

# IPPS

Sharing Plant Production Knowledge Globally

## the Propagator



International Plant Propagators  
Society (IPPS) Australia

International Plant Propagators' Society [www.ipps.org.au](http://www.ipps.org.au)  
Australian Region - Newsletter Summer 2016 - No: 52

## IRRIGATION PRACTICE

At the time of writing it is summer and we are getting ready for Christmas holidays, and we have had more than our share of irrigation maintenance issues recently. Fortunately our system allows us to easily observe when plants are not getting enough water in an area and investigate the cause and carry out the necessary repairs.

Some fourteen years ago I attended a Waterworks course held by the Nursery Industry Association at Rouse Hill in NSW and shortly afterwards changed the irrigation and drainage layout in our nursery. We soon adopted a system that enabled us to uniformly irrigate to an approximation of the evapotranspiration of container stock. I am sure that many who did the course and implemented the necessary changes have found a reduction in the amount of water used and improved uniform growth and minimised loss of fertiliser through flushing.

As well as the information gained during the course I had access to an excellent industry text covering the basics and performance specifications for various irrigation equipment available at the time.

Over recent years I have noticed plants in some nurseries suffering through apparent poor sprinkler system design with uneven watering. Sometimes when I enquired about this I was told that an external expert had designed the layout and that the nursery staff had to come around and top up the watering in some areas by hand. It is then that I recall a conversation I had with Don Bourke some years ago when he said that hand watering was one of the hardest things to teach.

Due to funding and structural changes the Waterworks courses are not held as often now, and are not available in all states. The systems have also changed somewhat with new drip and sprinkler system designs. Netafim™ have introduced their Spinnet™, Vibronet™ and Coolnet Pro™ sprinklers that are apparently being used in many new installations.

Fortunately much of the past information is still available, which is the

subject of the article in this edition. I intended to have a report for this edition on some recent field and covered crop installations, and hope to report on these early next year. I hope you can make use of the information to review your practice for the coming year.

Merry Christmas and Happy New Year to all of our readers.

Bruce Higgs

Photo: A combination of fogging and inverted Dan sprinklers for watering propagation stock in a relatively recent propagation facility at Andreasens Green Nurseries



### THIS EDITION

Irrigation Practice  
Exchange & Six Pack Experience  
Managing Irrigation Practice

Reports  
♦ President's Comment  
♦ Executive Officer's Comment  
♦ Perth Conference

News  
Newsletter Editors Comment

## President's Comment



Anyone who has had a propagator leave their production team knows how difficult it is to replace them. Propagation is one of those jobs that is in part a repetitive science, and part art form. Plants can be difficult to deal with sometimes. There is the environment that needs to be maintained at the optimal level. The tools, equipment and media that are required. And managing the propagation material, which is an art form in its own right. All these things differ depending on season, which crops are being produced, and which form of propagation is involved, be it seed, cuttings, grafting, macro or micro.

It takes time to develop the 'sixth sense' that is needed to read all the cues, and get a real feel for the whole process. In some ways, developing this experience is something of an 'old fashioned' ideal. It seems more and more that the modern world is one of immediate results and instant gratification. We live in an age where information is so abundant and accessible that it is no longer valued as it once was. It does sometimes seem that the answer to any question is literally at our finger tips, right there on the phone in our pockets. Indeed, many modern consumers think nothing of getting the information they need to make their purchase decision from one source, and making their purchase elsewhere. And when there is no reward for providing information,

the act of providing it becomes unviable.

This is where the IPPS as an organisation continues to provide value. The fact that its mission is to provide members a forum to both seek and share means that as long as we, as a group, are openly sharing our successes (and just as importantly, our failures), then we will benefit with access to that specialised information not available elsewhere.

Involvement is the key. Technology has given us amazing benefits, and continues to do so as it advances. But success in propagation takes more than just a google search. And the practical application of it is where the benefit of IPPS lies. It is in the "seeking and sharing" that the nitty-gritty, hands on practical experience can be found. Not just the "what", but the "where", "how", "when" and "what if".

This involvement is not without its challenges. The competition for our time and energy within our workplaces is immense. And the financial pressure of funding conferences and area meetings seems to be ever present. But without the effort needed to attend these conferences and area meetings, we miss out on the unique value of our Society.

Remember this when deciding on attending conferences and area meetings. And consider bringing a colleague or employee with you. Not only will you be promoting propagation as a career, and encouraging involvement in the practise today, you will be strengthening the propagation you do tomorrow. Because the more people we have sharing, the more we all benefit.

John Messina



## Executive Officer's Report

### IPPS OFFICE

Even though the IPPS Office slows down at this time of the year, I am still kept busy tending to general office and in-house duties. Preparations for next years conference are also progressing well.

**PERTH 2017**

**11<sup>th</sup> to 14<sup>th</sup> May  
2017**



**'Propagation for Health, Wealth & Good Times'**

For further information go to  
[www.ipps.org.au](http://www.ipps.org.au)

*Make a note of this date in your diary.*

### MEMBERSHIP

The Australian Region of IPPS has 185 Members.

## Member ship Subscription Renewal



All Members will shortly receive a notification email from the International Board advising that your IPPS Membership will expire on 01.01.2017. All IPPS Regions are now managed by the International Board, hence the new website.

## Great online features!

### Mobile friendly

Looks great on mobile devices too. Web content adapts beautifully to any screen size.

### Proceedings library

Access to all past and current Proceedings, conveniently in the members' only online section. Download individual papers or a complete volume with a click of a button.

### Searchable database

Find information you're looking for on the site quickly

### Media Centre

IPPS news articles, photo galleries and video galleries keeping you informed of IPPS activities world wide.

### Register for events online

Access event information and do bookings online

### Pay online

PayPal online

### Apply for membership online

Apply for or renew annual membership online.

### Ten websites, one system

A professional look throughout all IPPS websites. The layout is clear and easy to navigate.

### Japanese & Chinese characters

On the Japan and China sites text can be entered in Japanese and Chinese

### Dedicated IPPS hosting server

Hosting service by GoDaddy in the USA, ensuring uninterrupted service, includes payment for events & membership fees

There were a few 'teething' problems last year with some Members experiencing issues whilst trying to renew their membership via the new International website. International Board have advised that these have now been fixed.

**If you experience difficulties please do not hesitate to contact me. Credit Card or EFT facility are the preferred options.**

**NEW INTERNATIONAL WEBSITE –**  
[www.ipps.org](http://www.ipps.org)

### CONTACT DETAILS

To ensure Office records are kept 'up to date' I would appreciate it if Members could please notify me of any changed contact details. In particular, if you have changed your telephone provider recently, *please*

remember to forward your new email address onto me at; [pjberry@iprimus.com.au](mailto:pjberry@iprimus.com.au) or [pam@ipps.org.au](mailto:pam@ipps.org.au)

Pam Berryman

## Perth Conference

We really have an exciting and inspiring conference planned for next May in Perth based on "Propagating for Health, Wealth & Good Times".

### Conference venues & events.

We fortunately have been able to book the **Parmelia Hilton Perth**. The Pre conference tour on from – Tuesday 9<sup>th</sup> & Wednesday 10<sup>th</sup> May. This commences with a bus tour of the Indian Ocean Drive from Perth to Jurien Bay via Cervantes, with

spectacular coast views and pristine coastal bushland, and culminates in a visit to the Lobster Shack to view the live crayfish processing facility and lunching on fresh WA rock lobster. Overnight Tuesday 9<sup>th</sup> we stay at Jurien, returning via various sights of interest.

### Conference

Thursday 11<sup>th</sup> May – Early registration / Morning Board member meeting & afternoon all member golf event. Otherwise this is a free day. Perth spots of interest to be provided for those interested. Welcome reception will take place in the evening.

**Friday 12<sup>th</sup> May** – Main registration & short conference introduction / welcome and announcements. Tribute to the Late Steve Vallance.

The rest of the day we will all be on coach tours to various nursery industry & Swan Valley tourist venues.

**Saturday 13<sup>th</sup> May** - Conference full day program. In the evening we will have the traditional Drinks & formal IPPS Conference dinner at the Hilton.

**Sunday 14<sup>th</sup> May** - Conference program continues.

**Special conference features** – Keynote presentation **Josh Byrne**, Horticultural Consultant & Gardening Australia presenter. The Tribute presentation will be by **Angus Stewart**. Julianne from China will update us on the industry & IPPS China. This year we will have 6 Pack representatives from New Zealand, South Africa & China.

There will be a session called “ Prop Worx ” which will be rapid fire 5 minute presentations from propagators on the past year and next years propagation projects.

David Hancock

## Exchange & Six Pack Experience Mpendulo Gabayi

I have always known Australia as one of the best countries to compare to when it comes to horticulture. So I had to convince the South African IPPS region to allow me to take part in this lifetime opportunity. After I was nominated to present at the national conference, I had to give a great talk to get the votes from the members. I cannot explain the feeling I had when I was told that I was the 2016 IPPS Australia exchange student.

I wanted to visit Australia through the IPPS exchange program to learn different techniques and procedures of Australian growers and day to day challenges faced by Australian nurseryman. To explore differences and similarities of our flora and explore conservation issues and I

would like to believe that I have achieved more than that.

I travelled on the 7<sup>th</sup> of May via Dubai for 22 hours to Adelaide, on the 9<sup>th</sup> of May 2016 I arrived in Adelaide at night and was accommodated by Robert Lyte (2016 South African exchange) and his wife .



*Erica sesiliflora* Wittunga Botanic Garden Adelaide.

Robert took me to Wittunga Botanic Garden during a storm. The rain and wind was strong but nothing stopped us from going out. I saw many South African plants specifically fynbos species like *Erica sessiliflora*, *Leucospermum cordifolium*, *Euryops pectinatus*, *Kniphofia uveria* and many more. All of these plants were growing well in South Australia and presumably because of the similar climate we get in the south, which is hot dry summer and cold wet winter.

We moved on to Cleland Wildlife Park where unfortunately we could not enter because of the strong winds which might have been dangerous for visitors through falling tree branches.

Mount Lofty Botanic Garden was a highlight. I was amazed at the old trees and the landscaping of the gardens. The garden is about 400 hectares with native and exotic trees and beautiful horticultural art work through hedge trimming. One other thing that caught my attention was the Wollemi pine (*Wollemia nobilis*) also known as the living fossil because it was previously only known from its distinctive leaf, cone and pollen fossils. It was discovered relatively recently in 1994 growing in



deep gorges in New South Wales by David Noble, and was named after him. This highlights how little we know about the plant world and yet there is still more out there to discover.

We visited Stateflora retail nursery which specialise in Australian native species such as *Xanthorrhoea*, *Acacia* and *Eucalyptus*, and I spent time looking at the *Acacia* species that are a problem plant in South Africa.

The Rocket Pot was interesting as it is a pot designed to prevent roots from curling around the pot, the roots grow towards the openings on

## Yates Youth Six Pack

Applications are open for the chance to be a 6 pack member in Perth. You could have the privilege to meet some of the industry leaders while being sponsored by Yates.

All that needs to be done for either of these is **submit an application by Feb. 2017**. Contact details are on the IPPS website (see [www.ipps.org.au](http://www.ipps.org.au)) . .

## Rod Tallis Award

It is that time of year again when our young propagators need to be nudged and encouraged to apply for this prestigious award

A worthy propagator at the start of their career can gain an award that they can be proud of and mark the start of a successful career in horticulture. All you need to do is report on some propagation work you have undertaken. Then go to the website and apply soon.

the sides which then are air pruned naturally. This design also improves drainage and healthy root growth and can also be reused and these pots are currently not available in South Africa.

On the 10<sup>th</sup> of May I took a flight to Sydney and I was received and accommodated by Michael Gleeson. On the morning of the 11<sup>th</sup> I went to Featherdale wildlife park to see native animals such as koala, wallabies, kangaroo, emu, wombat and many more. I enjoyed seeing them as they are not animals you find anywhere in the world and I learnt about their behaviour.

I visited Engall's nursery in Dural where I met James Adams (2014



South African exchange), and he took me through the nursery where they grow mainly citrus. Engall's nursery has been operating since 1946 and it is the 3<sup>rd</sup> generation nursery now owned by Mark Engall. They grow their root stock from seed in 35 cm pots and keep them till they are about 600mm. The best out of the pots are then chosen for transplanting to individual pots for further growth then they do budding with another variety.

I was assisting there laying weed guard mat as it is one of the requirements to be met in order to be certified by Nursery Industry Accreditation Scheme (NIASA). This is national scheme for production nursery growers and growing media – potting mix businesses which operate in accordance with a set of national best practice guidelines.

Grange Growing Solutions potting mix and compost production and



processing is on such a big scale with high technology grading and bagging machinery. The bagging machine can produce more than 2000 bags in an hour and they operate with only with 21 employees.

The pre-conference tour was one of the highlights of my travels. We visited production nurseries that have interesting systems and procedures one of them was Solan nursery which produces potatoes from a tissue culture lab then onto the growing houses. What was interesting was the caution signs they had in the nursery houses and the lab. We had to wear lab coats, disinfect our hands and take our shoes off and pass through a sticky mat that basically removes any other particles that may be under your feet. As well as horticultural businesses we also visited wineries in the Barossa Valley where we had fun tasting different kinds of wines.

After the pre conference tour I attended the conference and was



part of the six pack team which is sponsored by Yates. This involved assisting with registration, putting up a banner, preparation of name tags and generally assisting through the conference. I enjoyed the experience of being a six pack team member.

From the first day I landed in Australia I had a warm welcome, pleasant stay and wonderful time with very friendly people. I couldn't have asked for more as it was a perfect trip and fruitful also. I hope to explain the knowledge I have gained to fellow South Africans. The IPPS exchange program is a lifetime opportunity and could open more opportunities in one's career. For all young horticulturists I would recommend to look out for the next intake of an exchange program For South Africans, going to such a beautiful country as Australia with a perfect program to learn from with IPPS and the exposure it gives is life changing.

Many thanks to IPPS South African region for giving me such a wonderful opportunity and I hope I have represented South Africa adequately, to Monique Mcquillan for believing in me from the beginning and the mentorship she has gave me over the past few years, and Judy Bucchianer (SANBI Kirstenosch horticulturist) for the assistance in my travelling to Australia.

Pre conference tour, Left; Almond processing in South Australia, Left below; Tour of Plummers Nursery near Renmark. Below; Ian Tolley giving a talk on citrus production at his nursery in Renmark



## Managing Irrigation Practice

The Australian Nursery Industry has for many years encouraged growers to select, adopt and operate an effective irrigation system according to best industry practice (BMP) guidelines. That means a system that best suits your situation including exposure to winds, light and temperature extremes, the variety of plants grown and their differing requirements.

As well as courses offered periodically by the Nursery Industry Associations, there are a number of resources covered in the references that readers are encouraged to refer to. In addition there are many consultants available that may be able to assist. Being familiar with the best practice information should enable you to ask informed questions to ensure that what is being offered to you at least meets the guidelines.

The guidelines cover a variety of growing situations (greenhouse, shade-house and in field growing) as well as systems including bottom up, flood and drain, drip, boom spray and sprinkler. Regardless of the system there is an expectation across the horticultural industry that newly installed irrigation systems should continue to operate effectively and efficiently for many years after installation. Selecting an irrigation system to operate to industry best management practice (BMP), along with implementing a regular monitoring and maintenance program, is vitally important to ensure many years of comparatively trouble free operation.

Much of the following discussion deals with the steps in sprinkler selection but could be adapted to other systems, and is based on Steve Hart's referenced paper.

**1. Sprinkler spacing.** Select a preferred sprinkler spacing to match cropping and production

requirements. Be aware of obstacles such as posts, windbreaks, pathways, ceiling and crop height.

- Small sprinkler spacing requires many risers, fittings and sprinklers increasing system installation costs. It may provide obstacles to production, equipment movement and mechanisation.
- Large sprinkler spacing causes water droplets to contact container growing media surface with considerable force causing splash and large spacing may cause droplets to become wind affected.

**2. Irrigation controller capacity** - may influence sprinkler selection and may need upgrading.

- Ensure sufficient controller slots/stations are available for any new irrigation zones and future plans.
- Check if the irrigation controller has the capacity to 'pulse irrigate' and can adjust, increase or decrease irrigation by a percentage. This is important for adjustment to match daily evaporation. We set our duration so 5 mm of watering is 100% and adjust the schedule accordingly.

**3. System pressure and flow rates** - directly influence sprinkler selection. The irrigation system including pumps, mains supply lines, pipes and fittings should be designed to ensure the pressure and flow rates can be maintained throughout.

- Test the pressure available at the proposed new irrigation zone with a Schrader valve incorporated in-line and pressure gauge, test also the flow rates available at any proposed new irrigation zone.

**4. Sprinkler configuration** - determine a configuration suitable for the proposed production & cropping type. Head heights above the plants are important so if your plants are on benches then the height is increased accordingly.



- Select an upright sprinkler secured on a riser or an inverted sprinkler hanging from a structure from published performance charts. Your irrigation supplier these days should have a space program for available types now.

**5. Droplet pattern** - influences plant canopy penetration. Sprinklers producing larger droplets provide improved penetration. Stream rotator sprinklers are generally selected with extremely dense canopy situations and large sprinkler spacing. 'Road guards' may be required to redirect irrigation water falling outside of the growing pad away from roadways and other areas.

- Select a droplet pattern to match your preference and experience. Refer to pressure versus spread data as this is the most important feature affecting overall efficiency and effectiveness.
- Select full or part circle sprinkler pattern and determine any requirement for road guards.

**6. Water quality** - and filtration performance are important parameters in sprinkler selection. Requirements for each sprinkler selected can be obtained from the manufacturer's specification sheet. Do you have rust in your existing lines?



What EC / ionic impurities are present?

- Determine water quality by assay, and filtration needs of the system.

**7. Industry BMP parameters** - established to evaluate irrigation systems to ensure they operate both effectively and efficiently to industry best practice.

Top: Boom spray calibration at Narromine Transplants, Bottom: catch cans deployed for testing at Larkman Nurseries



- Mean Application Rate (MAR) 10 – 25 mm/hr (to match infiltration rates of soil mixes)
- Coefficient of Uniformity (CU) >85% (over 90% readily achievable now)
- Scheduling coefficient (SC) <1.5 (closer to 1 is better to reduce water waste, 1.5 is 50% more water overall than the location receiving the most water)

The industry BMP parameters could be supplied to irrigation designers and installers as part of your contract specification.

*Have you measured your systems performance lately?* It really is easy to do and the water work calculator spreadsheet can be downloaded from the NGIA website.

**8. Sprinkler selection** - meeting all the parameters in the selection steps above, and is readily available, fits within your budget, and has acceptable maintenance requirements.

Specification sheets are available from sprinkler manufacturers providing sprinkler performance information including pressure and flow requirements, nozzle size and respective colours, filtration need, droplet formation, stream trajectory, and wetted diameter at specific test heights, and any special connection or assembly requirements. When selecting controllers also be mindful of frost requirements during winter.

As stated already you should regularly check the performance of your system against industry BMP parameters outlined in step 7 above. The procedure is very simple and has been demonstrated at many IPPS conference

and regional meeting field trips (refer to photos).

Whether it be a sprinkler or drip system all you need for this work are some “catch cans” placed about 1 metre apart (takeaway food containers), measuring cylinder, watch and record sheet to transcribe results into the waterwork calculator spreadsheet (which includes instructional steps in measurement).

As a challenge in early 2017 check out your system in part of your growing area to see how it measures up.

#### References

Chris Rolfe, William Yiasoumi, Edda Keskula (NIAA),” Managing Water in Plant Nurseries, a guide to irrigation, drainage and water recycling in containerised plant nurseries”, NSW Agriculture, 2<sup>nd</sup> edn. 2000

Nursery Industry Water Management Best Practice Guidelines;

[https://www.ngia.com.au/Folder?Action=View%20File&Folder\\_id=4&File=NGI157%20-%20Water%20Mgt%208-11.pdf](https://www.ngia.com.au/Folder?Action=View%20File&Folder_id=4&File=NGI157%20-%20Water%20Mgt%208-11.pdf)

NGIQ Irrigation and Water; A number of reference papers to assist managing water;

<https://www.ngiq.asn.au/resources/technical-information/irrigation-water/#>

Index of Water and Irrigation Technical Items, NGIQ, 2015

Water Management Toolbox for Nursery Production; with links to spreadsheets useful in evaluating systems including the waterwork calculator under the sphere “Top Water Irrigation Systems”;

<http://watertoolbox.ngi.org.au/>

Chris Rolfe (NSW Agriculture), Sprinkler layout and selection for outdoor production areas, Nursery Papers, Issue 2000/10 NIAA

Steve Hart, “Overhead sprinkler selection” NGIQ Farm Management System 2011

## Has your Horticultural Business become a member of Horticulture Innovation Australia?

Is your business a levy payer, for example does it buy pots?

The board of the IPPS Australian Region would like to encourage all members with a horticultural business to apply for HIA membership. It is through membership that industry bodies and research benefiting us will happen.

- Submit a brief summary of your background in horticulture, including why you like working in the industry and what you would do with the knowledge gained from the IPPS Conference.

Information about the conference can be obtained from the IPPS website [www.ipps.org.au](http://www.ipps.org.au)

Applications must be sent to: Jennifer Ollerenshaw (Secretary of Tubestock Growers Group NSW) [bywongnursery@gmail.com](mailto:bywongnursery@gmail.com) by close of business on Friday 24th February 2017.

and tablets that is run on the [i-Tree Design](#) system and is used to calculate individual tree benefits.

i-Tree 2017 (v6.1.15) has just been released and includes updates and new reports in Eco.

### Newsletter Editors Comment

As always I would like to thank everyone who has contributed to the newsletter and hope you feel inspired to test your irrigation system.

The main focus of the next edition will be the Perth 2017 IPPS conference to be held in May.

If you are not already a member join up to the region's **facebook site** - search for "**International Plant Propagators Society (IPPS) Australia**" and start contributing by "liking" it and posting. We now have over a three hundred Facebook member likes.

On the Facebook page we try to cover recent trends in horticulture both locally and overseas. There are a number of photo albums of events as well as video footage from Australian and other regions.

Don't forget that this newsletter and many past copies are available on the IPPS website at [www.ipps.org.au](http://www.ipps.org.au)

*Pass your extra printed copy of the newsletter around at work.*

*Bruce Higgs - editor  
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## News

### Attention NSW Nursery Businesses



The Tubestock Growers Group of NSW offers the opportunity for a young propagator to attend the International Plant Propagators' Conference to be held in Perth from 11th – 14th May 2017.

Sponsorship includes the Conference Registration fee and three nights accommodation.

Sponsorship includes the Conference Registration fee and three nights accommodation.

- Applicant must be under 30 years of age.
- Be a resident of NSW.
- Employer to submit a letter of nomination, including agreement to time off work to attend conference.

### Past 6 Pack Comment

As a six pack member, I found the conference to be an invaluable experience in my journey in the field of horticulture.

From visiting Nurseries around Adelaide, to meeting and learning from some of the most experienced and knowledgeable people in the field.

I've gained so much from the IPPS conference, and am continuing to apply it not only in my professional life but in my own personal life too.

Alex Lewis

### i-Tree Updates

There are two new tools available, [Species](#) and [MyTree](#). i-Tree Species is a web application that is designed to help users select the most appropriate tree species based on geographic area and the species' potential environmental services. MyTree is an app for smartphones

## 2017 IPPS Calendar

24 February - 26 February 2017	IPPS Waimate Field Trip
1 March - 4 March 2017	Southern Africa 20th Annual Conference, Tzaneen area
11 May - 14 May 2017	Australian Region Conference, Perth
18 May - 21 May 2017	New Zealand Region Conference, Pukekohe Racetrack
2 July - 18 July 2017	International Tour & Conference - European Region - UK, Belgium, Netherlands
11 October - 14 October 2017	Eastern Region Annual Conference, Grand Rapids, Michigan
17 October - 20 October 2017	Western Region Annual Meeting, Wilsonville, Oregon
28 October - 1 November 2017	Southern Region 42nd Annual Conference, Dallas, TX