured articles supplied by the NPSI program before it was wound up. Since then there has been no activity by NPSI, which was discontinued, although its website can still be accessed.

Opposite is the *Irrigation Insights* column from the Winter 2012 edition of the journal describing how irrigators adopt and apply irrigation R&D.

IRRIGATION INSIGHTS

STUDY SHOWS IRRIGATORS ACCEPT AND ADOPT R&D TO SUIT NEEDS

Irrigators will introduce new technologies but the pace of this depends on personal circumstances, including finances, their business development aspirations and the need to test and adapt to suit operations.

THESS A finding from case studies undertaken in Merbes, Red Cliffs and Rhinowick, funded by the Victorian Department of Sustainability and Environment and the Mallee Catchment Management Authority. The exercise covers a range of enterprises and, apart from the contributions from irrigators to add to the pool of knowledge, includes an analysis of what contributes to change.

Project manager Maureen Schache, Meryl White and Linda Pollock from the Victorian Department of Primary Industries have compiled information that provides a deconstruction of what Victorian Mallee irrigators look like. Importantly, the personal comments made by irrigators combined with irrigation and production records highlight some realisation about irrigated horticulture. These include the long term effects of irrigation policies and water allocation cuts, plus the importance of ongoing practical local knowledge with research findings.

Maureen Schache believes the project answers the question that governments often ask and thus, "To our shame of R&D investment getting results."

"The answer is yes, and this is demonstrated by the irrigators in our case studies, who are change makers," she said. "But the project also demonstrates that adoption of the results of R&D investments is not always fast, for various reasons, and often when irrigators have put time into adapting technologies and knowledge to suit their circumstances the practical outcomes can be better than first expected."

Common among irrigators who participated in the project is a business approach with decisions driven by knowledge of their soils, water requirements and the

key factors that drive water use efficiency.

One of the participants, Graham Nicos, who grows tablegrapes and vinegrapes at Red Cliffs, illustrates the critical link between data and decision. He has EmviroSCAN moisture monitoring technology installed to help with timing of applications and determining amounts of water applied.

He sees water use efficiency as not being about simply cutting back on what is applied but using water appropriately.

"Productivity of quality grapes from each megallitre of water and what this means in returns is what matters," he said. "With the controls we have from soil moisture sensors we get hardly any drainage water so there is less waste and more of our inputs going into production."

His balance of 28 ha of tablegrapes and 35 ha of vinegrapes may also reflect the business approach and low as element of risk management.

While technology is adopted, the most valued asset is the region itself. The environment, he says, suits production of grapes under irrigation.

NPSI ENDS BUT INFO STILL AVAILABLE

Although the formal life of the National Program for Sustainable Irrigation (NPSI) is nearing an end, access to project reports and other information will continue to be available on the NPSI website, www.npsi.gov.au

The program is also working on a summary document for the entire NPSI research program for the benefit of partners, the irrigation sector in general and the research community.




Top: From left, Linda Pollock, Meryl White and Maureen Schache from the project team. The team behind the insights are careful in the application of research, adapting technologies and knowledge to suit their decisions.

Above: Graham Nicos, pic taken with EmviroSCAN moisture monitoring.



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Work with HAL industries to provide the opportunity for articles and reports to be made available through the journal and website/liaise with and provide articles to industry groups for reprinting

Traditionally there has been a good relationship between IAL and a number of horticulture industries which has resulted in sharing of articles for reproduction in magazines and journals. The following are examples:

Irrigation efficiency in nursery production, by John McDonald, Industry Development Manager and Steve Hart, Farm Management Systems Officer, Nursery and Garden Industry Queensland, Summer 2013 (comment from John via email – “Hello Anne, Read the article in Nov edition, thanks for the editing, etc – good job.”).

Australia’s water use and efficiencies: agriculture, golf, sportsfield, parks and recreation by Geoff Connellan. Article from a paper supplied by Australian Turfgrass Management Journal.

Pipeline Head Loss, by Rob Welke, printed in Winter edition of *Irrigation Australia* journal. Request to reproduce this article in *Turf Australia* magazine and in a newsletter to NSW turf growers.

Articles from horticulture industry personnel about HAL funded activities and projects have been featured in every edition of the journal, e.g. articles by Liz Mann (Australian Processing Tomato Research Council Inc.), John McDonald (Nursery and Garden Industry Queensland), Dr Susan Lamb (Tasmanian researcher for project VG08029 on precision irrigation for vegetables), Craig Henderson, QDAFF (project VG07023, research on the Full Stop in lettuces), Rohan Prince, DAFWA (research part funded by HAL comparing scheduling for tomatoes) and Shane Holborn, Bioscience Australia (HAL funded project on turf erosion).

Horticulture industry organisations and associations, such as the Australian Macadamia Society, Turf Australia, Nursery and Garden Industry Australia, Growcom, Ausveg, and the Australia Golf Course Superintendents Association are on the mailing list for the journal and receive a copy of each edition. As well as IAL members and horticulture associations, copies of each edition are sent to a free list that includes media, senior public servants and politicians at State and Federal level.

Provide the journal online

PDFs of each edition of the journal from 2009 can be downloaded from the IAL website. As well, page view versions are available for all editions of the journal from Spring 2013.

Evaluation

Formal evaluation of the communications activities of IAL through the journal, *Backwash and its website* has been completed in the following ways.

The first has been to evaluate reader responses about the journal and *Backwash* in a survey conducted in June 2014 and compare them to benchmark surveys completed in 2008 and 2010. The same questions were asked in each survey.

The second formal feedback process has been through the audit completed in 2012 and the third through interviews conducted with five IDOs in 2012.

Consistently positive feedback has also been received informally as comments from industry members.

2014 survey

The online survey conducted in 2014 was promoted through *Backwash* and the journal. Sixty-nine people responded, similar to the response rate for the 2008 and 2010 surveys.

Results for the three surveys are summarised in Table 5.

In summary, compared to readers surveyed in 2010, of those surveyed in 2014:

- Fewer people read the journal for an hour + and more for 30 minutes to an hour.
- Slightly more people kept the journal for a week or two (13% in 2010 compared to 17% in 2014) and 65% kept it on file for later reference (61% in 2008 and 80% in 2010).
- The same percentage thought the appearance of the journal was excellent or good, although the percentage of people who thought it was excellent increased by 14%.
- The percentage of people who rated article relevance as excellent increased (7% in 2008 and 15% in 2010 compared to 19% in 2014) while 4% rated it as poor in 2014 (10% in 2008 and 8% in 2010).
- Slightly fewer people rated it as an excellent or good source of information (73% in 2008 and 2010 and 64% in 2014).

These results are positive ones for the journal as it confirms it as a source of irrigation information for readers in the irrigation sector.

A majority of people read it for 30+ minutes, most people keep it as a reference, and most people rate article relevance as excellent or good. This is a significant endorsement of the journal as a credible source of technical information for members of the sector.

Table 5. Results of reader evaluations of *Irrigation Australia* journal (2008, 2010 and 2014).

Question	2008 Survey		2010 Survey		2014 survey	
	Number	%	Number	%	Number	%
<i>Time spent reading:</i>						
30 min. or less	14	46	15	33	26	37
30 min. – 1 hour	16	54	17	37	30	44
1 hour +			13	30	12	19
<i>How journal is read:</i>						
Skim titles			6	13	10	14
Articles of interest	29	96	38	84	52	75
Entire issue	1	4	1	7	8	11
Don't read						
<i>How long copies are kept:</i>						
A week or two	4	13	6	13	12	17
Till next issue is received	8	26	3	7	13	19
Keep on file	18	61	36	80	45	65
<i>Overall appearance:</i>						
Excellent	7	23	16	35	33	49
Good	22	73	26	58	31	45
Fair	1	4	3	7	5	7
Poor						
<i>Relevance of articles:</i>						
Excellent	2	7	7	15	13	19
Good	25	83	35	77	42	71
Fair					11	16
Poor	3	10	3	8	3	4
Undecided						
<i>Source of technical/other information on irrigation:</i>						
Excellent	4	13	2	4	11	16
Good	18	60	31	69	33	48
Fair	8	27	9	20	20	29
Poor			3	7	5	7
Undecided						

Gap analysis

The gap analysis involved two surveys conducted in June 2012 to better understand and improve its communications in the horticulture sector. One survey was of horticulture growers, the other was horticulture and irrigation industry personnel (see Appendix 2).

The vast majority (83.9%) said that having access to up-to-date irrigation information was important, very important or most important in comparison to having information on other farm activities (such as weed and pest control).

Irrigation topics in greatest demand by growers were:

- efficient ways of managing water
- system maintenance
- relationship between soil and irrigation
- system operation
- water security.

Overall, horticulture industry organisations are considered by growers as the best source of irrigation information.

Three quarters (75%) of the industry personnel surveyed said having access to up-to-date irrigation information was most important.

Irrigation topics in greatest demand by this group were:

- irrigation scheduling
- efficient ways of managing water
- equipment standards and performance e.g. results of tests and comparing performance
- training.

Overall, irrigation manufacturers (most of which are IAL members) are the most important source of information for industry personnel, followed by government agencies. Other key sources include equipment suppliers, private consultants, websites and industry organisations.

These results were incorporated into the communications plan. Because industry organisations are the most important source of irrigation information for growers, because manufacturers are the greatest source of irrigation information for industry personnel such as IDOs and because most industry personnel know about and regularly access the IAL's information resources, it was decided to ensure close linkages between IAL and industry personnel such as IDOs and the irrigation retail and manufacturing sectors. These are seen by growers as a credible source of

advice in topics such as irrigation. It was through providing practical information to this “second tier” through its website, *Irrigation Australia* journal and *Backwash* that IAL could have most impact. It was based on this decision that the communications plan was developed.

Midterm review

The midterm review, conducted in June 2013, consisted of a two-step process. The first step involved comparing the above list of key topics of interest to horticulture (growers and industry personnel, including IDOs) to articles published in the journal to ensure they are meeting these priorities.

The second stage involved interviewing five horticulture industry staff to elicit qualitative feedback on how well irrigation information produced by IAL in *Irrigation Australia* and *Backwash* and on the website meets their needs.

These interviews confirmed that IAL was seen as a credible source of information about irrigation by these people providing support for the decision to target this “second tier” of advisors in the IAL communications plan.

Implications

Funding from HAL has been critical to refocusing the content of IAL's primary communications vehicles – *Irrigation Australia* journal, Backwash monthly e-newsletter and maintaining the IAL website.

The communications audit and gap analysis identified topics growers and those advising them saw as priorities. This information was used in developing content, particularly for the journal. It was also used in developing the communications plan, where it was decided that it was more important for IAL to focus on providing information to the service sector (including IDOs) as it was this group of people growers saw as credible suppliers of information about irrigation.

The confirmation of the significance of service providers in helping to build the capacity of irrigators in Australia is not recent, but it is extremely important. With the withdrawal of government from providing extension services throughout Australia, the service sector, particularly industry organisations, the commercial network of dealers, designers, private agronomists, irrigation trainers and manufacturers, has become a critical information source for irrigators.

The midterm review was important in that it confirmed that communications content and messages developed by IAL were consistent with key irrigation topics identified by growers and the service sector.

The reader survey of the journal (2014) confirmed its credibility as a source of information about irrigation and that it had maintained the quality and relevance of content. At least part of the reason for this is the effort devoted to ensuring articles are sourced from across the irrigation sector, including from IDOs, private information providers and manufacturers.

Irrigators rely on this sector to help them choose equipment, design and install new systems and upgrade old ones, and train them in water efficient practices. By publishing relevant technical and policy information, and making this available in both hard and electronic format, the journal is playing an important and unique role in Australia's irrigation industry.

Recommendations

The following recommendations are made to ensure IAL continues to fulfil its unique role as a provider of up-to-date information about irrigation:

- 1.** Sourcing content from industry members has contributed to the relevance and credibility of the journal and the website and it is recommended that this focus on contributions from these sources be maintained.
- 2.** Because of the importance of horticulture industry organisations as providers of information about irrigation to growers, it is recommended that links that have been developed between IAL and these organisations, particularly with development officers, be maintained. This will ensure that relevant articles continue to be generated and that messages from the journal are communicated back to the commercial horticulture and amenity horticulture sectors.
- 3.** That access to copies of the journal on the IAL website through both PDF and page view formats be maintained. The IAL should compare downloads in these formats and determine whether to discontinue including PDFs as an option.
- 4.** With three evaluation surveys of the journal having been completed (2008, 2010 and 2014), IAL has a valuable record of reader feedback and perceptions. The surveys confirm that the journal has maintained its editorial and technical excellence over this period. This information should be summarised and provided to CommStrat (the publisher of the journal) to support its efforts in selling advertising. It should also be presented to potential and current advertisers as a way of confirming the credibility which the journal has in the irrigation sector.

Appendix 1. Communications Plan

Irrigation Australia Limited

Draft Horticulture Industries Communications Plan

The aim of this Horticulture Industries Communications Plan is to enhance the communication of information about improved irrigation technology and practice within Australia's horticultural industries, particularly to growers.

The plan provides practical strategies for building on its current suite of communication services and recommends developing collaborative relationships with Peak Industry Bodies from horticulture. The existing communication resources, including: Irrigation Australia Limited (IAL) website; *Irrigation Essentials* information portal; housing the CRCIF library; quarterly technical journal *Irrigation Australia*; monthly e newsletter *Backwash*; and conferences, training programs and seminars will form the basis of future communication resources which can be tailored for particular audiences and/or industries .

Methodology

To benchmark the existing effectiveness of IAL communications services with horticulture, an audit was undertaken in June 2012. This involved two surveys; one of horticultural growers (or producers), the other of those who service these growers, e.g. Industry Development Officers (IDOs), irrigation manufacturers, resellers and designers. The surveys were administered through Survey Monkey.

Emails inviting members of Horticulture Australia Limited's (HAL) industry network to complete an industry survey were distributed by (HAL). The email also asked industry members to forward the invite to growers to complete the grower survey. IAL distributed the email to irrigation equipment manufacturers, reseller networks e.g. Irrigear and ProWater, and selected consultants who work with horticulture producers.

The results of both surveys were analysed, see Appendix 2, and this information was used to develop a communications plan based on the Smart Chart 3.0 template (www.smartchart.org). The Smart Chart 3.0 process is:

1. Program decisions (broad goal, objective, decision maker)
2. Context (internal and external scans and define position)
3. Strategic choices (audience, readiness, core concerns, theme, message and messenger)
4. Communications activities (tactics, timeline, assignments and budget)
5. Measurements of success

6. Final reality check.

Program Decisions

Broad Goal

The long term goal of the communication plan is:

Irrigation Australia Limited (IAL) is highly regarded and widely recognised within horticulture industries as the provider of reliable, relevant and up-to-date information on best practice irrigation technology and water management.

Objective

The objectives for the next 12 months in accomplishing this goal are twofold:

- Developing a partnership between IAL and the Horticulture Peak Industry Bodies (PIBs) that is not reliant on Horticulture Australia Limited (HAL).
- Tailoring information about irrigation technology and water management to ensure its relevance and usefulness to the horticulture industries and their irrigation equipment and services suppliers/retailers.

Decision Makers

To achieve the objectives above, it will be necessary to enlist the support of a range of decision makers in horticulture and the irrigation industry to give credibility to IAL as a provider of information about best practice irrigation technology and management.

In the first instance, this means Horticulture PIB CEOs agreeing to a partnership with IAL. This partnership can either be arranged informally through agreement between the IAL CEO and PIB CEOs or, if preferred, memorandums of understanding that outline the aims of the partnership and the process for delivering information.

After this step is completed, an efficient process will be established so that Horticulture PIB Industry Development Professionals (IDPs) can access, use and be a conduit for irrigation information provided by IAL.

On the information “push” side, IAL will continue to enlist the support of decision makers in the irrigation equipment and services supplier/retailer sector to ensure that they access, use and promote horticulture irrigation information provided by IAL through its communication products. This sector has been identified in the survey done as part of this project as an important source of information about irrigation for horticulture.

Finally, horticulture growers (irrigators) will be encouraged to access and use the irrigation

information provided by Horticulture PIBs and irrigation suppliers/retailers.

Context

To develop the communications, it is important to establish the context by identifying internal and external assets and challenges that could affect the successful implementation of the communications plan.

Internal assets and challenges

IAL's key assets that will underpin delivery of the plan are as follows:

- IAL already has a suit of established communication services (identified previously).
- These established communication services are reasonably well recognised and used by horticulture and irrigation industry personnel (non-growers).
- IAL CEO has knowledge of and experience in the horticulture sector.
- IAL employs an experienced and capable editor for *Irrigation Australia* journal and has other competent staff to support provision of information e.g. an IDO in WA and a training manager based in Sydney.
- Extensive and unique links with irrigation equipment and services suppliers/retailers, most of which are members of IAL. For example, senior managers with ProWater and Water Dynamics are directors of the IAL national board.

There are two key challenges to IAL successfully implementing the communications plan.

- IAL is a member-based organisation that relies in part on membership fees to implement its projects. This means that there are limited resources to devote to implementing the plan.
- Other than the *Irrigation Australia* journal, IAL generally does not have history or policy of separating and providing horticulture specific irrigation information but rather has a focus on technology specific information e.g. drip irrigation.

External assets and challenges

A number of issues work in favour of IAL successfully implementing the plan, in particular:

- There is a demand for information on best practice irrigation and water use efficiency from the horticulture sector.
- IAL has a contract with Horticulture Australia Limited (HAL) to provide information on irrigation and water use efficiency for horticulture (project code HG10020).
- HAL can be a conduit to the numerous (about 40) horticulture industries and their PIBs.
- Most PIBs have a mix of established communication services, including regular newsletter/magazines, e-newsletters and websites.
- IAL members include equipment and services suppliers and retailers who already interact with the horticulture sector.

The key challenges, which have been confirmed in the survey, are:

- Most horticulture growers are not aware of IAL or its established communication services.
- Some PIBs and their industry development professionals have little or no awareness of IAL or its established communication resources.
- Most horticulture growers believe PIBs are the best source of irrigation information.
- PIBs usually have a desire to be the primary conduit of relevant information to the growers they represent.

Define current position

The implications contained in the context have identified two underlying factors that can support the implementation of the communication plan.

1. There is support for IAL to provide best practice irrigation information to horticulture, demonstrated by the contract with HAL.
2. There are options for IAL to provide credible, tailored technical information from its membership of manufacturers, reseller and service providers. Having direct access to a wide range of resources of significant expertise in the irrigation sector is unique.

From a communications perspective this means that resources don't need to be expended on developing sources of information and expertise and that, because of HAL's contract with IAL, there is general agreement for IAL to provide best practice irrigation information to the horticulture sector. These provide a significant favourable context for achieving the communication objectives.

Strategic Choices

Audience

The audience for this communication plan are the decision makers and people who can influence the decision makers. These different audience groups are in a different state of readiness, have different concerns and, therefore, require different messages.

The audience groups are:

- HAL staff (specifically Industry Service Managers as well as Peter Melville – Portfolio Manager Natural Resources and Climate Change, Alison Anderson – Portfolio Manager – Industry Development, and Jo McCloskey- Portfolio manager Industry Communications)
- Horticulture PIB CEOs
- Horticulture PIB Industry Development Professionals (IDPs)

- Horticulture irrigation suppliers/retailers
- Horticulture irrigators/growers

Readiness

The audience groups are in a different stage of awareness, willingness to listen and likely level of support for the communication objectives. Broadly speaking, there are three stages of readiness.

Stage 1, known as ‘sharing knowledge’ stage, is where people need basic knowledge on the issue before they can consider acting on it. **Stage 2** or ‘building will’ stage involves overcoming barriers and requires acknowledging people’s concerns and showing that benefits outweigh their perceived risks. ‘Reinforcing action’ is **stage 3** and is about rewarding and acknowledging any action taken that supports the communication objectives.

HAL’s Industry Service Managers generally fall into stage 1 and will require basic knowledge to support the communication objectives. Other HAL staff - Peter Melville, Alison Anderson and Jo McCloskey - fall into stage 2 and will require reinforcement of the benefits of what is being proposed.

Most horticulture PIB CEOs are considered to be at stage 1 and they may be unaware of the existing IAL communication services; a minority are at stage 2. Most, if not all, PIB CEOs will have concerns over any possible diminution of the PIB role in providing industry with relevant and useful business information.

The PIB Industry Development Professionals (IDPs) contain a mix of stages 1 and 2. Some of the IDPs already use IAL communication services, while others may only vaguely be aware of IAL.

Most horticulture irrigation suppliers/retailers could be considered stage 3 and will understand the benefits of providing horticulture specific irrigation information to their horticulture customers. They should receive recognition and positive reinforcement when they provide horticulture specific information.

Given that most horticulture irrigators/growers may not be aware of IAL information services, they are considered to be at stage 1.

Core Concerns

For a communication plan to be effective, an understanding of the issue from the audience perspective is required. This involves tapping into their values, connecting with their existing beliefs and identifying any barriers that need to be overcome.

HAL Industry Service Managers work closely with and can influence PIB CEOs and, to a lesser extent, IDPs. Industry Service Managers need to provide PIBs with information and ideas that

benefit the PIB and the industry it represents. They can play a pivotal role in assuring PIB CEOs that IAL is not trying to promote itself at their expense and can actually enhance the industry information services already being provided by the PIB.

The HAL Portfolio Managers, Peter Melville, Alison Anderson and Jo McCloskey, have leadership roles in natural resource management, industry development and industry communications, respectively. They provide value by playing a key role in developing innovative and more effective and efficient strategies and/or processes relevant to their portfolios. HAL Portfolio Managers can gain credit for initiating and/or supporting an initiative that puts industry in direct contact with and uses resources from the commercial irrigation sector and improves information exchange within horticulture as a whole.

Horticulture PIB CEOs are very protective of their status and role in providing relevant industry or business information to the industry they represent. They believe the PIB must be the main provider of such information and be the key representative body for their industry. They are unlikely to agree with any initiative that may undermine this belief. They want to feel 'in control' over any arrangement that involves communicating with their industry. As a result, they will need to be convinced that any arrangement will be interpreted as increasing their status and role within the industry. Increasing the access to reliable, relevant and up-to-date information on irrigation technology and water management at no extra cost to the PIB is an initiative for which they should receive positive recognition.

There are about 87 Industry Development Professionals (IDPs) and the vast majority are employed by the 40 PIBs. They often have multi layered management structures as well as complex and sometimes conflicting demands. They are often relied upon as the 'go-to person' for all types of industry and business information. They are likely to reject any request that is perceived as advocating the benefits of another organisation over their own. Rather, they will need to be convinced that any partnership with IAL will **not** involve any extra work or commitments but will help them achieve their **existing** work plans. They could increase their standing with and value to growers and industry by being seen as having enhanced access to relevant, commercial information and networks.

Horticulture irrigation suppliers/retailers already understand the benefits of ensuring their horticulture customers that they have relevant horticulture irrigation information and experience. A concern, if they have a large non horticulture clientele, could be the perception of being a specialist horticulture irrigation service provider. However, suppliers and retailers would appreciate receiving recognition for supporting the horticulture sector, particularly if they are located in a horticulture producing area.

Horticulture irrigators/growers are generally unaware of IAL or its existing communication services. Generally, they recognise the need for reliable, relevant and up-to-date information on irrigation technology and water management. However, they may not be aware of the potential

efficiency and long term profitability gains from improved irrigation infrastructure and/or management. As a result, they are not always receptive to information that may be relevant to them. They want easy access to information and often prefer to be 'spoon fed' from an IDO or similar advisor. They may not see any benefit in dealing directly with and/or using services from IAL.

Theme

The theme is the big picture that is used to convey and develop messages from for the audience on the issue. It helps define the approach and conversations with audiences and key decision makers. The themes for this communication plan are:

PIBs currently provide a range of well recognised communication and extension services that includes information on irrigation.

Horticulture growers require reliable, relevant and up-to-date irrigation information to ensure long-term profitability and operational efficiency.

IAL can package and tailor irrigation information for use by PIBs in their existing communication and extension services. The overriding flavour of this information will be "Efficient ways of managing water" and "Irrigation information from suppliers who understand commercial realities".

Horticulture irrigation suppliers/retailers can gain recognition for offering tailored horticulture information that will attract and increase patronage from horticulture customers.

Message

The key points to make with the target audiences should align with their values, overcome (not reinforce) any barriers, offer enough benefit to overcome risks, describe a rewarding vision and have a consistent theme. Therefore, the key messages for this communication plan include:

- Water use and irrigation efficiency by horticulture growers directly affects farming sustainability and profitability.
- The importance of water use and irrigation efficiency is increasing and the cost of water will continue to rise.
- Water use and efficiency are related to energy use, e.g. pumping, which is an issue that will become more important in the future.
- Because growers mainly rely on PIBs for irrigation information, IAL is an important source of regular, reliable, relevant and up-to-date irrigation information for them to use in their existing communication and extension services.
- As a result of the existing three-year HAL project HG10020, IAL is an important source of information for PIBs, providing tailored 'Efficient ways of managing water' information, as well as a connection with suppliers who understand commercial realities.

- Horticulture irrigation suppliers/retailers can enhance their recognition as a service provider to horticulture and increase patronage by providing horticulture irrigation information created by IAL.

Messengers

Research shows the importance ensuring the messenger is credible with the audience. Most people trust their peers as the best source of information.

For this communication plan, key messengers from IAL include: the CEO; Editor of *Irrigation Australia*, Anne Currey; Irrigation IDO in WA, Tracy Martin; and IAL Training Coordinator, Deb Atkins/Bill Yiasoumi.

Key messengers from HAL include the Industry Services Managers (Warwick Scherf, Craig Perring, Astrid Hughes, Jane Wightman, Bradley Mills, Will Gordon, Corey Fitzpatrick, Rowena Norris) and the relevant Portfolio Managers: Peter Melville - Natural Resource Management; Alison Anderson – Industry Development; and Jo McCloskey - Industry Communications.

Key messengers from the PIBs include the CEOs and the Industry Development Professionals that they nominate, such as Industry Development Officers or Communication Managers.

Measurements of Success

Once the communication plan is implemented, monitoring and evaluation is vital to measuring its success and assess the need for modification and/or additional tactics. These measures can be a mix of outputs and outcomes. Outputs can be considered a measure of effort while outcomes are changes that occur as a result of these efforts.

Outputs

The first output measure will be the level of agreement from PIB CEOs from the offer to provide targeted horticulture information for them to use in their existing communication services. The next output measure will be the number of request from PIBs for IAL communication services, such as:

- extra copies of journal to be available at their counter
- articles provided from *Irrigation Australia* for reprinting in magazines/newsletters and/or website
- referrals provided to locate speakers/presenters on water use efficiency/irrigation
- links from PIB websites to a web version of *Irrigation Australia* and its level of use.

Additional measures include the level of interest from irrigation suppliers/retailers for horticulture focused irrigation information created by IAL, including: extra copies of *Irrigation*

Australia placed on counters.

Finally, the number of articles on efficient ways of managing water generated from IAL members such as equipment manufacturers (e.g. Hunter Irrigation, Toro and Nelson), contractors, and designers and Government agencies can be used as an output measure.

Outcomes

As a result of the outputs listed above, an increased level of activity in the following can demonstrate progress toward the communication objective:

- contact (phone, email, web) from horticulture growers and PIB staff to IAL
- use of IAL communication services by PIBs and horticulture growers
- positive feedback from PIBs and HAL to IAL
- positive feedback from horticulture suppliers/retailers to IAL
- improved efficiencies in on farm horticulture irrigation.

Communications Activities

Tactics, Timeline, Assignments and Budget Required

All communication plans require a description of activities to be done, by whom, when and what additional resources are required.

Tactic	When	Who	Resources
Ensure IAL Board support for this communication plan	July 2012	CEO	
Submit milestone report 105 for project HG10020 to HAL	July 2012	Anne Currey	
Discuss the communications plan with Peter Melville and Jo McCloskey from HAL. Gain their feedback and any suggestions. Ask them the best way to engage with HAL Industry Services Managers to ensure their awareness of the initiative and clarify support.	July 2012	CEO, Anne Currey	30 to 60 minute phone conversation
Engage with HAL Industry Services Managers to ensure their awareness of the initiative, gain their feedback and clarify their level of support.	July 2012	To be determined	
Ring the 10 largest PIB CEO and offer, as part of HAL project HG10020, to provide targeted horticulture information on irrigation for them to use in their existing communication and/or extension services. Ask for a relevant PIB contact (such as an IDO or Communications Manager) to whom IAL can provide examples of information services and discuss opportunities in further detail. Note their responses. Consideration will be given to contacting more PIBs after review of this initial group.	August – September 2012	CEO	20 phone calls, approximately 15 minutes each
Follow up with the PIB nominated contact and discuss what IAL services could be used by the	October _	Anne Currey	20 phone calls,

<p>PIB and any relevant production deadlines. These services could include:</p> <ul style="list-style-type: none"> • Extra copies of journal to be available at their counter • Supply of articles from <i>Irrigation Australia Journal</i> for reprinting in their magazines/newsletters or uploading onto websites • An offer to locate speakers/presenters on water use efficiency/irrigation for industry conferences and events • Creation of a <i>Horticulture Irrigation Email Alert</i> that advises the recipient of horticulture relevant information and articles on the IAL website • Upgrade to a page-view version of <i>Irrigation Australia</i> which can be linked to the PIB website • An biannual telephone meeting with interested PIBs to develop leads for potential articles e.g. identifying issues for horticulture growers that could be dealt with in <i>Irrigation Australia</i> or other IAL services using the resources of its members, and nominating horticulture growers who would be case studies for good irrigation practice. Results of the June 2012 survey can help guide this discussion. <p>Again, ensure the contact is aware of the range of existing communications and the benefit IAL can provide the PIB and growers through the provision of reliable, relevant and up-to-date irrigation information.</p>	<p>November 2012</p>	<p>&/or CEO</p>	<p>approximately 30 minutes each, followed by emails.</p> <p>2-hour, biannual telephone conference call with interested PIB representatives</p>
<p>Continue to enlist the services of IAL members in developing technical information directly relevant to horticulture.</p>	<p>August 2012 - ongoing</p>	<p>Anne Currey, CEO, with support from IAL Board</p>	<p>Already built into Editor time allocation</p>
<p>Test the concept of having copies of the journal available on reseller counters and of the industry contributing to developing an annual edition of the journal that focuses on horticulture</p>	<p>November 2012</p>	<p>Anne Currey, CEO with support of IAL Board</p>	

Develop an annual work plan that prioritises horticulture irrigation information and evaluates additional ways of distributing this information e.g. through IAL members who are irrigation suppliers/retailers. Documented feedback from all tactics listed above will be required.

Potential work plan activities include: publish extra copies of the journal (number to be determined); slightly modify and provide articles to PIBs (number to be determined); locate speakers/presenters on water use efficiency/irrigation for industry conferences and events; provide a web version of *Irrigation Australia* which can be linked to PIB websites; investigate the concept of an annual horticulture special edition of *Irrigation Australia*.

November
2012

Anne Currey,
Ian Atkinson,
Trevor le Breton
and an IAL
Board member
who has an
affinity with
horticulture

Five days for
preparation and
planning plus
any ongoing and
operational
costs, such as
additional
printing and
distribution

Appendix 2. Irrigation Communications Survey Results – June 2012

Irrigation Australia Limited (IAL) provides information and training on efficient irrigation practices throughout the rural sector, particularly within horticulture.

In June 2012 IAL conducted two extensive surveys to better understand and improve its communications within the horticulture sector. One survey was of horticulture growers, the other was horticulture and irrigation industry personnel.

Key Findings

The irrigation topics in greatest demand by growers are: Efficient ways of managing water; System maintenance; Relationship between soil and irrigation; System operation; and Water security.

The irrigation topics in greatest demand by industry personnel are: Irrigation scheduling; Efficient ways of managing water; Equipment standards and performance e.g. results of tests and comparing performance; and training.

Overall, horticulture industry organisations are considered by growers as the best source of irrigation information. Therefore, IAL could work together with and provide horticulture industry organisations with up-to-date irrigation information, especially on efficient ways of managing water. The information needs to be packaged for delivery primarily in a web based format but also for inclusion in journals, magazines and electronic newsletters.

IAL should gather and package key information from manufacturers and government agencies that is relevant for industry personnel. This information should be promoted and delivered across all of IALs existing information services, except for the Essentials Search Engine. Further investigation is required to find out why the Essentials Search Engine is rarely used.

Grower Survey Result Summary

The majority of the farms operated by the grower respondents were located in Queensland and South Australia, followed by Victoria, NSW and Western Australia. A very high proportion (52.9%), were involved in the turf industry followed by the macadamia, nut and fruit industries.

The vast majority (83.9%) said that having access to up-to-date irrigation information was important, very important or most important in comparison to having information on other farm activities (such as weed and pest control).

The most important irrigation topic to have up to date information on is 'Efficient ways of managing water'. From most to least important, the complete list of irrigation topics requested by growers is:

- Efficient ways of managing water
- System maintenance
- Relationship between soil and irrigation
- System operation

- Water security
- Irrigation scheduling
- Managing allocations
- Developments on water policy and implications
- System design
- Training
- Equipment performance e.g. results of tests and comparing performance
- Equipment standards
- Irrigation and climate change

Most growers (71%) believe it is easy or very easy to find relevant irrigation information even though 61.3% said they do not have a particular source of irrigation information. Where a particular source of irrigation information was nominated, the internet and local experts/industry representatives were most popular.

Overall, Industry Organisations are considered to be the best source of irrigation information, followed by Equipment Suppliers.

Websites are the most regularly used medium for accessing technical information with 67.9% of growers accessing websites either daily or every few days. This is followed by printed media (books, journals, magazines, newspapers) and email newsletter most commonly being accessed every few days, weekly or monthly by the vast majority of growers.

The majority of growers are either not aware of Irrigation Australia's information sources or never use them. A suggestion for improved IAL information services was for smart phone applications including irrigation calculators, predictors as well as direct links to local weather data.

Industry Personnel Survey Result Summary

The majority of horticulture and irrigation industry personnel respondents were Irrigation Equipment Manufacturers and Suppliers/Retailers. This was followed by Industry Development Officers/Managers (IDOs/IDMs). Most were located in Victoria, followed by South Australia and Queensland. There are a broad range of industries represented by the respondents, with vegetables, nursery, apple & pear, turf and citrus being most commonly represented.

Three quarters (75%) said having access to up-to-date irrigation information was most important.

The most important irrigation topic to have up to date information on is 'Irrigation scheduling' closely followed by 'Efficient ways of managing water', 'Equipment standards and performance e.g. results of tests and comparing performance' and 'Training'.

From most to least important, the complete list of irrigation topics requested by industry personnel is:

- Irrigation scheduling
- Efficient ways of managing water
- Equipment standards and performance e.g. results of tests and comparing performance

- Training
- System operation and maintenance
- System design
- Developments on water policy and implications
- Relationship between soil and irrigation
- Water security
- Irrigation and climate change
- Managing allocations

The majority of industry personnel believe growers are either knowledgeable or very knowledgeable on 'Developments on water policy and implications' (52.9%) and 'Relationships between soil and irrigation' (56.3%).

However, most industry personnel believe growers are either 'Not at all knowledgeable' or 'A bit knowledgeable' on the following irrigation topics:

- Irrigation scheduling
- Efficient ways of managing water
- Equipment standards and performance e.g. results of tests and comparing performance
- Training
- System operation and maintenance
- System design
- Water security
- Irrigation and climate change
- Managing allocations

Just over half (51.5%) of industry personnel believe it is easy or very easy to access relevant information about irrigation and 54.3% said they do not have a particular source of irrigation information. Where a particular source of irrigation information was nominated, the internet and online services were the most popular.

Overall, Irrigation Manufacturers are the greatest source of information for industry personnel, followed by Government Agencies. Other key sources include Equipment Suppliers, Private Consultants, Websites and Industry Organisations.

Websites are the most regularly used medium for accessing technical information with 81.8% of industry personnel accessing websites either daily or every few days. This is followed by 'Printed media (books, journals, magazines, newspapers)', 'Email newsletters' and 'Videos on websites', respectively, being accessed daily, every few days, weekly or monthly by the vast majority of industry personnel. You tube is also used regularly by the majority of industry personnel to access technical information.

The majority of industry personnel regularly use all of IALs information sources, except for the 'Essentials Search Engine'. Suggestions for improved IAL information services include: Collating information and making it easily available; An improved website and email alerts; working together with Industry Organisations and their extension platforms.

Horticulture Grower Survey Results

Q1: Farm location

The state my farm is located in is	Response Percent	Response Count
NSW	14.7%	5
ACT	0.0%	0
Queensland	26.5%	9
Victoria	17.6%	6
Tasmania	2.9%	1
South Australia	23.5%	8
Western Australia	14.7%	5
Northern Territory	0.0%	0
<i>answered question</i>		34
<i>skipped question</i>		0

Q2: Horticultural industries involved in

The horticultural industry/ies and I am involved in is/are	Response Percent	Response Count
Nursery	5.9%	2
Vegetables	8.8%	3
Apples and/or pears	2.9%	1
Avocados	2.9%	1
Bananas	2.9%	1
Other tropical fruit	2.9%	1
Other fruit	14.7%	5
Citrus	5.9%	2
Macadamias	17.6%	6
Turf	52.9%	18
Nuts	14.7%	5

Other	-	5
<i>answered question</i>		34
<i>skipped question</i>		0

Other industries mentioned: Golf Course, Golf, Grape Vines/Almonds, Pomegranate/Quince/Feijoa, Blueberry.

Q3: Importance of having access to up-to-date irrigation information

How important to you is having access to up-to-date information about irrigation in comparison to information about other activities on the farm, e.g. weed and pest control, harvest?	Response Percent	Response Count
Most important	19.4%	6
Very important	25.8%	8
Important	38.7%	12
Somewhat important	9.7%	3
Least important	6.5%	2
<i>answered question</i>		31
<i>skipped question</i>		3

Q4: Importance of having up-to-date information on specific irrigation topics

How important is having up-to-date information on the following irrigation topics? (Listed from most to least important)	Relative Importance (average)	Response Count
Efficient ways of managing water	1.179	30
System maintenance	1.345	30
Relationship between soil and irrigation	1.393	29
System operation	1.400	31
Water security	1.464	30
Irrigation scheduling	1.517	30
Managing allocations	1.538	30
Developments on water policy and implications	1.679	30
System design	1.690	30
Training	1.793	30
Equipment performance e.g. results of tests and comparing performance	1.857	29
Equipment standards	1.862	30
Irrigation and climate change	1.889	30
<i>answered question</i>		31
<i>skipped question</i>		3

Q5: Ease of finding relevant information about irrigation

In general, how easy is it to find information about irrigation that is relevant to your needs?	Response Percent	Response Count
Very easy	12.9%	4
Easy	58.1%	18
Somewhat difficult	22.6%	7
Very difficult	6.5%	2

Not applicable	0.0%	0
<i>answered question</i>		31
<i>skipped question</i>		3

Q6: Regular sources of irrigation information

Is there a particular source of irrigation information that you find yourself using regularly?	Response Percent	Response Count
Yes	38.7%	12
No	61.3%	19
<i>answered question</i>		31
<i>skipped question</i>		3

Particular sources of information mentioned: Internet, local experts etc; Local Industry Reps; internet or suppliers recommendations; It is all important; internet; National Support Network. Toro; evap readings; Equipment dealers, peers, advertising; Alan.

Q7: Best Sources of information for irrigation topics

What are the best sources of information for each of these topics (choose 1 or 2 for each topic)?	Equipment supplier	Government agent	Private consultant	Other irrigators	Industry organisations	Websites	Irrigation publications	Response Count
System design	71.4%	3.6%	46.4%	3.6%	14.3%	0.0%	0.0%	28
System operation and maintenance	81.5%	0.0%	7.4%	18.5%	33.3%	7.4%	0.0%	27
Irrigation scheduling	44.4%	0.0%	22.2%	18.5%	48.1%	3.7%	7.4%	27
Equipment standards and performance e.g. results of tests comparing performance	44.8%	3.4%	17.2%	17.2%	20.7%	10.3%	17.2%	29
Relationship between soil and irrigation	21.4%	7.1%	28.6%	3.6%	57.1%	17.9%	17.9%	28
Efficient ways of managing water	28.6%	0.0%	28.6%	25.0%	64.3%	7.1%	14.3%	28
Managing allocations and water security	3.6%	28.6%	21.4%	17.9%	42.9%	10.7%	7.1%	28
Developments on water policy and implications	3.7%	51.9%	11.1%	11.1%	48.1%	22.2%	11.1%	27
Irrigation and climate change	7.7%	15.4%	7.7%	7.7%	46.2%	30.8%	26.9%	26
Trainng	48.1%	3.7%	11.1%	3.7%	59.3%	3.7%	11.1%	27
All topics	24.6%	7.5%	13.8%	8.8%	29.9%	7.5%	7.8%	29
<i>answered question</i>								29
<i>skipped question</i>								5

Q8: Regularity of certain mediums for technical information

How often do you use the following mediums for accessing technical information to do with your farm?	Daily	Every few days	Weekly	Monthly	Rarely	Never	Response Count
Websites	28.6%	39.3%	14.3%	14.3%	3.6%	0.0%	28
Videos on websites	0.0%	0.0%	7.7%	34.6%	46.2%	11.5%	26
Books, journals, magazines, newspapers	0.0%	25.0%	21.4%	39.3%	14.3%	0.0%	28
Email newsletters	3.6%	21.4%	25.0%	28.6%	21.4%	0.0%	28
Internet forums and blogs	0.0%	7.1%	7.1%	32.1%	17.9%	35.7%	28
Facebook	0.0%	0.0%	3.6%	7.1%	7.1%	82.1%	28
Twitter	3.4%	0.0%	0.0%	6.9%	3.4%	86.2%	29
You Tube	0.0%	0.0%	0.0%	17.9%	39.3%	42.9%	28
<i>answered question</i>							29
<i>skipped question</i>							5

Q9: Regularity of information services provided by Irrigation Australia Ltd

How often do you use the following information sources and services provided by Irrigation Australia Ltd?	Often	Sometimes	Never	Not aware of Irrigation Australia's information sources	Response Count
Irrigation Australia journal	3.7%	29.6%	29.6%	37.0%	27
Irrigation Australia's monthly enewsletter, Backwash	3.7%	14.8%	40.7%	40.7%	27
Irrigation Australia's website www.irrigation.org.au	0.0%	30.8%	46.2%	23.1%	26
Irrigation Australia's Irrigation Essentials Search Engine	0.0%	7.7%	53.8%	38.5%	26
Irrigation Australia training courses or workshops	0.0%	18.5%	51.9%	29.6%	27
Irrigation Australia Conference and Exhibition http://online.saneevent.com.au/ial2012/	0.0%	8.0%	56.0%	36.0%	25
<i>answered question</i>					27
<i>skipped question</i>					7

Q10: Suggestions about how IAL can provide irrigation information or topics

iPhone app with info updates and useful calculators, predictors. With direct links to specific weather pages for local ET, weather stations etc. It could even have an inbuilt format where a user could log in with crop / hort activity and soil type, and the app would give specific daily updates for irrigation requirements. The app user could then load daily actuals back in and a closer relationship would be built over time, this would become very powerful. The trend info could then be used by IAL to make more informed choices for users and the info could help with lobbying Govt through a range of aspects. A mapping format could be used with the iphone gps technology, the user could then load in soil type info and water use would build up over time. The trend info that would arise would help irrigation companies know their customers better and target info to specific types of users.

More training for staff in carrying out irrigation audits to see if your system is running correctly. A set form on carrying out a audit would be beneficial

Send information to AGSCA to publicise to members

Horticulture Industry Survey Results

Q1: Role in Industry

My role is	Response Percent	Response Count
Industry development officer/manager	20.0%	7
Irrigation equipment supplier/retailer	25.7%	9
Irrigation equipment manufacturer	28.6%	10
Irrigation designer	14.3%	5
Irrigation trainer	11.4%	4
Irrigation extension/research	17.1%	6
Water supply company staff member	2.9%	1
Other	-	3
<i>answered question</i>		35
<i>skipped question</i>		2

Other roles include: focus on soil / plant / water relationships; communications officer; consultant

Q2: Location

I am based in	Response Percent	Response Count
NSW	18.9%	7
ACT	2.7%	1
Queensland	18.9%	7
Victoria	29.7%	11
Tasmania	2.7%	1
South Australia	21.6%	8
Western Australia	5.4%	2
Northern Territory	0.0%	0
<i>answered question</i>		37
<i>skipped question</i>		0

Q3: Horticultural industries involved in

The horticultural industry/ies and I am involved in or service is/are	Response Percent	Response Count
Nursery	62.2%	23
Vegetables	64.9%	24
Apples and/or pears	59.5%	22
Avocados	48.6%	18
Bananas	29.7%	11
Other tropical fruit	27.0%	10
Other fruit	43.2%	16
Citrus	51.4%	19
Macadamias	24.3%	9
Turf	59.5%	22
Nuts	45.9%	17
Other	-	4
<i>answered question</i>		37
<i>skipped question</i>		0

Other industries mentioned: Hydroponics, Lifestyle Hort, Design All, All fruit

Q4: Importance of having access to up-to-date irrigation information

Thinking about your job, how important is having access to up-to-date irrigation information?	Response Percent	Response Count
Most important	75.0%	27
Very important	16.7%	6
Important	8.3%	3
Somewhat important	0.0%	0
Least important	0.0%	0
<i>answered question</i>		36
<i>skipped question</i>		1

Q5: Importance of having up-to-date information on specific irrigation topics

How important is having up-to-date information on the following irrigation topics? (Listed from most to least important)	Relative Importance (average)	Response Count
Irrigation scheduling	1.412	35
Efficient ways of managing water	1.441	35
Equipment standards and performance e.g. results of tests and comparing performance	1.441	35
Training	1.471	35
System operation and maintenance	1.559	35
System design	1.588	36
Developments on water policy and implications	1.588	35
Relationship between soil and irrigation	1.618	35
Water security	1.618	35
Irrigation and climate change	1.765	35
Managing allocations	1.938	36
<i>answered question</i>		36
<i>skipped question</i>		1

Q6: How knowledgeable are growers on specific irrigation topics?

In general, how knowledgeable would you say the growers you work with are about these irrigation topics?	Very Knowledgeable	Knowledgeable	A bit knowledgeable	Not at all knowledgeable	Don't know/not applicable	Response Count
Irrigation scheduling	0.0%	32.4%	58.8%	8.8%	0.0%	34
Efficient ways of managing water	5.9%	38.2%	50.0%	5.9%	0.0%	34
Equipment standards and performance e.g. results of tests and comparing performance	3.0%	39.4%	45.5%	12.1%	0.0%	33
Training	0.0%	20.0%	42.9%	34.3%	2.9%	35
System operation and maintenance	5.9%	38.2%	41.2%	11.8%	2.9%	34
System design	2.9%	41.2%	44.1%	11.8%	0.0%	34
Developments on water policy and implications	14.7%	38.2%	17.6%	23.5%	5.9%	34
Relationship between soil and irrigation	12.5%	43.8%	18.8%	21.9%	3.1%	32
Water security	2.9%	20.6%	58.8%	14.7%	2.9%	34
Irrigation and climate change	2.9%	20.6%	52.9%	17.6%	5.9%	34
Managing allocations	0.0%	11.4%	65.7%	17.1%	5.7%	35
All Topics	4.6%	31.2%	45.4%	16.1%	2.7%	35
<i>answered question</i>						35
<i>skipped question</i>						2

Q7: Ease of finding relevant information about irrigation

In general, how easy is it to find information about irrigation that is relevant to your needs?	Response Percent	Response Count
Very easy	8.6%	3
Easy	42.9%	15
Somewhat difficult	40.0%	14
Very difficult	8.6%	3
Not applicable	0.0%	0
<i>answered question</i>		35
<i>skipped question</i>		2

Q8: Regular sources of irrigation information

Is there a particular source of irrigation information that you find yourself using regularly?	Response Percent	Response Count
Yes	45.7%	16
No	54.3%	19
<i>answered question</i>		35
<i>skipped question</i>		2

Particular sources of information mentioned: many various publications from water authorities, govt agencies and IAL; product manuals/internet; www; web sites; Online product research; internet; Various, includes international journals and Farm Online news service; internal company documents; Hydrocalc by Netafim; The Overflow; Manufactureres, IAL & Internet; allocation information; Horticulture Water Initiative, IAL Magazine; www.fao.org Kc values and computation + US Universities; Rubus Integrated Fruit Production Manual module on irrigation; NPSI, CRC IF, IAL

Q9: Best Sources of information for irrigation topics

What are the best sources of information for each of these topics (choose 1 or 2 for each topic)?	Equipment supplier	Manufacturer	Government agent	Private consultant	Other irrigators	Industry organisations	Websites	Irrigation publications	Response Count
System design	44.1%	55.9%	5.9%	29.4%	0.0%	11.8%	11.8%	14.7%	34
System operation and maintenance	54.5%	69.7%	6.1%	9.1%	3.0%	9.1%	18.2%	9.1%	33
Irrigation scheduling	28.1%	28.1%	28.1%	43.8%	6.3%	18.8%	18.8%	12.5%	32
Equipment standards and performance e.g. results of tests comparing performance	34.4%	68.8%	12.5%	6.3%	6.3%	18.8%	18.8%	12.5%	32
Relationship between soil and irrigation	15.6%	18.8%	34.4%	46.9%	9.4%	9.4%	37.5%	21.9%	32
Efficient ways of managing water	13.3%	36.7%	30.0%	36.7%	20.0%	20.0%	20.0%	30.0%	30
Managing allocations and water security	6.3%	3.1%	59.4%	12.5%	21.9%	31.3%	21.9%	12.5%	32
Developments on water policy and implications	3.0%	6.1%	66.7%	12.1%	15.2%	30.3%	18.2%	21.2%	33
Irrigation and climate change	6.7%	3.3%	53.3%	10.0%	0.0%	36.7%	43.3%	30.0%	30
Training	18.8%	46.9%	25.0%	21.9%	3.1%	37.5%	18.8%	28.1%	32
All topics	12.4%	18.5%	17.3%	12.4%	4.6%	12.1%	12.2%	10.4%	34
answered question									34
skipped question									3

Other sources mentioned: should have retailer/ farm advisor as well; colleagues

Q10: Regularity of certain mediums for technical information

How often do you use the following mediums for accessing technical information to do with your job?	Daily	Every few days	Weekly	Monthly	Rarely	Never	Response Count
Websites	60.6%	21.2%	12.1%	6.1%	0.0%	0.0%	33
Videos on websites	12.1%	24.2%	2%	21.2%	21.2%	0.0%	33
Books, journals, magazines, newspapers	14.7%	20.6%	26.5	32.4%	5.9%	0.0%	34
Email newsletters	15.2%	12.1%	27.3%	30.3%	12.1%	3.0%	33
Internet forums and blogs	6.1%	9.1%	3.0%	21.2%	45.5%	15.2%	33
Facebook	2.9%	2.9%	5.9%	8.8%	11.8%	67.6%	34
Twitter	0.0%	3.0%	3.0%	6.1%	15.2%	72.7%	33
You Tube	0.0%	15.2%	12.1%	30.3%	24.2%	18.2%	33
<i>answered question</i>							34
<i>skipped question</i>							3

11. How often do you use the following information sources and services provided by Irrigation Australia Ltd?

Q11: Regularity of information services provided by Irrigation Australia Ltd

How often do you use the following information sources and services provided by Irrigation Australia Ltd?	Often	Sometimes	Never	Not aware of Irrigation Australia's information sources
Irrigation Australia journal	15.6%	68.8%	12.5%	3.1%
Irrigation Australia's monthly enewsletter, Backwash	12.5%	56.3%	25.0%	6.3%
Irrigation Australia's website www.irrigation.org.au	6.3%	56.3%	34.4%	3.1%
Irrigation Australia's Irrigation Essentials Search Engine	0.0%	24.2%	63.6%	12.1%
Irrigation Australia training courses or workshops	9.4%	43.8%	43.8%	3.1%
Irrigation Australia Conference and Exhibition http://online.saneevent.com.au/ial2012/	18.8%	40.6%	28.1%	12.5%
<i>answered question</i>				
<i>skipped question</i>				

Q10: Suggestions about how IAL can provide irrigation information or topics

A key role for IAL is to collate information and make it available. The Drip SIG web page is a good example of links to relevant information, not hosted by IAL, but deemed of suitable merit for inclusion. This approach could be extended to other facets of irrigation, such as other system types, soil water monitoring, irrigation scheduling, filtration, pumping efficiency etc;

Easy to use website and email alerts about new information;

Utilize the syllabus from the Irrigation Education Foundation. Invest in making that metric rather than duplicating training modules locally;

The Twitter presence is good;

Approach peak industry bodies and ask to be involved in industry workshops. Use existing industry extension platforms;

Impact of irrigation on the environment. in my case possible impact on a major water catchment. Overwatering, irrigation systems' water delivery exceeding soil infiltration rates. All causing water run off as well as nutrient removal. Optimal irrigation practices to reduce water use by targeting irrigation at important growth stages of each crop;

Journal could be on line. Conferences really important.