

Communicating innovation in water use to horticultural industries

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Irrigation Australia Ltd

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November 2010

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Research Provider: Irrigation Australia Ltd



Know-how for Horticulture™



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Communicating Innovation in Water Use to Horticultural Industries

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This report describes how *Irrigation Australia* magazine has supported innovative approaches to water management in the amenity horticulture and commercial horticultural sectors by generating relevant content. It also describes reader feedback on the relevance of journal content.

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November 2010

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Summary

Since the project commenced 1 October 2007, twelve editions of *Irrigation Australia* have been published (four editions are published a year, in February, May, August and November).

Articles that are relevant to the commercial and amenity horticulture sectors featured in at least 70% of the journal, and the front covers of seven editions featured horticulture and amenity irrigation specifically; five were more generally focussed, i.e. covers promoting 2008 and 2010 *Irrigation Australia Conference and Exhibition*, or featuring agricultural irrigation.

Considerable effort has gone into ensuring that articles feature practical examples and information on applying innovative approaches to water management in horticultural and urban irrigation settings. Effort has also been made to include information on policy that affects these irrigation sectors. Features have included topics ranging from recycled water use, pumps and pumping, soils and irrigation, and business management.

Two reader surveys of the magazine, completed in 2008 and 2010, indicate a high degree of reader satisfaction with the magazine. Most readers identify that the magazine is a good source of information on irrigation (80% of readers surveyed from horticulture and amenity irrigation sectors keep the magazine as a reference). Over 90% of these readers believe the appearance of the magazine is good or excellent. Over 90% also see relevance of articles as excellent or good.

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.

Importantly, the magazine has received considerable editorial support from the service sector, including manufacturers, providers of extension services (private and government), designers and installers. The proportion of articles being written by this sector has increased so that now around 50% of copy is provided by its members. This is important because it demonstrates the credibility of the magazine as a forum for the irrigation industry, and because it results in the publication of relevant, practical articles that are based on current technology and projects. *Irrigation Australia* is the only irrigation-specific magazine in Australia that provides this important link between the service sector and water users.

The key benefits to the horticulture and amenity irrigation sectors are:

- The journal is a source of up-to-date technical and policy information that is relevant to horticulture and the urban irrigation sectors. It is unique in Australia that it deals with both urban and rural irrigation. It is seen as an important source of information, not only for growers and irrigation managers, but also for members of the service sector and policy makers. This is supported by the high proportion of readers who keep the journal for future reference, in part because there is no other serial publication in Australia publishing the spread of information to do with irrigation.
- The journal has come to be seen as an important forum for the service and policy sectors to inform not only growers, but other members of those sectors. This is evidenced by the growing amount of copy that is provided by industry members. The significance of informing the service sector is that its members are a key source of information to do with irrigation for growers and managers.
- In offering a medium for industry members to publish material that is technical (as opposed to advertorial), the journal is contributing to building their capacity to present extension and technical material.



The front covers from two editions of the magazine published in 2010. These editions featured the use of recycled water, particularly by the commercial and amenity horticulture sectors, and improving irrigation efficiency.

Editions of the magazine for 2009 and 2010 can be downloaded from the IAL website at <http://www.irrigation.org.au/IrrigationAustJnl.htm>

The HAL logo appears in each edition on the contents page.

Introduction

The importance of water, and its efficient management, to the commercial and amenity horticulture sectors was recognised by HAL when it established the HAL Water Initiative. As well, the *Across Industry Annual Report 2005-06* recognised that access to reliable water was critical to horticultural industries.

In this context, communicating to growers and the businesses and organisations that service them was seen as critical.

The aim of this project has been to support the communication of information about water policy and use of innovative irrigation methods and technology to the amenity horticulture and commercial horticulture sectors.

The project planned to use the following methods to do this:

- Continuing to ensure that at least 60% of copy in the quarterly publication is relevant to the commercial horticulture and amenity horticulture sectors.
- Developing nine case studies over 3 years focussing on innovative approaches to irrigation.
- Producing one refereed edition each year.
- Increasing the numbers of organisations (rural water authorities) that have access to the journal as a result of the merger of the Irrigation Association of Australia and the Australian National Committee on Irrigation and Drainage in 2007. The merged organisation is Irrigation Australia Limited.
- Having a link from the IAL website to the Water initiative page on the HAL website.

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

Methods and activities

Articles included in the journal have focussed on three areas:

- Policy issues and their potential impacts on commercial and amenity horticulture.
- Practical and innovative ways of improving irrigation efficiency using case studies and articles provided by independent authors and the irrigation industry.
- Technical issues to do with choosing, installing, operating and maintaining irrigation equipment.

These articles have been collected in a number of ways:

- The editor travelling to particular locations, interviewing people and then writing up articles.
- Contributions from authors from research and extension agencies.
- Contributions from the irrigation service and manufacturing sectors.
- Contributions from policy and government organisations such as National Water Commission and Murray-Darling Basin Authority.
- Commissioned articles from experts in their area.
- Producing material from events such as *Irrigation Australia Conference and Exhibition*.

This diversity of sources ensures that the magazine incorporates a variety of perspectives and opinions to do with irrigation technology and policy and innovation in irrigation.

Three thousand copies of each edition of *Irrigation Australia* are printed, except for the edition that coincides with the biennial conference and exhibition, when 5000 copies are printed (winter 2008 and 2010 editions). The extras are distributed at the conference and exhibition.

In 2009 almost 400 copies of the journal were included in conference satchels for the IAL's regional conference, held at Swan Hill in October.

Horticulture industry organisations and associations, such as the Macadamia Society, WA Fruit Growers, Victorian Strawberry Industry, Vegetable Growers Association, Summerfruit Australia, Riverina Citrus, 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.

Editions of the magazine for 2009 and 2010 can be downloaded from the IAL website at <http://www.irrigation.org.au/IrrigationAustJnl.htm>

The HAL logo appears in each edition on the contents page.

IRRIGATION TECHNOLOGY AGRICULTURE

IRRIGATION TECHNOLOGY: AGRICULTURE

LESSONS FROM THE DROUGHT

Anne-Maree Boland and Michelle Parsons, RMCG

In previous editions of the journal we have followed some of the difficult decisions two horticulturalists in the southern Murray-Garling made as they managed the effects of the drought and limited irrigation water availability. These horticulturalists were profiled in a series of case studies developed by the Horticulture Water Initiative (HWI), a Horticulture Australia Limited's (HAL) strategic initiative, the aim of which is to ensure "access to water for responsible and profitable use".

A number of growers were interviewed throughout the season to determine what their approach was as water allocations changed and the management practices they were putting in place. Their experiences were one way of helping other growers deal with the impacts of drought and enabling them to make decisions about their own situation.

The case studies provided insights into decision-making processes and management strategies during the drought last year and early this year. In May this year, some of the growers who were interviewed for the case studies participated in a drought forum held as part of the Irrigation Australia 2008 Conference. They were joined at the forum by two dairy farmers. Their stories of their experiences provided incredible insights into the differences and similarities in decision-making across industries.

This article looks at some of those decisions.

The growers

The focus of the case studies was on:

- decisions made during the previous season's drought
- the decision-making process
- timing of decisions
- management strategies developed.

Four horticulture growers were monitored over a nine-month period to identify how their decisions changed as water allocations were made during the season. Growers profiled included:

- dried fruit grower, Murray Region (Victoria)
- table grape grower, Murray Region (Victoria)
- citrus grower, Murray Region (NSW)
- stone fruit grower, Murray Region (Victoria)

The case studies found that growers adopted different decision-making strategies depending on previous experience, attitude to risk, farming system and future aspirations. Their decision-making approaches are summarised as:

Case study 1. Prioritised blocks for production and survival and fought water.

Case study 2. Bought water early (carry over) and focused on crop quality with full irrigation and high inputs on the best blocks on the property.

Case study 3. Focused on cost minimisation to reduce exposure. This property had previously had a bad experience buying water.

Case study 4. Divided the property into zones - green (crop), orange (could go either way) and red (survival only). Managed inputs according to the divisions and allocations.

Decision-making process

The drought forum, held as part of Irrigation Australia 2008 Conference, provided an avenue for horticulture and dairy industry representatives to explore the decision-making process, lessons learnt and opportunities to deal with drought conditions in the future. The forum used a panel consisting of three of the horticulture case study growers and two dairy industry representatives (from the Goulburn Valley and southern NSW).

The forum also focused on the audience participating in describing their experiences and things they do differently.

A key issue raised across industries is that irrigators can learn from one another about how they plan to cope with low water allocations. The case studies prepared by the HWI and the discussion at the drought forum provided this valuable tool of sharing ideas and experiences and making better decisions in the future.

4 IRRIGATION AUSTRALIA

An example of an article supplied by the Horticulture Water Initiative. Before the Initiative was wound up an article was featured in each edition of the journal.

Project aims

Ensure that at least 60% of copy is relevant to horticulture and amenity irrigation

Since the project commenced 1 October 2007, twelve editions of *Irrigation Australia* have been published (four editions a year are published, in February, May, August and November). Articles that are relevant to commercial or amenity horticulture, or both, feature in at least 70% of the journal, and the front covers of seven editions featured commercial or amenity horticulture specifically; five were more generally focussed, e.g. covers promoting 2008 and 2010 *Irrigation Australia Conference and Exhibition*, or featuring agricultural irrigation.

Articles have been written by industry members, policy makers, the editor and industry development officers employed on other irrigation projects. Authors have included Anne-Maree Boland and Charles Thompson from the HAL Water Initiative; staff from Murray-Darling Basin Authority; Graeme Samuel, Chairman, ACCC; staff from the National Water Commission; irrigation industry development officers, Merv Jessen, Tim Gilbert and Mark Quayle; Anne Currey, the editor in chief; and a range of industry members from the design, installation, manufacturing and public sectors, e.g. Geoff Connellan (now a consultant but previously lecturer at the University of Melbourne, Burnley).

Articles have also been sourced from key industry events such as the *Irrigation Australia Conference and Exhibition*.

The focus of articles has been to communicate up-to-date information that supports adoption of water efficient technologies, to provide information on policy developments, to encourage innovation on the part of water users and others in the industry, and to encourage the adoption of improved professional standards.

This information is important to commercial and amenity horticulture. Most horticulture in Australia depends on access to irrigation. With one of the most severe and widespread droughts in the nation's history in the last seven years, this access has been severely limited. This has put enormous pressure on water users in both horticultural and urban areas to do more with much less water.

A key role of the journal has been to communicate information about innovative ways of managing in a drought, to update readers on water policy and to inform them generally about water efficient technology and practices. This role has been noted by other providers of information to the horticulture and amenity sectors, who have made requests to republish articles, e.g. the Apple and Pear Growers requested permission to reprint an article from the Spring 2008 edition, "Water labelling – imperative or impossible?"

Another example of a request to reprint an article is on Page 7.

19 August 2010

Hello Anne,

Congratulations on the *Irrigation Australia* journal. I receive it as part of an exchange journal arrangement. I was interested to read the article in the Winter issue titled 'Efficient irrigation: the largest water savings at the lowest cost' by Anna Manero, MWH Global. Nut growers would be most interested in the California lesson and I was wondering if it would be OK if I reprinted this article in our journal *Australian Nutgrower*. I phoned *Irrigation Australia* and they referred me to you. If reprint permission is granted, please could you email the word file? If possible I would also like to include the map of the relative sizes of California and the Murray Darling Basin.

Kind regards,

Jennifer Wilkinson, Editor of *Australian Nutgrower*

Develop nine case studies over 3 years focusing on innovative approaches to irrigation

These case studies were as follows:

Autumn 2008. Featured in this edition was a case study describing how production nurseries in Queensland were managing decreased water availability as a result of the prolonged drought. The article featured quotes from John McDonald, Queensland Nursery Industry Development Manager.

Spring 2008. This edition featured irrigating with recycled water. The case study examined the technical and design aspects of converting an irrigation system on a recreation oval in the Shire of Mundaring (WA) to recycled water. This article was supported by two others, "Recycled water – a solution for irrigating the world", by J. Dingilian and J Fitzgibbon, Rain Bird Corporation, and "A framework for efficient wastewater treatment and recycling systems", by G. Mekala, B. Davidson, M. Samad and AM Boland.

Summer 2008. By 2008, much of southeastern Australia, Tasmania and Queensland had endured a prolonged drought. As part of the HAL Water Initiative, a series of profiles of horticulturists and their strategies for coping with drought were developed as a way of informing growers about possible management options. Case studies of the responses of two of these growers were included in previous editions of the journal. In Summer 2008 the feature article, written by Anne-Maree Boland and Michelle Parsons, summarised the experiences of four horticulturists and the lessons they learned in responding to the drought. This summary was based on a workshop held at *Irrigation Australia Conference 2008*.

Autumn 2009. The article, "IPART streamlines evaluation of system performance in field", by M. Jessen, Irrigation Industry Development Officer in Queensland, examined a tool developed to evaluate irrigation system performance. The article included a testimonial by Dan Corfe, Industry Development Officer with the Queensland Turf Producers Association.

Spring 2009. It is acknowledged in the industry that well-designed and well-installed central control has the potential to save water and labour. The article, "Irrigation management makeover for Whittlesea City Sportsfields", by P. Ali and S. Comben from the City of Whittlesea, Victoria, described their experience in evaluating water use and installing a computer-based system to provide central control and remote operation of irrigation controllers to sports fields.

Summer 2009. In this edition, a feature article, "Tailor made solutions for environmental monitoring", by Col Peak, examined how an internet-based information delivery system had been adapted to meet the needs of three users – a blueberry farm near Coffs Harbour in NSW, a macadamia orchard near Clunes in NSW, and the Richmond Valley Council, in Evans Head, NSW.

Autumn 2010. Using recycled water is a significant issue for amenity and commercial horticulture. The autumn 2010 issue of the journal featured a number of articles by industry experts, Anne-Maree Boland and Geoff Connellan. Articles by Geoff and Anne-Maree provided a technical framework and dealt with issues such as risks and benefits and important things to know about irrigating with recycled water. This was supported by an article by Scott Johnstone from Scape Shapes Landscaping that described the practical issues in designing and installing irrigation systems using recycled water, and used the example of a system installed at Catalina Country Club in NSW to illustrate some of these issues.

Winter 2010. One of the feature articles in this edition of the magazine was by Charles Thompson and Anne-Maree Boland writing for the HAL Water Initiative. The article, "Management options for irrigators", examined different options for horticulture growers in the context of water and economic reform and prolonged drought. The article used a case study approach to examine three different strategies: selling water to fund expansion, upgrading the irrigation system, and getting out.

Spring 2010. The article, "Irrigation investment is a blooming success", outlines the experience of George and Sukhjit Singh, who decided to invest significantly in a state-of-the-art hydroponic and irrigation system. The Singhs grow flowers and vegetables on their farm on the north coast of NSW.

Producing one refereed edition each year

After examining this option, it became obvious that there were insurmountable difficulties making it impossible to referee an annual edition of the journal while maintaining its present format. The major problems were that a significant proportion of the journal's content doesn't lend itself to refereeing, e.g. industry news, product descriptions and case studies of individual experiences, and that the refereeing process would have significantly slowed production.

Instead, it was decided that articles in the Research and CRCIF columns would be refereed or peer reviewed to ensure the accuracy or technical content. This policy was implemented in 2008.

Increase the number of organisations (rural water authorities) with access to the journal

As a result of the merger of the Irrigation Association of Australia and the Australian National Committee on Irrigation and Drainage in 2007, the mailing list for the journal was increased to include this membership. Multiple copies are sent to each authority.

Have a link from the IAL website to the Water initiative page on the HAL website

This link is on the Water Initiative page, under "Links".

Evaluation

Formal evaluation of the journal has been completed in two ways.

The first has been to evaluate reader response to the journal by using two surveys. The first survey, conducted in 2008 at *Irrigation Australia Conference and Exhibition*, was done to benchmark reader opinion about the appearance of the journal and the relevance of articles. A followup survey was conducted at *Irrigation Australia Conference and Exhibition* in 2010. The same questions were asked in each survey.

The second formal feedback process has been through research completed by Richard de Vos for IAL and HAL in 2009 where he conducted an industry development needs assessment for the irrigation industry.

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

Formal evaluation

2008 survey

For this survey an independent contractor experienced in conducting face-to-face surveys was employed to randomly select exhibition attendees to answer a questionnaire (see Appendix 1). Forty-four of the one hundred and twenty people approached over 2 days received the journal and were willing to be interviewed for the survey.

2010 evaluation

A second survey of the journal was conducted as part of *Irrigation Australia 2010 Conference and Exhibition*. In this case the survey was completed electronically through Survey Monkey. Attendees at the exhibition were asked randomly if they would participate by filling out the survey. Thirty-eight respondents completed the survey at the event. A further twenty-eight respondents completed the survey online as a result of an invitation that was included in *Backwash* in July and August 2010.

Results

Results for the two surveys are summarised in the table (over page).

Table. Results of reader evaluations 2008 and 2010

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

Other sources of irrigation information were: websites, Overflow, Irrigazette, ICID journal, ASCE journal and newsletters, USCID journal, Cotton Grower, Water, New Ag International, E-Times newsletter, The Land, Turfcraft, alert service Wiley and Elsevier, BOM and NWC newsletters, Horticulture News, Landscaper, Australian Horticulture, Grape and Wine Magazine, ASVO magazine, Vegetables WA, trade magazines (not specified), Good Fruit and Vegetables, SA Irrigator, NZ Turf Journal, Australian Turf Journal, GCSAA magazine, Backwash, Australian Water Management, Irrigation Science, CRCIF publications, general product literature from companies, and Grapegrowers magazine.

Discussion

Compared to readers surveyed in 2008, of those surveyed in 2010:

- More read the journal for an hour and fewer people for less than 30 minutes.
- One person read the entire issue while slightly more people skimmed titles.
- Significantly more (19%) kept the journal for reference.
- About the same number thought the appearance of the journal was excellent or good and only 3 people thought it was fair (1 person in 2008).
- The percentage of people who rated article relevance as excellent increased (7% in 2008 compared to 15% in 2010) and slightly less rated it as poor in 2010 (10% compared to 8%).
- The same percentage of people rated it as an excellent or good source of information, while 3 people rated it as poor (none in 2008).

These results are positive ones for the journal as it confirms it as a source of irrigation information for readers in the horticulture and amenity irrigation sectors.

More people are reading it for longer, 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.

Industry Development Needs Assessment

The second formal feedback process has been through research completed by Richard de Vos for IAL and HAL in 2009, *Australian Irrigation Industry: Industry Development Needs Assessment*. As part of his research, Richard visited most states and held workshops with IAL members as a way to obtain feedback on the IAL and the services it provides.

In his report, Richard noted that the journal was regarded highly and was seen as a significant member benefit. Again, this is an important endorsement of the journal and its role in publishing relevant information about irrigation for both irrigators and the sector that services them.

Both the industry's magazine, 'Irrigation Australia Journal' and its regular e-newsletter, 'Backwash', are highly regarded and valued by industry participants. There were no significant calls for change in format, content or frequency.

Page 16, *Australian Irrigation Industry: Industry Development Needs Assessment*, November 2009

Industry feedback

Informally, readers and industry members report that they value the journal and see it as a valuable vehicle for contributing information about irrigation, and as a valuable source of information about irrigation.

Examples of this feedback are reported below. It was provided by:

- Charles Thompson, coordinator of the Horticulture Water Initiative. The Water Initiative provided articles to the journal in 2008, 2009 and early 2010.
- Guy Roth, coordinator of the National Program for Sustainable Irrigation. The journal has provided a vehicle for publishing articles about NPSI projects and has recently agreed that NPSI will provide a regular column describing results of irrigation research projects.
- Scott Johnstone, Scape Shapes Irrigation Services, Nerang, Queensland. Scott provides irrigation design services to the amenity horticulture sector.
- Lee Rothwell, ThinkWater Alstonville, NSW. Lee's business provides irrigation design, installation and retail services. A substantial proportion of his customers are horticulturists.

The Horticulture Water Initiative recognised that the Irrigation Australia quarterly journal plays a critical role in getting technical information out to the irrigation industry.

The journal has a broad readership covering the production and amenity sectors of the horticulture industry. This readership was an important consideration for the Horticulture Water Initiative as there are no other publications in Australia that target both water users and the service sector in the way that Irrigation Australia does. The Initiative produced articles and information aimed at providing the latest knowledge on a range of technical issues and current policy concerns, and we always found the journal staff willing and helpful to include our material. We did also target other publications with articles, but the journal was one we considered crucial to communicating our messages.

Charles Thompson, Coordinator of the Horticulture Water Initiative, RMCG

Irrigation Australia journal is the only journal in Australia that provides access to all the irrigation industry, from irrigators through to designers, contractors and manufacturers. Being able to communicate with these sectors is important as they are a vital link in the irrigation information chain. Research done in the cotton industry has identified the importance of the service sector, particularly designers and consultants, in providing technical advice to cotton growers.

With the assistance of the editor we are able to put together articles that appeal to the journal's readers, and we know that any technical edits will be checked with us before articles are printed. This aspect of our relationship is particularly important to NPSI, as accuracy underpins our credibility and that of the science we are publishing.

Guy Roth, Coordinator, National Program for Sustainable Irrigation

The main reason I write articles for the journal is that I consider it important to share practical information that can assist irrigation operators in making informed decisions, particularly on topics where I see great opportunities for improvement.

As far as the journal being a source of information for me, I consider it to be a good barometer of industry attitudes and priorities, where ideas or information can be communicated in an open forum to a national audience. The journal is easy to read, it's reasonably compact and a good format – I even don't mind reading the adverts to see what manufacturers are currently promoting or might think is important.

In a time of limited water availability and spiralling operating costs I would definitely say the journal is absolutely vital in providing a link between water users and the service sector, without question. The question is as an association to measure how successfully we are providing the link to all the key targets. I feel sometimes we are promoting ourselves to ourselves through the journal and conferences. It is important to have that inter-industry communication, however, we need to challenge ourselves and seek out those who may have a great need for this knowledge they currently do not receive the IA journal. I think the biggest challenge for the IAL is to effectively get the message to irrigation owners and operators across the broad spectrum of key irrigation water user groups by identifying, prioritising and adopting individual strategies for various market sectors.

Whilst I am not privy to IAL's resources, I expect to dramatically improve distribution and hit majority of key targets would require substantially increased funding, effective marketing and vastly expanded database which would need mostly Government funding and some professional outsourcing to become a reality.

Scott Johnstone, Scape Shapes Irrigation Services, Nerang Queensland

The Journal is a great conduit for sharing ideas, innovations, experiences and knowledge directly related to irrigation practices. By contributing to the publication whenever the opportunity arises, I am able to share my experiences (and those of our clients) with a wide range of interested parties that could potentially derive some benefit from this knowledge sharing. As we are a commercial business, operating in the service sector, we derive considerable market exposure through these articles.

The clients that participate also enjoy the recognition, and in many cases it helps them refocus on the efficiencies within their irrigation systems.

The journal is an important source of information for us. Copies sit on our lunch room table, so most of our 10 staff read through them. When dealing with our customers (20-30 people/day on average), our staff regularly fall back on information on products and their application, irrigation techniques, and many other 'pearls of wisdom' they might pick up from the Journal. With this publication we are kept up to date on issues relating to irrigation matters and current best practice and in doing so can distribute this knowledge to the end user as and when it is required. We quite often read an article in the Journal, and then have cause to come back to it many months later to reference information for a specific project we are undertaking. We have to be very versatile in our area, so drawing on the experiences of others via the Journal helps us to make sure we get it right for our customers.

From my experience it seems that the horticulture and amenity irrigation sectors rely heavily on information gleaned from the services sector. Typically our clients will trust in us, the services (solutions) providers, being kept up to date with best practices and therefore being competent to provide them with the right advice.

Horticulture and amenity sectors seem use the Journal to familiarise themselves with the general trends and technologies, whereas the service sector reference the Journal for information on process and equipment that can be reapplied to better service their clients.

The August 2010 edition of the Journal featured an article about a system I had installed for a tomato grower. The grower was very excited and very proud to be in the Journal. It was obvious he really appreciated the recognition that came with having the article published, and in many ways having a local identity such as this was good for the other growers in the area. Most of the local horticulturalists in our region are small operators and it was really good for them to see one of their peers showcased in a national publication. They could relate to the scale of his operation, and they were also shown that although he was a relatively small player, his story was worth telling.

Lee Rothwell, ThinkWater, Alstonville NSW

Implications

Funding from HAL has been critical to maintaining the proportion of content in the magazine that is devoted to amenity and commercial horticulture. In doing this it has also promoted HAL and the Water Initiative (before it was wound up).

From the surveys, more readers are reading the journal for longer and are keeping the journal as a reference. This is a testament to the efforts made to ensure that articles are relevant and meet the information needs of the horticulture and amenity irrigation sectors.

Because the journal is distributed not only to irrigators, but also to those who service irrigators, including designers, installers, extension agents and manufacturers, it has an audience reach that is unparalleled as far as irrigation publications in Australia are concerned.

The significance of this audience of service providers in helping to build the capacity of irrigators in Australia cannot be underestimated. With the withdrawal of government from providing extension services throughout Australia, the service sector, particularly the commercial network of dealers, designers, private agronomists, irrigation trainers and manufacturers, has become a critical information source for irrigators.

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 the journal continues to fulfil its unique role as a provider of up-to-date information about irrigation:

1. That the effort to source material that is relevant to commercial and amenity horticulture be maintained as a way of promoting innovation and water use efficiency in these sectors.

HAL support for the journal has allowed considerable effort to be put into sourcing articles that are directly relevant to water users in horticulture and amenity irrigation. Many of these articles have been commissioned and are thus unique to the magazine. Continued support will allow for further development of this resource and the potential for more value adding activities.

2. While links between HAL industry development officers and the journal have been developed, it is recommended that they be further strengthened and broadened through the implementation of a formal process to improve communication between industry organisations, especially editors of industry newsletters and journals, and journal staff. 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.

The journal has created a significant bank of information about irrigation that is unique and highly relevant to horticulture. Informal links exist in that the journal is supplied to most relevant editors and IDOs, and a number of horticulture and turf magazines have reprinted articles. However, a process for formalising these links with the aim of building on the process of proactively taking relevant articles and republishing them in other publications would have significant benefit. A key part of this is making IDOs and editors aware that sharing of articles is encouraged and even expected, i.e. cultural change. Both IAL and HAL have a role in bringing about this change.

3. That the list of IDOs and relevant staff within HAL who receive the journal be updated to ensure currency. This recommendation is related recommendation 2 and, while an administrative task, it is important to ensure that the "right" people in HAL are receiving the journal so that its value as a resource can be fully realised. The editor of the journal could meet with the appropriate program manager in HAL to develop this list.

4. That access to copies of the journal on the IAL website be improved by using a searchable “page view” system. The present system of downloading PDFs is cumbersome, doesn’t allow for searching and has been technically superseded.

Increasingly, magazines are being published online using a page view system. This is a natural progression in the publishing industry and something that IAL should be taking advantage of. The present system of uploading PDFs to the IAL website is “old technology” and, as readers become used to reading other publication online through page view technology, is likely to actually discourage readers from downloading it.

Appendix 1. Irrigation Australia Magazine Questionnaire

Irrigation Australia Limited is conducting a survey about its journal, *Irrigation Australia*. We would appreciate you spending 5 minutes to fill in this questionnaire about the journal. Your answers will be kept confidential and will be used to ensure it is meeting the information needs of its readers.

1. Do you receive Irrigation Australia magazine? (please circle)

↑Yes (go to question 2) ↑No (see below)

If you don't receive a copy, then you don't need to answer any more questions. If you would like to receive a free copies of the August and November 2008 editions as a trial then write your name and address below or take your business card to the IAL stand and ask to be put on the mailing list.

Name _____ Company _____

Postal address _____

2. How long have you been receiving the journal? (please circle)

↑Less than a year (1) ↑Between a year and 5 years (2) ↑5 years plus (3)

3. What IAL membership do you hold? _____

4. What sector(s) of the industry do you work in?

↑Horticulture (1)

↑Agriculture (2)

↑Urban (3)

5. Approximately how much time do you spend looking through an issue of the journal when you receive it?

30 minutes or less (1)

↑Between 30 minutes and an hour (2)

↑Longer than an hour (3)

6. Which of the following best describes how you read the journal?

↑Skim titles to be aware of the contents (1)

↑Read articles of interest (2)

↑Read entire issue (3)

↑Do not read it at all (4)

7. How long do you keep your copies of the journal for?

↑A week or two (1)

↑Till I receive the next issue (2)

↑Keep them on file so I can refer to them again (3)

8. How would you rate the overall appearance of the journal?

↑Excellent (1)

↑Good (2)

↑Fair (3)

↑Poor (4)

↑Undecided (5)

9. How would you rate the relevance of articles in the Journal?

↑Excellent (1)

↑Good (2)

↑Fair (3)

↑Poor (4)

↑Undecided (5)

10. Overall, how would you rate the Journal as a source of technical and other information about irrigation?

↑Excellent (1)

↑Good (2)

↑Fair (3)

↑Poor (4)

↑Undecided (5)

11. What other magazines or publications do you read for information about irrigation?

12. What suggestion do you have for improving the journal?

Thank you for your time.

Appendix 2. Articles published 2008 -10 relevant to horticulture and amenity irrigation

Autumn 2008, Volume 23 Number 1

Irrigation Technology: Urban. Soaker hoses and drip emitters: what's the best?

Summary of research and trials evaluating the performance of soaker hoses and drip emitters.

Irrigation Technology: Agriculture. Surviving drought in Queensland. Summary strategies used by production nurseries in Queensland to withstand the effects of prolonged drought.

What's in Store in 2008. Article from the Bondi Group identifying important irrigation issues for 2008.

Uncertainty and Groundwater Sustainable Yield. Article examining the paradox of scientific certainty as it relates to estimates of groundwater sustainable yield.

Assessing Australia's Progress on National Water Reform. An update from the National Water Commission on progress with the National Water Initiative.

On Farm Pump Tests reveal Surprising Results. Results of tests of irrigation pumps in Queensland reveal big differences in the performance of irrigation pumps, and hence water use and energy efficiency.

How to Make Sense of Pump Curves. A guide to how to read a pump curve.

The Big Issue: Meters and Metering. An article outlining concerns with introduction of national standards for non urban meters.

Business Feature: Rudd's Labor, dollars and dangers for SMEs. A general interest article outlining how the election of a Rudd Labor Government was likely to affect small businesses.

Training and Professional Development: Horticulture centre helps irrigation managers meet certification requirements. Article about Virginia Horticulture Centre's Certified Irrigation Manager program.

Contractors Corner: A tale of three pumps. Article comparing how the performance of three pumps affected running costs, energy consumed, and efficiency.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Winter 2008, Volume 23 Number 2

Irrigation Technology: Urban. Restricting flow: are there better options? Description of a product field test aimed at identifying effects of restricting flow on domestic and landscape irrigation equipment.

Irrigation Technology: Agriculture: SMS text delivers irrigation information to growers. Describes a mobile based service developed by the CRC for Irrigation Futures to help irrigators schedule their irrigation times.

Irrigation in Israel: A glimpse into the future? Impressions about the future of irrigation after a visit to Israel by Anne Currey, funded by HAL and IAL.

Protecting Pumps from Upthrust and Cavitation Damage. Technical article about situations that result in damage to centrifugal and submersible pumps.

The Big Issue: External trade. A view from WA on the risks of removing barriers to external trade on centrally controlled irrigation licences.

CRCIF: Irrigation in vegetables: technology and practice. Article outlining the risks of different irrigation systems in terms of water quality, environmental management and agronomic factors.

Irrigation Research: Using satellites to establish crop water requirement of major irrigated horticultural crops. Describes a HAL funded project examining optimal irrigation strategies to ensure water supply to crops doesn't exceed crop water requirement.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Lessons for Water Management. Report from NPSI Research Fellow, Anna Price, on findings from her project visiting Brazil, the Philippines and Mauritius on how these countries manage water allocations in the extremes of tropical climates.

Learning to Spread Less Water Further. Descriptive article of an ACTEW project looking at developing best practice watering regimes for school and public open space turf.

Helping Sydney Home Gardeners Reduce Water Use. Article describing an IAL project running workshops at nurseries to help home gardeners reduce water use.

Supermodelling the Murray-Darling. A description of CSIRO's Murray-Darling Sustainable Yields Project.

Spring 2008, Volume 23 Number 3

Irrigation Technology: Urban. Shire converts oval to recycled water. Technical article describing the process of converting the irrigation system on a recreational oval from potable to recycled water.

Recycled Water – a Solution for Irrigating the World. Article from the US examining the potential of recycled water to be substituted for potable water in many situations.

Water Labelling – Imperative or Impossible? An article examining the complexities involved in assessing products for water used in production. (a request to reprint this was received from SA Apple and Pear Growers).

NPSI/IAL Travelling Fellowship. Water policy in Australia: Can we do it better? Part one of two-part article series by the 2008 Fellowship award winner.

New Computer Model Prioritises Irrigation Incentive Funding Applicants. Article about a computer model being used in Mallee Catchment area in Victoria to prioritise how funding should be allocated to farmers based on likely impact on salinity and river health.

CRCIF: A framework for efficient wastewater treatment and recycling systems. Describes a decision making support tool for allocating wastewater among different sectors.

Irrigation Research: Recycled water saving viticulture. Article about research in McLaren Valley in SA using recycled water for irrigating winegrapes.

Business: Immigration options can help irrigation industry. An overview of different employment programs that horticulturists can access.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Summer 2008, Volume 23 Number 4

Irrigation Technology: Urban. Keys to saving water and running costs. With many regions in Australia facing water restrictions or conservation measures, this article summarised the importance of scheduling coefficient, flow management efficiency, and pumping and scheduling efficiency for amenity irrigation.

Irrigation Technology: Agriculture. Lessons from the drought. Summary of strategies used by horticulturists to cope with drought. Based on case studies developed by the Horticulture Water Initiative.

A National Framework for Non-Urban Water Metering. Description of new national framework, including requirements, where it applies, and relation to new metering standards in development.

In Situ Verification of Meters: the options. Article describing research into options for verifying meters in situ in both closed conduit and open channel situations..

Meters Installed on the Gnangara Mound. An update from WA on progress with installing meters on the Gnangara Mound. Many of the irrigators in this region are horticulturists.

The Energy Cost of Converting from Surface to Pressurised Irrigation. Summary of the greenhouse gas impacts of converting from border check to pressurised irrigation.

The Water and Energy Nexus. Compares energy use of subsurface, centre pivot and surface irrigation, including energy embedded in equipment. Also examines the importance of pump efficiency.

Going for Broke: How to choose a water broker. A guide to the questions irrigators should ask before engaging a water broker.

Better Water Information Quicker. A general article outlining how \$450 million funding allocated to the program on improving water information will be spent and how the resulting information will benefit irrigators.

Standards for Water Meters; What Next? A general article describing why standards are necessary for equipment and processes, what standards contain and why they matter to irrigators and the irrigation industry.

Contractors Corner: Poor sprinkler uniformity? Some reasons why. Article describing common mistakes that cause sprinkler uniformity problems in amenity irrigation.

Remoteness No Barrier to Learning. Describes a pilot training program for Certified Irrigation Agronomists using online technology.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Insert: Your guide to good garden watering. This 4-page guide to good garden watering, designed for home gardeners, was included as an insert and sent to all on the mailing list for the journal.

Autumn 2009, Volume 24 Number 1

Irrigation Technology: Urban. Working with community allows taps to stay on. Case study examining how Greater Geelong City Council worked with community groups to improve irrigation management on amenity areas through better scheduling and identification of important public open space areas.

IP Convergence – Potential Unlimited. Describes how computerised information transfer (Internet Protocol) has revolutionised management and monitoring of irrigation systems.

Self Adjusting Instruments: Science Fiction or Reality? Describes the potential savings in costs and efficiency that can be made with self healing process instruments such as electromagnetic flow meters.

Scheduling Vegetable Irrigation Using the Web. Description of a project in WA using web based scheduling tools to help vegetable growers better schedule irrigation.

Website for Sydney Gardeners. Describes the WaterRight Gardens web tool designed for home gardeners and available on the Sydney Water website.

Rooftops: More Than Just a Good View. Article examining the potential of rooftop gardens to produce intensive crops such as lettuce.

Why Paperwork is an Environmental Threat. General interest article examining the plethora of rules and regulations to do with water management in Australia, and how these are contributing to poor management of our natural resources.

Irrigation Tools for the Future. Describes a number of irrigation tools that have been developed by the CRCIF to improve water management on both catchment and farm scales.

New Standards for Evaluating Filters. Describes a potentially new way of evaluating filters, developed in Israel, and its potential.

Irrigation Efficiency Course Pays Dividends. Irrigation managers involved in amenity irrigation describe how they have improved irrigation efficiency as a result of completing the IAL irrigation efficiency course.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Winter 2009, Volume 24 Number 2

Irrigation Technology: Urban. Water saving commitment. Technical article describing a new service and technology designed to provide clients with a water efficient turf irrigation and management system using subsurface drip and central control technology, off site.

Searching for Climate Change Relief in the Ord. The reasons why a Melbourne based irrigation business that sells irrigation equipment and designs and installs systems has established a business in Kununurra in WA.

Carbon Trading: Opportunities in Soil Sequestration of Carbon. A general article describing the CPRS, carbon trading and agriculture/horticulture, and how growers can become involved in profiting from carbon capture.

Guides to Good Irrigation Practice. A summary of many of the guides to best irrigation management practice available around Australia.

Water Markets in Australia. Article describing the history of the establishment of water markets in Australia, where the state of play is at present, and involvement of the ACCC.

An Old Resource but a New Journey: Maximising Cash Flow for Water. Describes how irrigators are maximising cash flow by managing their water use and becoming involved in water trading.

Recycled Water: How Good Should It Be? Article examining quality guidelines for recycled water and fit-for-purpose guidelines for vegetables, winegrapes, amenity trees and golf courses.

Australia's Role in Global Food Security. An overview of production statistics globally and for Australia, and the role for Australia as a supplier of high quality produce.

WASP: A Planning and Policy Tool for Sustainable Urban Irrigation. Describes a tool developed by the CRCIF to analyse existing urban irrigation demand and determine the water saving potential of various categories of urban green spaces.

Urban Water Conservation and Urban Irrigation: The Case for Change. Argues that strategies for managing urban water used for gardens and public space must be based on rigorous science and have consistency across Australia.

Standards and Labelling: What's The Difference? Clarifies the difference between standards and other methods for describing the performance of irrigation equipment and processes e.g. labelling schemes.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Spring 2009, Volume 24 Number 3

Irrigation Technology: Agriculture. Realising the potential of irrigation automation. Looks at the changes that have occurred in automation and its potential for irrigators.

Irrigation Technology: Urban. Irrigation management makeover for Whittlesea sportfields. Examines the process staff at the City of Whittlesea in Victoria went through in evaluating and deciding on an automatic control system to manage irrigation in all its sportfields. Also describes water savings.

Groundwater Facts. General article outlining basic facts about groundwater in Australia.

Managing Australia's Groundwater for Long Term Sustainability. Article supplied by National Water Commission describing policies and plans to ensure the sustainable use of groundwater in Australia.

Savings for Councils in Central Control. Case studies describing how councils in Australia have installed central control systems in public open space, and the water savings as a result.

Making Connections about Connectivity. General research article describing a new concept in estimating groundwater availability and sustainable yield.

Regional Partnerships Address Water Security in Western Sydney. Describes a CRCIF project to establish a system harmonisation process. The aim is to work with partners to increase profitability and reduce the environmental footprint of irrigation systems in Western Sydney.

The Future of Irrigated Agriculture in the MDB. Article exploring the Commonwealth Water for the Future plan and its implications for basin communities.

Standards for Irrigation Systems. An article asking the question of whether we should have standards describing irrigations systems and presenting a draft standard developed by the Europeans.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Summer 2009, Volume 24 Number 4

Irrigation Technology: Agriculture. Metering myths exposed. A general article aimed at informing irrigators and installers about correct ways of installing and operating irrigation meters.

Irrigation Technology: Urban. Next generation audits for irrigation. Describes a new way of auditing sprinkler pressure by using data flow loggers and information from both pumps and the irrigation system.

Paradigm Shift in Crop Monitoring. An article describing developments in wireless crop monitoring using mesh communication technology.

Soil Moisture Management: More than scheduling irrigation. Explains the importance of understanding the concept of water balance when deciding when to irrigate.

Tailor Made Solutions for Environmental Monitoring. Examines how tools to monitor and record environmental data have been adapted to meet the needs of a blueberry and macadamia farms, and a local council.

Managing Salt Applied in Irrigation Water. Describes how grape growers in the Angas Bremer District of SA are using new tools to measure and manage salt that is applied in irrigation water.

Irrigation Research: Picking the eyes out of results of trialling polyacrylamides on potatoes. Summarises research results from trialling polyacrylamide liquid on potatoes in SA.

All the Tools to Do the Job. A general article by the CRCIF describing the tools it has developed for measuring and improving the productivity and profitability of irrigation.

Water Market Rules: the rise of autobots or decepticons? A general article looking at the legal aspects of the Water Market Rules introduced by the Federal Government in 2009, and obligations imposed on irrigation operators.

From Dream to Reality: Ord Stage 2. A general article describing the drivers for the development of Ord Stage 2.

Raising the Standard: Quality assurance frameworks for irrigation systems. An article examining the detail of the new standards for non urban water meters, and how the standard will be applied.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Autumn 2010, Volume 25, Number 1

Irrigation Technology: Agriculture. Flow metering: what straight pipe requirements?

Examines the factors that affect how accurate flow meters are and implications for installing meters so that they operate as accurately as possible.

Irrigation Technology: Urban. A guide to irrigating with recycled water. In this article Geoff Connellan outlines the key elements of good practice for irrigating with recycled water.

Recycled Water for Horticulture. Examines the benefits of irrigating with recycled water and issues in using it and increasing its use in horticulture.

Recycled Water and Irrigation. A technical article examining chemical content of recycled water and implications for its use.

Learning from Others – Recycled Water Use for Irrigation. Description of a study tour by Matt Shanahan to UAE, Spain and Israel to examine recycled water use.

Lilac is the New Black. An article looking at the key institutional issues for amenity horticulture in using recycled water.

Water for the Future: Why the Australian Government is Buying Water. An article from DEWHA explaining the government's Water for the Future initiative.

Australia's Water Markets Show Record Trade Activity. An article by the National Water Commission reviewing the past 12 months of activity on the water market.

High Court's Blow to Irrigators' Right to Compensation. An article explaining the implications for irrigators of a High Court decision that held compensation was not necessary in NSW as a result of cancelling bore licences and replacing them with aquifer access licences.

Irrigation Research: Using Wastewater Wisely. An article describing the results of research into how to use water with elevated levels of salt and nutrients.

Raising the Standard: Standards for Sensing Equipment. Describes a value selection methodology for choosing the soil water sensors.

Contractors Corner: Irrigation Planning for Effluent Reuse. A practical article summarising the key considerations when designing, building, maintaining and operating irrigation systems using recycled water.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Winter 2010. Volume 25, Number 2

Irrigation Technology: Agriculture. Management options for irrigators. Feature article examining three options for horticulturists to manage their farms in the face of water and economic reform and drought.

Irrigation Technology: Urban. Stormwater provides irrigation options for Melbourne park. Describes the reasons for installing a stormwater source for irrigating Como Park in Melbourne, how it works, and its benefits.

Turf Research Looks for Answers to Perth's Dry Argument. An article describing HAL funded research assessing wetting agents, turf varieties and mowing heights as a way of using less water.

Planning, Technology and Good Management Vital to Sustainable Urban Green Spaces. Describes the outcomes of a workshop conducted by Rain Bird Australia to discuss issues to do with sustainable urban green space.

Citrus Irrigators Seek Efficiency Improvements. Describes research funded by NPSI, HAL and NSWII examining how to improve citrus production efficiency by manipulating water and nutrients.

Efficient Irrigation: the Largest Water Savings at the Lowest Cost. A general article comparing plans and programs to improve water efficiency in California and Australia.

Market Mechanisms for Recovering Water in the MDB. A general article describing the key findings and recommendations of the Productivity Commission's report on market mechanisms for recovering water in the Murray-Darling Basin.

Towards the Draft Basin Plan. An article by the Murray-Darling Basin Authority about the process of developing the Basin Plan.

Ryegrass Consolidates its Place as a Soil Improver. Describes the use of ryegrass to improve soil in orchards based on the experience of horticulturists in Victoria who grow pome and stone fruit.

Increasing Certainty for the Urban Irrigation Industry. Examines the challenges of access to water by the amenity irrigation industry.

Raising the Standard. Meters for Non Urban Water Supply. Details the documents that have been developed by the National Measurement Institute and Standards Australia related to testing meters for non urban irrigation.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

This issue was the Conference and Exhibition special and included 28 pages of information including the conference program and a description of all exhibitors.

Spring 2010. Volume 25, Number 3

Irrigation Technology: Urban. St Lucia links up with latest water efficiency technology. Technical article by Greg Smith from Rain Bird about the installation of a new irrigation system designed to save water and match the demanding requirements of a course that is undulating and has a variety of soil types and a limited water source.

Design for Efficient Irrigation. Describes the development of standard industry drafting symbols for irrigation.

Water Use Efficiency – More than Just Adding Water. An article by the Queensland Irrigation Industry Development Officer about the three key elements of water use efficiency – water efficiency, energy efficiency and labour efficiency.

Irrigation Investment is Blooming Success. Case study about a grower of flowers and vegetables on the NSW north coast who installed state-of-the-art hydroponic and irrigation systems.

Training and Professional Development. Article describing the various certifications available to the industry.

Contractors Corner: Designing Subsurface Drip Systems for Agriculture. Technical article outlining the key issues when design SSD systems (for agriculture and horticulture).

Raising the Standard: Irrigation Standards and Efficiency. Describes standards related to water, energy and labour efficiency.

NVIRP: Investing in a Water Efficient Future. Examines the Northern Victoria Irrigation Renewal Project and uses case studies of a walnut grower and dairyfarmer to illustrate water savings.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.

Summer 2010. Volume 25, Number 4

Irrigation Technology: Agriculture. Infrastructure projects supports irrigators, environment and regional communities. Describes a project on the Border Rivers upgrading irrigation systems. Includes a short case study of an irrigator who is converting from cotton to citrus production.

Irrigation Technology: Urban. Improving soils, managing water: healthy greens. A feature article examining the reasons for and process of upgrading the irrigation system on Lake Karrinyup Country Club, WA, golfing greens, and the water savings made as a result.

Soil – the Forgotten Part of Irrigation. Describes the basics of soil and implications for irrigation.

Salt on the Move in Irrigated Agriculture. An article foreshadowing increased salinity in the River Murray as a result of recent flooding, and the implications for irrigation.

From Research to Practical Tool. Describes a tool – the SoluSAMPLER – developed in SA and being used by irrigators in the Riverland to monitor and manage salinity.

A Tough Neighbourhood to Grow up in. Describes a recently completed research project in SA vineyards that found soil conditions are universally poor in fine-textured soils at shallow depths.

Irrigation Research: Evapotranspiration Stress Index: a better way to manage irrigation? Describes research by Sentek to develop an index that enables the early detection of plant stress. The index was developed and tested on olive trees.

Managing Scheduling and Soils for Better Irrigation. A general article describing important soil factors when scheduling irrigation.

Western Sydney: a Laboratory for Understanding Peri-Urban Water Issues. Feature article describing the key issues that arise to do with the competition for water when urban areas encroach onto horticultural production areas on the edges of major urban centres such as Sydney.

Satellite and SMS Water Management System. Describes new technology based on weather station and mobile phone technology that informs irrigators in the Hawkesbury-Nepean area when to irrigate.

The Big Issue: In the Balance – What to Make of the Proposed Murray-Darling Basin Plan. The article, written by legal experts, examines the key issues and possible outcomes of the Basin Plan.

Murray-Darling Basin Draft Plan: Opportunity or Threat? Two opposing views, from the Water Industry Alliance and the National Farmers Federation, about whether the Draft Plan offers opportunities or is a threat to irrigation in Australia.

Contractors Corner: Diagnosing Problems with Drip Tape. A practical guide to identifying the four most common problems with drip tape.

Flowmetering: What Straight Pipe Requirements? A technical article examining the straight pipe requirement for a range of flow meters used on farm.

Around Industry. Regular general update about what's happening in the irrigation sector.

State Roundup. Regular general interest update on policy changes around Australia.