



the Propagator

International Plant Propagators' Society
 Australian Region - Newsletter Spring 2006 - No: 11

AUSTRALIA - THE DRY CONTINENT

Many say that it is getting drier and that all of this is due to climate change. From my school days I have been told Australia is a dry continent.

Yes, the climate has changed. On a review of data from the Australian Bureau of Meteorology web site (<http://www.bom.gov.au/climate>). I was surprised to find that Australia recently experienced (on average) a wet period in our history (figure 1). No long term trend is evident from the rainfall analysis (Cusum).

The trouble is that the early 1970's and late 1990's were particularly wet periods. For many of us the last 20 or so years are our reference. We just remember the weather in our area .. as "being wetter in the past". Are we then really looking at a change to normal drier weather patterns, or is it an accelerated change due to global warming? I guess many think that they have the answer, but how can you be certain?

Figure 2 shows how the population in cities saw it in 2001 - 2005. Last year Sydney and Brisbane were drier than normal, but were still wetter places to live than the other capital cities except Perth and Darwin. 2002 was a dry year overall, and we have had a few wet ones as well in the last 5 years.

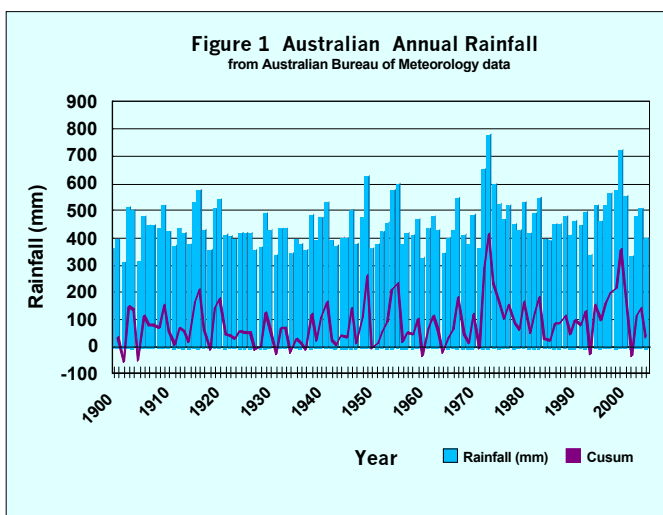


Figure 2 Capital City Rainfall 2001 -2005

City	2005 Rainfall (mm)	no. rain days	2005 % of Mean	2004 Rainfall (mm)	2003 Rainfall (mm)	2002 Rainfall (mm)	2001 Rainfall (mm)
Darwin	1360.2	115	80%	1778.2	1968	1214.4	1451
Sydney	816	113	63%	995.2	1207.6	860	1358.6
Brisbane	718	122	59%	1056.6	859.4	708.6	1061.2
Perth	874.8	125	107%	637	853.6	737.8	688.6
Melbourne	590	130	92%	623.4	493.2	396.8	605.2
Canberra	648.6	109	104%	435.2	569.4	505.4	500
Hobart	669.6	154	114%	578.8	643	465.4	681.8
Adelaide	629.4	121	111%	580.2	608.6	378.2	717.8

Winter (June to August) 2006 rainfall was well below average for southeastern Australia and Tasmania. Queensland's Darling Downs were below average, and the tropical northeast coast above average. WA rainfall over the central and southern parts of the state were in the lowest 10% of August records. The Bureau predicts dry weather for spring generally, except southern WA.

In February 2006 a report was prepared by the Agriculture and Food Policy Reference Group for the Minister for Agriculture, Fisheries and Forestry in part in response to climate change. Key points were: an emphasis on innovation, policies and investment to sustain a low cost competitive environment, a whole value chain approach, improving self reliance of businesses, and less regulatory burdens.

So what can we do as propagators and owners/workers? Well we need to be aware of changing trends and be prepared to adapt to these. Flexible organisations with an emphasis on cost reduction or product development (new plant varieties) for niche markets will be a key. Improving the water retention of soils on the farm through to the home, and recycling need to be encouraged. Other means of reducing water demand through appropriate planting and use of mulches to reduce evaporation need to be stressed to our politicians and the consumer. Back at the workplace we might also need to pay attention to how and what we are propagating. I hope we all have a great Spring.

Bruce Higgs

President's Comment



Welcome to spring. For many of us it is the busy season which gives us the cash flow to survive the rest of the year. It can make or break our industry and this year is a tough call. Ideally we would like some real rains, but not on the weekend or during the day. We still want people to get into the garden.

We have had a few good rains in various parts of the country and already a sense of optimism is coming out. Sydney had the wettest day for over 10 years, Victoria has had some good wet days and Tasmania has had some rain. Parts of Queensland and WA are still doing it hard and we pray that they will get some rain soon.

An off shoot of the dry is that the amenity horticulture industry has realised that it needs to be seen as an important part of the community. Water restrictions have been imposed across most parts of the country. Restrictions that are primarily targeted at the garden. The problem is there doesn't seem to be much empirical data as to the net gain of these measures. There is also little data on the costs to industry.

Governments do not seem able to consult with our industry. Many of us are intelligent thinking people who understand how gardener's think and work. We have some good ideas on how to preserve our precious resource. We could help to reduce water in ways that may not hurt the industry. Why not ask?

For many, the IPPS conference in Brisbane is long gone and moving into distant memories. The 2007 conference in Dubbo is a bit too far in the future to register on our minds. Hence IPPS is not thought of too much. Well your executive is working hard. We have David, David and Greg organising the 2007 conference. Andrew Matthews and myself are pulling together our team for 2008. Tony Thake and Ross Hall are working on the myriad of issues that arise out of producing the papers for the Black Book. John Messina is working hard to organise some area meetings. Please call him if you can assist. Peter Lewis and Anne Radke are reviewing our awards.

As well as these regular tasks we have brought about some new initiatives over the past twelve months. We reviewed our constitution which was approved at the AGM and is now at ASIC for approval. These changes will enable the Society to continue to develop and grow. You should have all received your new badges by now. You should also have received your membership certificates. Please put these up in your office, or other place where staff, family and visitors can see them. John Messina is also looking at some shirts, caps, ties etc.

IPPS is fantastic Society that sets the standard for information transfer. We should all be proud to be members. By displaying the certificate, wearing the badges and clothes we are telling the world about our Society. We may even be able to find other people who would also benefit from being a member.

May all you cuttings strike, grafts take and seeds germinate. Enjoy spring and keep on propagating.

- Clive Larkman

Secretariat Comment

At the time of writing this report it is raining and what a pleasant sound it is. Even so drought conditions are still being experienced throughout parts of SE Qld and NSW. If rain is not received in the catchment areas by mid October then Level 4 restrictions will come into effect in Brisbane (nil watering – no hoses – no watercans).



Combined Proceedings

International Board have advised they are on target and all Members will receive their copies shortly.

Dubbo Conference 27th to 29th April 2007

Next years conference will be held in Dubbo NSW with the theme 'Doing it Differently'.

Just a reminder that the 'Early Bird' registrations (Full Conference Registration \$315, Partners \$295) will close on **1st October 2006**

Financial

I am pleased to report that the Brisbane conference made a profit of \$13,000. As at the 31.07.06 the Society had a Bank Balance of \$42,379.00

Contact Details

To ensure Office records are kept 'up-to-date' I would appreciate it if Members could please notify me of changed contact details. If you have changed telephone providers recently please advise me of your new email address at pjberry@iprimus.com.au

International Website – www.ipps.org

Take a look at the newly completed International website (for Members only) www.ipps.org If you have any suggestions/comments on the new website please forward these onto myself at pjberry@iprimus.com.au

In case you do not know how to access the member area, I will be sending the "Username and Password" to you on the email address you have provided.

'Let the word of IPPS spread amongst us'.

Cheers, Pam Berryman

Membership Committee Message

On behalf of the Membership Committee, I would like to welcome all new members who have joined over the past few months. Whilst we have lost some members due to retiring, age and moving on to other areas it is great to see new propagators, especially young people, joining the society.

Our membership is down a little, to 242, so we would like all to spread the word and increase this at least 20% by our next conference. As new members will discover, there is a wealth of knowledge available throughout our Society to be shared, so why not tell everyone about it.

The Membership Committee is as follows:-

David Ponman - 26 Reservoir Road, Glendale NSW 2285
(Director/Chairman) Ph: (02)4954 5922 Fax: (02)4956 8299

Kathy Mullins - PO Box 816, Irymple VIC 3498
Ph: (03) 5024 6312 Fax: (03) 5024 6692

Brian Smith - Pacific Highway, Moorland NSW 2443
Greenlight Nursery Ph: (02) 6656 3107 Fax: (02) 6556 3278

Ray Parker - 68 Rifle Range Road, Wollongbar NSW 2477
Ph: (02) 6628 0485 Fax: (02) 6628 1787

Michael Gleeson - 41 Brighton Street, Riverstone NSW 2765
Ph: (02) 9627 4430 Fax: (02) 9627 6594

Henry Boogaard - 232 Mary Street, Wanneroo WA 6065
Ph: (08) 9306 1432 Fax: (08) 9306 3017

Daniel Mansfield - Carrum Downs VIC 3201
Ph: (03) 9782 2404 Fax: (03) 9898 7633

If you require information regarding membership, ask Pam or any of the Committee for folders and help. Also new or old members only have to call or email, Directors or Committee Members, for information and advice, because one of the benefits of belonging to IPPS is to be able to contact another member for help.

IPPS South Africa Exchange 2007

IPPS, Australia and IPPS, Southern Africa have established an exchange program. The intent is to have propagators at the start of their career gain experience of each other's industry and to build a better understanding of each country.

In 2007 a propagator from Australia will visit South Africa and be hosted by a local nursery industry family. They will work with South African propagators as well as visit gardens and other places of botanic interest. The visit will include the Southern Africa IPPS conference which is held in Pretoria. At this stage the Australian visitor will leave on March 11th and return home around the 30th.

The person chosen will be an ambassador for the Australian region and needs to have the support of their employers. An application form is available on the IPPS, Australia website www.ipps.org.au.

We also ask sponsors to keep in touch with new members as this is also part of our mentoring.

At our executive meeting in May it was mentioned that some had asked about a cheaper membership rate for a second person of family or business partner, however it was noted that if two or more people are in close contact they can share the proceedings or CD, therefore need only pay the lower membership fee of \$114.00.

Membership certificates have been sent out and look great hanging in the office or prominent position, mine is already on the office wall, so don't delay, do it today, hang it.

Well that's enough from me, except to remind you to spread the word about IPPS, introduce more people to it, take advantage of the benefits and I hope you gain as much from IPPS as I have over the years, just the friendship alone is worth it.

David Ponman

IPPS Awards Review

As a recommendation from the previous review of the Society's Constitution and Standard Operating Procedures, the executive committee has decided to review the annual IPPS awards. The annual awards being, The Award of Honour, The Rod Tallis Award and The Yates Six Pack.

The area's to be investigated include award advertising, selection criteria, selection of judging panels, judging techniques & prizes awarded.

The review committee would like to extend an invitation to all members to provide submissions on this matter. Please forward all your submissions either to our secretary, Pam Berryman or via Email to Peter Lewis at pj_lewis@optusnet.com.

The deadline for submission is the 20th October '06.

Area Meetings – A Vital Tool in Seeking & Sharing

IPPS is all about 'seeking and sharing', and Area Meetings are the ideal way to 'seek and share' between conferences. These meetings are an informal opportunity to network with your fellow propagators, and are open to both members and non-members of IPPS.

Recent meetings in The Dandenongs and Central Coast NSW were a great success, visiting businesses and research centres, and viewing such things as field budding, irrigation systems, stock bed management, and seed banks.

All members are encouraged to consider holding a tour through their facilities.

The IPPS Australian Region can assist with promoting the meeting, organising the day, supplying registration and membership material, and even funding to assist in covering costs.

If you have something worth showcasing, why not organise a meeting at your nursery or facility, and share it with fellow propagators in your area? Likewise, **anyone with suggestions on suitable venues for this kind of get-together can contact John Messina** to “get the ball rolling” on (03) 5024 8502 or john@sunraysianurseries.com.au

Sponsorship/Donations

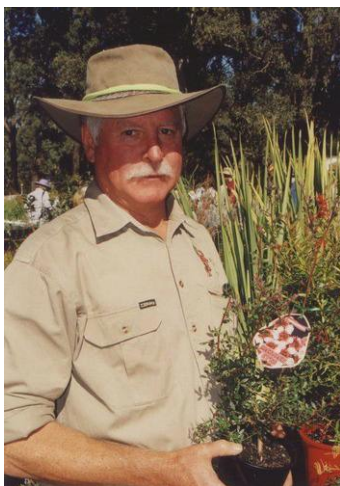
Michael Gleeson is seeking sponsorship or donations toward the purchase/construction of a set of presentation/storage boxes for a set of IPPS Combined Proceedings he has procured from a retiring member from the Southern Region. Allan Storm donated his collection, and it is Michael’s intention to prepare this set for presentation by the Australian Region to the Southern African potential region when they obtain full regional status.

Michael has designed a set of boxes that could easily be carried to future conferences etc. in the African region, and will be the only significant set of Proceedings in that region. Michael is also seeking any donations of the copies he does not have. Volumes 1-20 and 24 & 25. If you can help Michael in any way you can Email him: clynservices@bigpond.com.au or ring him (02)96274430 Mob 0419604461

Profiles

Peter Ollerenshaw

Peter is one of the early members of IPPS, and recalls attending the original Leura conference in his youth. He started his horticultural career as an apprentice with Parks and Gardens Canberra in 1964. After a year or two he chose to specialise in native plants at the Botanic Gardens. At that time there were only a few native “cranks” around, and little material in cultivation. He went on many field trips to collect plants from around Australia, and was involved in some early grafting work with *Westringias* and others to get healthy rootstocks. He eventually became a technical officer in charge of five gangs of gardeners. He worked at the Botanic Gardens for two periods of ten years, with a 2 year break in-between working in private enterprise.



Peter wanted some control over his life so Bywong Nursery was born. It is a family business, specialising in showy cold climate plants. They had to propagate whatever they wanted due to the location and the local demand from Canberra and surrounding areas. His experience and knowledge from field collecting has certainly been beneficial.

The question that started his endeavours into breeding was “what do you have that is new?” During the IPPS New Zealand conference in the eighties he saw an opportunity in breeding tea trees (NZ has one *Leptospermum* species and Australia 80). Since then he has found this interest fairly infectious .. “I wonder what would happen if we crossed this and this?”

Peter sees his expertise in having an eye for what the public wants. He has experience with Plant Breeders Rights also with several registered varieties. In 1991-92 he was President of the Australian Region of IPPS and was awarded the Australian Award of Honour in 1999.

Bywong Nursery was built on concepts gained from IPPS tours, and contacts. Peter remarked that he has found IPPS members to be genuinely interested in giving a hand, that's what makes it a great society.

Moisture and Humidity Control on the Propagation Bench

The inspiration for this came to me after the last conference. It has struck me that nearly every nursery I have visited uses a different system to control the cutting propagation environment. The thing is that these approaches all work, whether they are relatively simple or complicated. So I approached John Teulon to assist in putting this brief comparison report together.

In propagation systems we try to control the environment during rooting. Loss of water or too much water may result in cuttings not surviving. Cells must retain turgor for initiation and development of roots. So we have a system to:

- Maintain low evaporation demand. The ideal is to maintain turgor. Stomates close when water potential is low.
- Maintain sufficient temperature to stimulate root generation at the base without heat stressing leaves.
- Maintain adequate light levels for photosynthesis and carbohydrate formation once root initiation has occurred. For most species this is achieved at only a few thousand lux.
- Provide sufficient air movement for gas exchange.

The following table shows our thoughts on this, with systems we have some knowledge of.

- Bruce Higgs, John Teulon

Comparison of Different Cutting Propagation System Components

System	Description	Advantages	Disadvantages
Bench/ Heating	Radiant hot water pipe under bench (often open mesh (sometimes screened to minimise heat loss))	Good heating, heats whole greenhouse Low cost in warm climates	Large heat losses- expensive unless whole greenhouse heating needed Need boiler, and maybe an attendant if large & high pressure Old Coal fired dirty, new automatic ones better Need to mist over pipe sometimes as drying can be a problem Critical to inspect and keep media moist
	Sand bed with screened electric cable (240V or low voltage)	Easiest to control - also keeps top cool with warm root system. Need to check heat in media. Cheapest to operate to about 100 m ² propagation bench	If sand dries out - can lead to cable failure through overheating Safety an issue if earth leakage protection not installed. Weed mat over sand can reduce root penetration and sand contamination
	Electric cable sandwich in aluminium foil	Low cost to operate and control	Low water storage on surface - requires frequent misting Potentially corroded by fertiliser in media
	Capillary (geotextile) over hot water pipes (or cable)	Works well initially with pots/trays that have good contact for capillary to work	Drying out leads to poor heat transfer. Green slime is hard to clean & will block eventually Boiler for hot water pipes more expensive running cost than cable
	Reverse cycle heat exchanger - recirculating water in pipes	Low operating cost	Expensive to install
	Solar - hot water recirculating	Uses components similar to swimming pool heating	Less effective in winter when heat is required, electric boost increases cost
	Solar - eutectic salt heat exchanger	More efficient form of solar heating	Expensive, and salts pose OH&S issues
	Hot air from top of Greenhouse blown through heat bank- fan reversed at night	Works best on hot days and worst in cold weather	Expensive to install Often need another system as well
Watering /humidity control	Mist	Different spray patterns may assist with many plant types once you know the wetter and drier spots Cools leaves on hot days - more versatile Closed systems reported to be better especially allowing CO ₂ addition with intensive crops e.g. lettuce Sage misters good, other fine droplet (fogger) available for overhead spray	Sage misters - flexible tubes move around affecting uniformity. May need to rotate trays on bench Over-watering leading to cutting loss may be a problem
	Fog	Effective with good control, especially for deflasked tissue culture	In high heat - need to have pad cooling and system to wet bench/media
	Cloche	Good for not stressing deflasked TC stock Good for leaf moisture intolerant species	Hard to work with - need open sides for access. Coverings can cut light
	Hand watering	Low cost Can be very effective with 3 head nozzle mist-spray on wand	Labour intensive Plants may be easily stressed through inability to maintain turgor. Nutrient leaching from media
Controller			
- misting	Leaf - SS electrode with chromatography paper in-between	Electrode - very sensitive response to environmental changes	Change paper fortnightly - salt buildup Availability - out of production. Copper plates out from water - clean
	Leaf - balance arm	Good - responds to environment, simple	Need occasional adjustment, and to be keep clean (vinegar) to stop salt buildup
	Timer	Automatic	Needs frequent adjustment - too rigid for environmental changes
- fog	Humidistat controller	Automatic with good humidity control	Old ones hard to control, cumbersome

What is Commercially Available?

The scope of tools available to the nursery industry for nursery, vegetable and flower propagation has never been more broad or technologically advanced than it is today.

The choice of tools will depend on the application but some worthwhile options to consider are:



Benches: either fixed, or movable (for an increase of up to 20% in production area). Standard or ebb & flood benches - for the ability to irrigate and fertigate (irrigate and fertilise) plants any size tray or pot.



Range of shade/thermal screens: to reduce stress during periods of high light & heat, to retain energy during cold periods or to simply provide a better working environment for staff.



Air circulating fans: to improve temperature and humidity distribution.

High-pressure fog: (600psi or above): for active cooling for temperature reductions of 10 degrees or more, or to maintain humidity at an acceptable level – e.g. 85% - 95% RH.



Misting systems: to uniformly apply water to seedlings.

HID (High Intensity Discharge) lights: for added assimilation irradiance or to manipulate day

length.

Heating: either bench heating to heat the plant roots directly or hydronic (pipe) heating to heat the greenhouse environment.

Control: recent advances have seen moves to integrated control systems, combining climate with irrigation and fertiliser control, with built in crop models to better predict plant requirements in a dynamic greenhouse environment.

- Marcus van Heyst (photos courtesy Powerplants Australia Pty Ltd, and fog pumps - Greenworks)

Some Members Experiences

Sunraysia Nurseries

Striking Beds (14.5m x 1m).

Thermostatically controlled mains heating cable 6.5cm apart embedded in coarse sand 10cm deep. Single 12.5mm supply line down bed centre, with 50cm high risers' @ 76cm centers with Sage mist sprinklers. Sage balance arm activating "Sage digisprinkle 200 day/ night timers".

Weaning Beds (14.5m x 1m).

Same mist set up but timers only, on 75mm galvanised weld-mesh, facilitating air pruning of roots.

We built the benches on site, within old fashion tomato glass houses, which have long since had glass replaced with poly. The houses are not heated, but are cooled with exhaust fans and domestic evaporative coolers. We propagate all species on open mist benches,

however if we are working with very soft wood (which we avoid if at all possible) we cover benches with clear plastic sheeting supported by 10 gauge galvanised wires at 1.5m above the bed to create a humidicrib.

We chose this style of misting because we saw it working well for other IPPS nurserymen. We built them some 30 years ago and have had no cause to upgrade.

- Peter Smith

I chose to make this type of bench because I got hold of a heap of second hand Fibro for nothing. Typical nurseryman!! It was however very easy to keep clean and disinfected, and was extremely durable. I sealed it along the wall with silicone sealant, and mounted it onto some 18 gauge gal angle I had made, and screwed to the wall. The height of the bench also fitted in well with the height of my trolley making it easy to transfer from bench to trolley.

As for my cutting media I used mist only to maintain a film on the cuttings, and hand watered with a “water-breaker” as required and judged myself. In mid summer with temps in the 40’s this could be 2 or 3 times a day and in winter maybe 2 or 3 times a week. I also mixed my media as I used it in an old cement mixer. As part of the media was perlite, I added water. I also included Tricoderma which was mixed with water. Media was packed into pots, then watered before use. Cuttings were watered-in before placing on the bench. The cutting bench was a sand bed with heating cables, and cutting pots were bedded into the sand to draw from the water-table.

- Michael Gleeson

University of Queensland Gatton

My preferred design of propagation bench is an open-topped galvanised weldmesh bench with 12mm low density poly pipes spaced 100mm below the bench surface and 120mm apart across the bench. The aim is



to maintain a temperature of 25°C in the root zone on the benches.

We use a high pressure fogging system controlled by a humidistat to maintain the humidity in the zone of 85 to 95%. To ensure a satisfactory humidity it is necessary to shade the greenhouse roof effectively to reduce light transmission to around 30% of outdoor ambient light. We use aluminised thermal screens to achieve this shade level.

I should add that my preferred watering system is hand watering of trays and tubes. This ensures that there is a staff member evaluating each propagation bench every day. You pick up problems much earlier this way.

- Ian Gordon

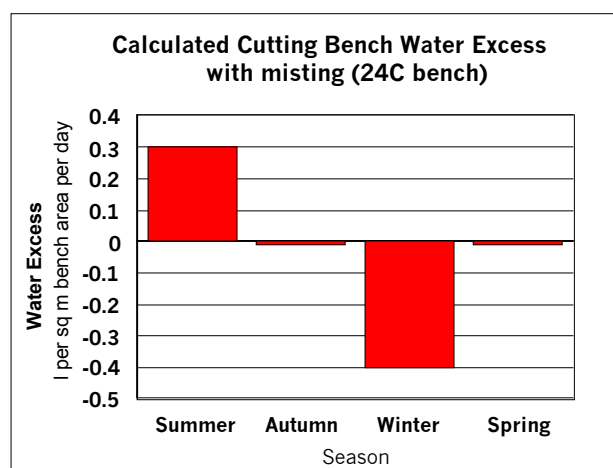
John Teulon uses smaller units and glasshouses. This gives better control than the large single area houses when accommodating the needs of many different plant types. Heating is by cable buried 50mm deep in Clarence coarse washed sand. Kevin Handreck’s “growing media for ornamental plants and turf” provides a method for selecting a suitable sand for a capillary bed.

John uses an electronic leaf as it caters for low humidity and summer nights, and varies with cloud cover without needing adjustment. He prefers and uses a sand bed. He also knows a sand bed will work unattended for days when he goes away.

Water runs to the centre of the bench where geotextile fabric is used to wick off excess water (especially in summer, mean temperature is 27C). In winter (mean 13C) the bed is topped up with water by running the misters for a few minutes each day as required, using an irrigation controller. Beds otherwise dry out in winter due to heating systems (17 to 23C in media) - see the chart below.

John specialises in propagating a variety of cold climate shrubs and trees. He felt that more plants are killed through overwatering than underwatering.

- Bruce Higgs from a discussion with John Teulon



Challenge (Another challenge)

Those of you who read this newsletter regularly will have noted that I have been offering ideas for research for our younger members in an effort to get some papers presented at conference.

I now offer a slightly different challenge. Have any of you out there done some little research project in your propagation area that failed? You know what I mean, you tried different hormone strength or a different media or different mist settings, you did cuttings at a different time of the year or different types of cuttings, but your trials failed or resulted in a poorer result than normal.

We had a paper delivered by Anne Radke at the Brisbane conference where she described just such a trial.

Well how about you tell us about your failures and perhaps save us the trouble of making the same mistakes. I believe that it is just as relevant to present your failures as it is to report your successes as a paper at Conference. So get out your old records or put your thinking caps on, write it down and let your fellow propagators know about it.

- Michael Gleeson

Your Say

Ian Nelson is leaving Australian Horticulture and is working in another area of the Company – Rural newspaper section. Ian wanted to thank Members of IPPS for their support over the years.

A water crisis?

What water crisis! We don't have a water crisis. There is plenty of the stuff around, just turn on the tap. Ah! I hear you say, the dams are low the rainfall it has not come, we are all doomed. Bulls confetti, we don't have a water crisis!

We live in interesting times. Interesting in that suddenly (the past four or five years in fact) we are being told, repeatedly ad nauseam that there is not enough water to go round, that Australia is the driest of continents and that we are cursed if we have a beautiful green garden. The truth is very different.

There is enough water to go round. If you look at the Bureau of Meteorology figures (www.bom.gov.au) you can see that in the past 12 months the rainfall for our major cities is around 800 to 1000 mm. Plenty to run a garden. Add to that the water that comes from their mains. More than enough, but now you pay as you go. Now you are aware of the water that you use as it hurts the pocket.

Australia is a dry continent, but we also have a small population. If you divide the available water by the

population we are doing very well indeed. We are a dry continent, but we live in the wetter bits. More than 90% of Australians live in an area with an average rainfall of 900 mm or more. Plenty of water folks for you to go out and play in the dirt.

A green garden is possible with very little water. Mulch and mulch again I say, it will keep that water up around the roots of your plants and stop the sun from drying out the top soil. Plenty of water, you just need to have it put in the right place.

We don't have a water crisis, we have a water management crisis. We are being sold a fib, perpetrated by those who are not willing or able to admit that they have been unable to make good decisions in the past. They are blaming gardeners and the nursery industry for their mistakes. Less than 7% of irrigation water gets used on home gardens and yet you are copping the punishment.

Yes an adjustment or two is needed. Catch your roof water and store it in a tank. Divert your grey water and channel it to the plants. Bring in the mulch to keep roots moist. Choose suitable plants for your area. You may even ditch the last of the lawn and convert it to a paved courtyard.

It could be time to also ditch the polities that repeat the fib. At least challenge them to come clean with the facts.

Water crisis, what water crisis! With some small changes to gardening habits we call all have a paradise in the backyard, now excuse me while I go out and enjoy planting a few more additions to my garden.

- Greg McPhee

Volume 19 Issue 2 of **Plant Varieties Journal** has been published electronically. You can download this current issue from the following site:

http://www.ipaustralia.gov.au/pbr/journal_download.shtml

Newsletter Editors Comment

I hope you enjoyed reading this edition. I have tried to keep a focus on propagation, but included some general interest rainfall information. In the next issue I hope to look at horticultural training, particularly courses related to propagation. If you have something to contribute on this or some other news you want to share then please contact or send it to me.

There is a bulletin board on the International website that needs to be used more. If you have a question about something try it.

You have received two copies of this newsletter, please pass them around or leave one in a public place.

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