

# IPPS

Sharing Plant Production Knowledge Globally

# the Propagator



International Plant Propagators' Society

<http://aus.ipps.org/>

Australian Region - Newsletter Winter 2019 - No: 62

## Changes

Even though the theme for our Sunshine Coast conference was "Shaping Up for the Future", a number of our speakers summarized it as really being about "change".

I suppose when you think about it social attitudes and our industry are changing, and IPPS is changing in order to adapt to these changes. We need to change our own viewpoints otherwise we will get caught up in a rut and resist the new possibilities presented to us.

At the core of this is our passion for plants, and as we heard from one of our new members this can be caught. All that was required was to take the first step in joining one of these activities and catching the passion of other plants-people.

IPPS is seeking new possibilities, as was evident at this years joint Australia and New Zealand conference held at Novotel Twin Waters, Queensland. We recognise the achievements of some of these passionate people each year. This year also marked the recognition of those who have contributed greatly to the industry through institution of the **Edward and Mary Bunker Award**.

The Seasol Six Pack, international exchange awardees, and engagement with fellow passionate plants people from across the world all offer opportunities for us to learn and change.

Sponsorships from industry assist the organisers to make our conferences more affordable to members. It also gives them more exposure through contacts at trade displays and for some the opportunity

to provide guest speakers to inform members of new advances that may affect us all.

Now our conferences give the opportunity for sponsors to provide speakers from their business and local and international affiliates. The conference was richer from having speakers associated with **Garden City Plastics, Transplant Systems, NGIA Biosecure HACCP and ACS Distance Education**. In fact over 50% of our speakers came from other countries.

Great possibilities both domestic and internationally, warm hospitality and great networking opportunities while we seek and share sum up IPPS conferences.

**Bruce Higgs**

*It is not the strongest or the most intelligent who will survive, but those able to manage change. - Charles Darwin*



The 2019 IPPS Six Pack Emily Teng (USA), Sonia Nadge (WA), Jamie Sarah Van der Hoek (NZ), Brayden Fitzpatrick (SA), Jane Dowie (NZ) and Elmiem Coetser (South Africa) supported by Seasol International.

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## President's Report

We have just got our breath back from having a great conference at Maroochydore, and the ball is rolling again. For those of you who didn't get the time, energy or opportunity to attend this conference you missed out on some really interesting subjects and the opportunity to meet quite a lot of international visitors. The numbers attending were pretty good around 150 souls attended the main dinner, and the highlight of the evening was the introduction of a fantastic new award, The Edward & Mary Bunker Award, and having all the Bunkers there to celebrate an outstanding dedication to the society for over 5 decades, made for a very emotional evening.



It would be amiss of me not to mention the preconference tour for which we had 54 starters. Clive and Di Larkman did a grand job, the group got along magnificently and set the tone for the whole conference. I couldn't hold the fort on the Big debate night (subject was *which country grew the best potted plants*). I outdid the New Zealander's and the Europeans, but got thrashed by Bill Barnes representing the Americas.

During the excitement of the AGM I forgot to announce that we have bestowed Honorary membership on two of our very long standing members, John Teulon and Ian Tolley. Congratulations and well deserved. Also discussed at board level was up and coming conferences and it was decided after Geelong next year (David Daley organising) we would then go to Canberra area (Jacqueline Jenkins) for 2021 and then to celebrate our 50th we would head back to Katoomba/Leura area (Bruce Higgs).

And though it's the depth of winter in the southern parts of Australia, and the days are too short its only a matter of a few weeks before we are too busy to think about much else but work. So take a moment and think about how we could get a few people together in our local area and have a cuppa, maybe talk to your local TAFE or other training body about an excursion. It only takes a couple of members to make a bit of a move and the ball is rolling.

Cheers for now

Tony Vander Staay

## Executive Officer's Report

**International, Australia & New Zealand Conference 2019 - Twin Waters, Sunshine Coast** - What a fabulous Pre-Conference Tour and what a great venue to host this



## IPPS Australian Region Board for 2019 - 2020

Tony Vander Staay [tvanders@westlandnurseries.com.au](mailto:tvanders@westlandnurseries.com.au) **President**

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Jacqueline Jenkins [jacqueline.jenkins@cit.edu.au](mailto:jacqueline.jenkins@cit.edu.au) *2<sup>nd</sup> Vice Pres.*

John Messina [johnmessina30@gmail.com](mailto:johnmessina30@gmail.com) *International Director*

James Burnett [jab342000@gmail.com](mailto:jab342000@gmail.com) *Treasurer*

Ray Doherty [ray@azaleagrove.com.au](mailto:ray@azaleagrove.com.au) *Awards Committee*

Puthiyarambil Josekutty [josekutty964@gmail.com](mailto:josekutty964@gmail.com) *Area Meetings*

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years International conference. A big 'Thank-you' to all the organisers and a 'special thank-you' to Ray Doherty, Clive & Di Larkman for their efforts in ensuring this years International Pre Conference tour and conference was a great success ... feedback from delegates on the Pre Conference tour was very positive and all enjoyed the tour very much. It was a great balance between Nurseries, gardens and tourist attractions.

This was then followed by the conference which was just fantastic. I thoroughly enjoyed attending both but am also pleased to get a bit of a break now before next years in Geelong.

Plans are well underway for next years IPPS conference in **GEELONG, VICTORIA**. Make a note of the date for next years conference in your diary now - **GEELONG, VIC - 20th to 23rd May 2020**



## Membership Subscriptions 2019

A big thank-you to those members who have forwarded payments. A friendly reminder to everyone else, could you please attend to this matter at your earliest convenience. If you are having difficulty in paying your subscription (for whatever reason), please feel free to contact me so we can discuss alternative payment options.

## Contact Detail Changes

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

**BANK DETAILS: Bendigo Bank BSB: 633-000 Account No: 140185737**

**If paying by EFT PLEASE PUT INVOICE NO. OR NAME IN THE PAYMENT BOX SO I CAN IDENTIFY WHO PAYMENT IS FROM. THANK YOU**

changed telephone provider recently, please advise me of your new email address at [pam@ipps.org.au](mailto:pam@ipps.org.au)

It is important that the Australian & International database records are kept 'up to date', otherwise you could be missing out on receiving information.

Pam Berryman

## International Director's Report

After many years of using an independent secretarial service to administer the day to day running of the society, IPPS International is in the process of changing the secretariats role to one of an executive director. This role will be more cost effective, as well as more in tune with the mission of the society.

There is a big push for sponsorship to replace the income missing from falling membership and increased operating expenses.

New international editor Bob Geneve is working through the editorial process. Whilst the black book is now effectively an "online only" publication, he is looking to supplement it with paper presentations in Powerpoint format hosted on the website for members to view. The trend of less and less papers being forwarded by presenters after their presentations is a concerning one. We need to be able to share information beyond the room it is presented in. These new formats are important to our basic mission of seeking and sharing.

A copy of a proposed amended constitution was sent out to members early this year. The proposed changes reflect the expansion of regions across the world, with India and China both in the process of setting up regional boards and aiming to become new regions. They also effectively "clean up" some of the old constitutional definitions to better reflect the modern times we are operating an international organisation in, and

### Seasol 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 Seasol.

### 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.

*All that needs to be done for either of these is **submit an application by Feb. 2020**. Contact details are on the IPPS website (see under members at <http://aus.ipps.org/> )*

allowing for more efficient progress in board operations. The required number members replied and overwhelmingly voted for the changes, and the amended constitution has been enacted.

We are currently working on a getting the website revamped to be more user friendly, a bit more consistent between the regions, and expanding its content.

John Messina

## South African Exchange

My name is Brayden Fitzpatrick and I was selected to go on the 2019 IPPS South African Exchange Program.

The experience was amazing and I had no idea what I was in for before heading to South Africa. Before I left Australia I thought it was just going to be a trip based completely on horticulture, but of course it wasn't. I learnt more than I could have ever imagined. My experience allowed me to learn about the history and culture of South Africa. I saw so many amazing places and met so many beautiful and knowledgeable people in the field of horticulture.

This trip made me realise just how many career paths there are within the horticulture industry. It has also inspired so many new ideas for myself and allowed me to gain so much knowledge to bring back to Australia and share with other like minded people.

I believe I got so much out of the trip just by embracing every minute and opportunity. For others considering to undertake an exchange program do not hesitate to try new experiences and make the most of every minute you have.

On my return to Australia I was able to report back at the 2019 IPPS National Conference on the Sunshine Coast. Once again meeting so many people who have a similar passion to me. It was a great experience. Having people within the industry to inspire to and help create so many future goals both professionally and personally for myself was invaluable.



Thanks to my workplace, Ecodynamics, and the IPPS for making this amazing opportunity possible. I would also like to give a special thanks to all the people who were involved with the logistics, hosting and knowledge sharing.

## IPPS Dinner and Awards

What a great setting, especially with so many international members. As always it was a great time to chat and meet new friends and seek and share.

**Peter Smith Perpetual Golf Trophy** This year the golfers contested for this prize at **Nambour Golf Club** whose course is centered around a valley full of rainforest pockets. This prestigious sporting trophy was presented to Tony Ferraro by Tony Vander Staay. Who will meet the challenge next year at Geelong?

**Award of Honour** This year John Messina received our highest regional award from Tony Vander Staay for his ongoing contributions to the society over many years.

**Rod Tallis Award** this year we were pleased to have a number of applications and to have Ou Wenjin from China selected to receive this prestigious award.

**IPPS Steve Vallance Award** David Hancock received the award from Natalie Vallance in recognition of distinguished service to the society over many years.

**Edward and Mary Bunker Award** This is a new award that serves to recognise someone who has demonstrated the IPPS motto "to seek and to share" for the betterment of the industry at large. The inaugural

recipient was John McDonald. It was pleasing that the Bunker family could be at the dinner and share in John receiving the award.

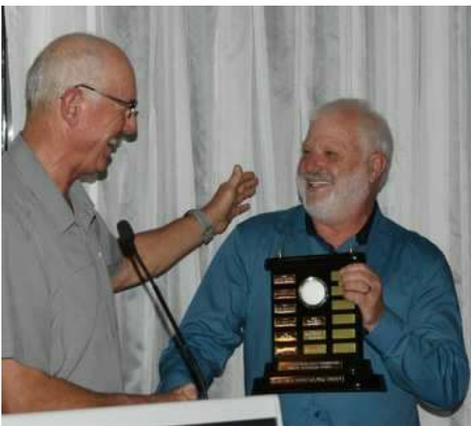
**Anita Boucher Award** Is selected each year by the Editorial team for the best paper at the conference, and this year Bill Barnes was selected for his paper.

**Youth Auction** Peter Waugh again supported by our Six pack members encouraged us to spend up in support of our youth program. Our silent auction was concluded earlier in the day due to space constraints at the dinner venue. A syndicate led by James Burnett was successful in securing the IPPS silver plated Felco secateurs at the auction. Who will be successful in securing them next year?

**Seasol 6 Pack** Our awards chairperson Ray Doherty presented the **Seasol "Six Pack"** of; Elmien Coetser (South Africa), Jane Dowie (NZ), Brayden Fitzpatrick, Sonia Nadge, Emily Teng (USA), and Jamie Sarah Van der Hoek (NZ). Many thanks go to Seasol the sponsor of the Australian youth initiative.

Members of the six pack are sponsored to the conference, and are selected from a number of applicants. Please encourage some young members of your staff to apply soon for next year in Geelong.

We welcomed some new members and all had some fun at the conference dinner, and auction afterwards. Congratulations to Ray Doherty and those who helped organise this special conference and especially for their attention to detail.





## Shaping Up For the Future - papers IPPS conference Sunshine Coast - 2019

**Angus Stewart** "What can plant propagators do for the world's environmental challenges?". Angus believes that the 21st century offers a golden opportunity for horticulture and plant propagators. He highlighted three areas where he saw great opportunities.

Revegetation industry - Australia is very biodiverse with something like 25000 species, many of which are struggling with urban encroachment, farming and mining. This presents opportunities for replanting as well as consulting, and involves site audits, seed collecting and plant propagation to maintain diversity. Long stem planting of eucalypts to stabilise river banks was also discussed.

Carbon sequestration - long term tree plantings is one of the challenges for this century. Composting and especially of food waste was seen as one of the opportunities. Ozharvest are using food waste in composts for community gardens. Home and industrial scale worm farming were discussed, one cut flower grower was quoted as saving \$70,000 per annum on fertiliser and chemicals with this approach.

Urban Farming - is happening in cities through the world. Angus feels that we as an industry need to raise the consumer awareness of the difficulty to produce fruit, vegetables and flowers in an environmentally acceptable way as we are all experiencing cost pressures. He discussed an urban farm project he has been involved in at Macquarie Harbour in Hobart using city waste, turning it into fertiliser and using it on raised wicking plant beds (Vegepod system). One of the new cost effective inventions being trialled at present is WaterUps from DownUnder wicking cells.

**Dr. S. K. Unnikrishnan** (Unni), presented "Current Trends In Propagation And Commercialisation Of Aquatic Plants". The aquatic plant business worldwide is worth about \$400 million. Glass cased "gardens" are based on the use of home aquariums with plants of



different size and form. Many terrestrial plants when grown underwater take on a different form, so the variety of plants that can be used is great. The talk emphasised the advancements in propagation including micropropagation and delivery of healthy, vigorous aquatic plants to the global market. See <https://www.biotopeone.com/latest-trends-in-propagation-of-aquarium-plants/> also for a description.

**Megan Robinson** - from Headford Propagators in NZ gave a report on her 2018 Western Region exchange trip including the International Conference in Hawaii. At Hawaiian Sunshine Nursery she was amazed to see plants grown in volcanic rock. Walking around Kona Cloud Forest Sanctuary was one of the highlights of attending the conference. From there she flew to San Jose in Southern California. Her first visit was to Four Winds Growers (citrus nursery) then onto Santa Cruz Arboretum (University of California). After some touring she went to Yamagami's Garden Center with a great range of plants. Her next visit was to the Elizabeth F. Gamble Garden with a great layout. At Cabrillo College in Aptos she saw an aquaponics lettuce crop. At Fresno she went to Taiko Nursery featuring an Elle Pot machine then onto Alta Nurseries who use Elle pots and do 9000 cuttings a day. At Olive Hall nursery (140 employees) all the 25 varieties of plants are grown indoors. She was amazed at what she saw each nursery could do at the International Floral Trade Center. At Jim Shearmans Nursery she not only saw plants but snakes, lizards and frogs. Western Cactus was another highlight with a great variety of plants.



**Emily Teng** - in her talk "Trading Gray Cubicles for Rainbow Skies: How I Changed Careers and Ended up Growing Plants in Hawaii" spoke about her career change into growing plants and her NZ exchange to Australia and NZ in the future.

**Laura M. Miller** from Texas spoke about their problems dealing with "Crapemyrtle bark scale (*Acanthococcus lagerstroemiae*)". (<http://www.EDDMAPS.org/CMB/> has links to papers and fact sheets)

In the United States there are two main pests of Crapemyrtles (that we know as crepe myrtle): Crapemyrtle aphid (*Sarucallis kahawaluokalani*) a leaf pest native to



southeast Asia, and Crapemyrtle bark scale (Kuwana) native to Asia. Kuwana is polyphagous and is really hard to control. Black sooty mould on bark is an indicator, and it is morphologically nearly identical to azalea bark scale but genetically different. If you squash a bark scale on a Crapemyrtle and it is pink it is Kuwana. No resistant Crapemyrtle cultivars have been identified. Out of the insecticides trialled Neonic soil injections worked best to control the pest. However Crapemyrtles flower in August and produce lots of pollen and when bee hives were inspected in Texas most of the pollen was from Crapemyrtle. Kuwana also appears to complete its lifecycle on a popular native plant: American beauty-berry (*Callicarpa Americana*). There are many other hosts, but these include *Buxus microphylla*, *Malus domestica*, *Rubus sp.*, and *Myrtus sp.* (Myrtaceae). Lady beetles were found to be a natural enemy, so trials were undertaken to test the impact of insecticides on natural enemies. Oil sprays are not effective in control of the scale, the Neonics are, and applications of the insect growth regulators Buprofezin or Pyriproxyfen were also effective.

**Sandon Adams** from Oritain in his paper "Origin Fingerprinting to Protect IP" explored the use of new technologies in IP protection by using an analysis of radioactive isotopes plant samples as "fingerprints" to trace the origins of plants to their growing source down to country, region or even nursery/orchard. Indicators analysed for include the isotopes <sup>13</sup>C, <sup>2</sup>H, and trace elements Li, Al, Pb, Cs, Rb and Sr content allow them to get down to farm location. As an origin system it has benefits over traceability systems in terms of forensics back to the origin. Multi-variate statistical models are used to analyse data to arrive at the "fingerprint" based on origin and detect fraudulent product that could damage brand reputation.

**Dr. Puthiyaparambil C. Josekutty** from Skybury Coffee Pty Ltd, ([www.skybury.com.au](http://www.skybury.com.au)), has micro-propagated over 100 plant species and crop varieties from Australia, USA, New Zealand, Micronesia and India. His talk on "In Vitro Cloning of Avocado". Clonal rootstocks offer uniformity resulting in increased yields and reduced orchard management costs. Currently they are produced through the troublesome and painstaking double grafting protocol (Frolich method) where plantlets are grafted onto sought after rootstock varieties that are difficult to root. Australia produced 77,000 tonnes of avocados in 2017/2018 of which 2.3% was exported. Queensland accounts for 62% of the production, and



the major varieties are Hass (78%), and Shepard (19%). At present there is no commercially available In Vitro protocol for any of the rootstocks. Some of the seedling rootstocks used in Australia are Zutano and Velvick, and Clonal rootstock examples are Dusa and Lata varieties. Jose is investigating micropropagation from apical/axillary meristems introduced into culture medium with some success for Zutano. An unusual issue found was antibiotic resistant bacterial contamination in shoot culture. Rooting did not have sufficient root hairs though to form viable plants. Ex-vitro rooting of shoots under greenhouse conditions appears to be working on a small scale.

**Dr David Elmoultie** - Business Manager ANZ - BASF Professional & Specialty Solutions, spoke on "Introducing New Chemistry and Actives" especially the new Versys and Velifer Insecticides. One of the challenges happening today with legislation is consumer driven change rather than science fact based. Another is the effect of court cases and insurance on the

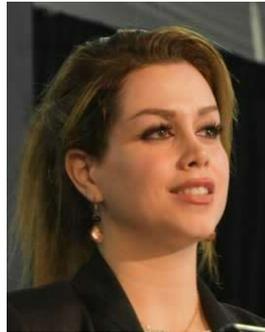


ability to use products into the future. Development of new chemistries is more difficult now than in the past. Versys is a synthetic insecticide derived from a natural fermentation process and a 9D insecticide working by disorienting aphids with good residual activity and short withholding periods. It has translaminar and acropetal mobility through leaves and to the tips, and of low impact with beneficial insects. Velifer (registration pending) is a contact fungal biological insecticide for thrips, whiteflies, aphids and two-spotted mites. It is claimed to be effective through egg, larva or nymph, pupa and adult life stages. The level of control is greater the earlier it is used as part of an IPM program. Late afternoon application with low UV levels is preferable.

**James Altman** from Biological Services presented "Optimising IPM Into the Future - Current Strategies and Challenges". New chemical products are becoming more specific, with lower residual life. They are typically IPM compatible, with lower environmental toxicity and are often microbial based. We can no longer rely on a continual supply of new chemistries. IPM relies on; clean nursery stock / seed; Quarantine / Exclusion/ Screening/ Trapping; Hygiene/ Sanitation/ Segregation; Biocontrols & Monitoring; Selective use of Chemicals; Residual Broad-spectrum Chemicals and Fumigation use restricted to last resort. Typical pests and appropriate biological controls for each were described. A number of new technologies and biological controls from various producers were discussed also.

**James Gardner** from Organic Crop Protectants spoke about "OCP - Insecticides". Points raised were that you need to be proactive in your pest and disease control, and adapt your production system to suit. Knowing and monitoring pests and recording and reporting were emphasised. James then spoke about Neem oils, and AzaMax action on insect life stages. ApisBloom is a new pheromone for attracting bees. The use of bees to control crop *Botrytis* by using *Trichoderma* at the hive was also discussed.

**Dr Reyhaneh Pordel** is an Agronomist Representative from Garden City Plastics, and spoke about "plant enhancement and disease improvement". With heightened public concern about the use of pesticides in our environment there is a need for us to optimise the management of pesticide and fertilizer use. This is particularly important in greenhouse environments where we control air flow, temperature, humidity, media, temperature, pH, nutrition and watering. Resistant crops will reduce the need for pathogen control. Reyaneh initially focused on Smokemaster (improved seed germination), Smoke-water (germination and soil treatment) and Shield (liverwort control and plant health) from the Grayson range. She then discussed the role of nutrients in plant-disease interaction and the use of various controlled release fertilisers from ICL.



**Peter Lewis** gave us insights into the "Beijing Horticultural Expo '19" to be held from May to October '19 in the Tanqing region on 550 hectares ( <http://www.horti-expo2019.org> ) about two hours travel north of Beijing and near the Great Wall. There are 110 countries and associations represented and they expect 16 million visitors. Australia is well represented, as is South Africa, Germany and many small nations such as Kyrgyzstan and Nepal. The provinces of China are also well represented.

#### **On Thursday Afternoon we had several short "Seek and Share" sessions**

**David Hancock** described the benefits of GoGo Juice from Neutrog in assisting the growth of difficult species. He also mentioned the used of oxygen to break seed dormancy and a member later suggested trying ozone on seed for 5 minutes, and there was another suggestion to try hydrogen peroxide.

**Dharam Sharma** from Dry Creek Lab, Duarte Nursery California shared " Screening and Development of UCB-1 Pistachio clones for Salt Tolerance In Vitro"

**Todd Jones** from Fourth Corner Nurseries, Washington spoke about their experience "Acid Treating Seed without Disaster". A good thermometer and means of cooling are essential. After adding the acid to clean dry seed while maintaining the temperature below 37 °C and typically from 15 to 30 °C for times varying from 20 minutes to about 4 hours depending on the species. After emptying the seed wash it and leave it in a water bath for up to 24 hours.

**Ben Wickham** from Ormond Nurseries, Blenheim NZ, wanted to know about lean manufacturing from a Nursery Perspective.

**Michael Kelly** from Evergreen Nursery, Vic., spoke about passion and return on investment. He spoke about the preconference tour and the passion displayed at nurseries visited and their willingness to share. He has re-caught his passion about plants and has been reinvigorated.

**Richard Ware** from Plant Production Ltd, Napier NZ, stressed getting it right the first time by spending time in planning. Tip 1: Don't compromise, start with the right cutting. Tip 2: Have a vision, don't rush in. Bonus tip; aim for the ultimate cutting - turgid, strong in vigour, healthy, even grade, easy to harvest (only cut what you need), close noded, plump with good sap flow and true to type. Tip 3; plan, plan well ahead. Check the cutting source for condition months or even a year ahead to ensure prime cuttings. Tip 4: Own it - grow your own cutting stock beds. Tip 5: Take the Time to think - the gift of knowing when things seem just right. Take into consideration cultural requirements, the window for taking cuttings - seasonal activity, the size, place of plant and type of cutting. Tip 6: Enjoy what you do, and be confident in your skills at harvest time.

**David Daley** from Conifer Gardens Nursery, Vic. Had a question for members in the propagation of *Sciadopitys verticillata* (Japanese Umbrella Pine) as it is slow and difficult to grow. Some grafting possibilities were suggested.

#### **Friday morning sessions focused on biosecurity**

**Lisa Burton** from Otago Polytechnic spoke on "Biosecurity: Who wants to be a millionaire". It is estimated that weeds cost the NZ economy \$2 billion annually and similarly invertebrate pests up to \$2.3 billion and vertebrates from \$1 to \$3.3 billion per year. New Zealand remains under intense pressure from pests despite investing heavily in biosecurity and pest management systems. The bacterial disease *Xylella*



*fastidiosa* is recognised as the most threatening plant pest in Australia with over 350 native, commercial and ornamental plant species potentially at risk. The top 40 unwanted pests threaten up to \$29.9 billion of Australian forestry, broadacre and horticulture crop industries. The potential impacts of climate change were also discussed.

**John MacDonald** from NGIA spoke to us about "Biosecure HACCP, Your Plant Protection System". John spoke about what the on-farm information based production system that Biosecure HACCP is, risks that we are being exposed to and pesticide access into the future. Australia records 30 to 40 plant pest incursions each year. Tourism, trade and urban encroachment and reduced government biosecurity investment are significant risk factors. Businesses get a better financial return through a structured plant protection program. Spirotetramid (Movento) is a non-neonic systemic insecticide that moves through the plants phloem and is the closest alternative to Confidor but is still not as effective against the range of pests. New Australian non-neonic pesticide applications include Volium, Versys, and NUL3445 from Nufarm. NIASA best management program and Biosecure HACCP with manual and templates inform you how to carry out an IPM program. John recommended that we each have these sites on our phone: [www.pestid.com.au](http://www.pestid.com.au) and [www.nurseryproductionfms.com.au](http://www.nurseryproductionfms.com.au)

**Chris O'Connor** - is a program manager with Nursery & Garden Industry Australia (NGIA), his presentation was titled "Improving Pest Management for the Nursery Industry". His talk focussed on a nursery industry 3 year project NY 17009 which has two main components; a desktop review of Neonicotinoids and minor use permit applications, and secondly the economic assessment of adopting IPM practices across a range of industry crops, systems and geographic areas



of Australia (for which there is scarce existing information). He spoke about the IPM model of continual improvement; 1. Knowledge, 2. Prevention, 3. Observation (crop monitoring), 4. Intervention, 5. Evaluation and Planning. A CSIRO survey of the industry in 2018 reported that it was unclear how systematic and comprehensive monitoring was. Site surveillance needs improvement, and many respondents never inspected

imported stock, whereas dispatched plants were almost universally inspected. Record keeping sadly did not appear to be common practice.

**David Lovelock** in his talk focussed on the project NY16003 "A Review of Diagnostic Technologies to Benefit the Australian Nursery Industry". This aims at identifying pathogen testing tools for further development that are; 1. Point of use/field deployable, rapid, simple and user friendly, 2. Laboratory based, world's best practice, accurate and rapid, and 3. Tools for real-time quality assurance of nursery stock. The top endemic pathogens are: Bacterial leaf spots, Soil borne pathogens causing root and / leaf disease, and vector borne pathogens (*Polyvirus sp.*). Laboratory based diagnostic methods require highly skilled personnel, controls and specialised equipment. Identified industry needs included; Laboratory tools with faster diagnoses, and high throughput tests, and Field deployable tools that are simple, reproducible and easily interpreted with a broad applicability to different pathogens.

**Dr Glenn Fain** from Auburn University presented "From Apprehension to Industry Adoption: 15 Years of Research and Development into Wood Fiber Substrates



in the United States". The search for an alternative nursery industry substrate started due to pine bark availability issues. In 2008 to 2012 with the downturn in the economy and building industry fewer trees were being cut and there was less bark available. In 2010 the US Government instituted a biomass program BCAP for power generation and pine bark was seen as a waste product that was subsidised for that project. Consequently a USDA-ARS Advisory Committee was formed to ensure a sustainable, economical and stable supply of suitable media. The best alternative was PTS forest biomass based from *Pinus sp.* from the Southern Pine forests. Young's Plant Farm contacted Glenn and wanted to be an industry partner with a focus on peat-lite substrates. Peat had a rising cost as was perlite, which was also seen as a potential dust health risk. The focus was processing whole trees for wood fibre, and not being dependent upon a by-product. Trees are chipped on-site, transported to a barn and turned. It is then milled and stored in bulk bags until temperature stabilises (14-21 days). Mixed with peat it makes a very flowable substrate. He then became aware of HydraFibre a wood based material.

**Daniel Norden** from Profile Products' horticulture business, spoke about HydraFiber in "Making the better mix: Key tips to know before switching to a wood fibre



substrate". HydraFibre is made from Southern Yellow Pine (*Pinus taeda*), and has a low bulk density (about 22 g/l). It comes in 5 grades with a pH of about 4.5, EC 0.01 - 0.19 mS/cm and moisture content of about 20%. With total porosity close to 95% and water holding capacity ranging from about 50% to 30% the corresponding grades range from about 40% to 65% air space. This means that in blends you are able to maintain water holding capacity while increasing air filled porosity resulting in lower weight pots. HydraFibre blends tend to be dry on the surface which may discourage mosses. Blends have been trialled for many plants. Wood fibre has low cation exchange capacity, and low buffering capacity requiring lower lime additions to adjust pH in peat blends. In small pots you can get bridging and voids. As material supplied in bags is compressed 13 fold, machines are available to restore HydraFlow to its useable state and blend with other materials on-site.

**John Mason** from ACS Distance Education presented "How Can You Improve Staff - Select, Motivate, Educate". John referenced the ACS video channel for more information. As well as other things changing we have been experiencing social, economic and political change and impact on education as well as the bottom line of businesses. Communicating with staff is vital, but as plants-people often our businesses lack management skills. John suggested and elaborated on how we should consider our ability to; Motivate, Educate, Problem Solve, Embrace Change, and Plan Ahead. Motivation can be improved quickly but staff capability depends on learning and experience and improves slowly. John advised that we look for someone with the passion for plants when employing them. If you want to teach your staff how to do something you need to understand how people learn. Using McCarty's 4 Mat system; 35% of people ask Why?, 25% What If?, 18% How? and 22% What? People who ask What typically do not learn as quickly as they operate in a different way and you will need to adjust your communication.

**Brayden Fitzpatrick** - our Australian exchange to South Africa, spoke of his experiences there including time at Kirstenbosch, the conference and post-conference tour.

During some of the practical sessions he learnt some new skills as well.

**Elmien Coetser** - the Southern Africa exchange told us a bit about the amazing gardens and Changi Airport and her experience of Australian tropics in the pre-conference international tour of north Queensland.

**Ou Wenjin** our Rod Tallis awardee spoke about producing flowering Sunflowers for interior displays in resorts and casinos in his paper "Experience of Reducing the Height of Sunflower". Sunflowers are an important plant in China for their flowers as well as oil from seed. Shorter plants were required for projects like MGM Macau and growth regulators were trialled -



Paclobutrazol and Chlormequat Chloride. Pots treated with Paclobutrazol resulted in shorter flowering plants than either the control or Chlormequat treated pots. Plants were successfully supplied using different treatments at different times through the year due to ambient temperature changes.

**Dr Anthony Kachenko** spoke about the importance of horticulture in Australia and the Hort Innovation "Nursery Fund". Australian agricultural production is forecast to double in growth to be worth \$100 billion by 2030. Nursery production is about \$2.4 billion with 1.9 billion plants sold and 25,000 FTE employees and the eastern states make up 83% of the industry. The industry R&D



program has a future focus on long term challenges and the project portfolio has a balance of applied and basic research in strategic collaboration with growers and industry. Projects broadly involve: building future leaders, and building market share and greener cities. Research projects and some results were discussed as well as future programs. As well as Biosecure HACCP the latest revision of the Australian tree standard and 2020 Vision consumer APP were highlighted as recent achievements.

**John Leslie**- Vertical Farm Systems, producing plants under artificial light and hydroponic systems. John started off with the question - why vertical farming? From 200 to 2050 the world's population is expected to grow by over 50% however there is an anticipated decline in arable farm land of around 50% as well as a decline in the number of farmers as we move to 60% of

people living in cities. Already 70% of the fresh water is used in agriculture and 8% in city / home use, but we will need to double our productivity to feed the people in the future. One possible solution is more protected cropping. With vertical farming the hidden part is the processing of the product grown; harvesting, packing, washing and replanting are often overlooked.



They have trialled container and warehouse growing and eventually constructed a fully automated system. Their approach uses a climate cell and rolling bench approach with significant energy savings. The kilned clay pebble grow medium used is reusable with cation chelation with good water holding and aeration. Bioponic kelp and microflora inputs are used for nutrition instead of chemicals. 400 kg of crop plants are harvested every Friday from 500 m<sup>2</sup> of floor area. They use electricity for everything, and at 25 kWh per kg harvest is the major challenge for improvement. This is coming from LED technology improvement, and air-conditioning and humidity control. In the Lochyer Valley one climate cell is able to produce 40,000 seedlings per week at a cost under 3c per seedling. Farms are getting larger as average ROI from traditional farming is less than 4%, whereas their automated system was claimed to have 20% ROI in Australia and higher in other places around the world for around a \$7.5 million investment.

**Todd Jones** told us about the great IPPS International US West Coast Tour in Vancouver, BC to Bellingham, WA planned for June 13-27 2020.

**Peter Lewis** presented a paper on "An Overview of Plant Production for Landscaping in Southern China". Peter said that he really wanted to speak about problem solving in Nursery systems. There is a lot of planning that goes into landscaping jobs, and especially focussing on trees. There are three types of trees available in China; In Ground Field Production, Container Production - 'Root Expanders' that are bottomless and Container Production - Geotextile Bag. Price is driven by DBH (stem diameter at breast height), and quality by a small root ball size with foliage and branches heavily pruned for transport. Commonly shrubs are supplied in plastic or geotextile bags or pots. Trees are dug and roots trimmed. Root ball preparation is necessary after delivery, after re-establishment they do not have a root system and need staking. Birkdale have been able to show that trees with a good root diameter and root mass do not need support. With good temperature and humidity harvested trees re-grow roots within 45 days after which they can re-establish much quicker. For

despatch they wrap some root balls in hessian cloth with 'chain-link' wire, and this can be planted directly. Special techniques had to be developed to transport and crane e.g. 10m *Araucaria* specimens into site. Future challenges include being able to achieve consistent product quality throughout the year. This will need growing in soilless media, using recyclable packaging and using a quality assurance program (ISO 9002) and legislated plant standards.



**Bill Barnes** "Variations and Peculiarities in Plant Breeding" - industrial plant breeders will have a flow cytometer to determine chromosome numbers in plants to tell if a hybrid is real or not. Plant breeding has many approaches including use of bees, fingers or paint brushes or growing plants nearby. Even when grafting we should be

aware of the ploidy numbers for success. A challenge to plant breeders is to come up with better hybrids for rootstocks that are more in line with chromosome variation.

At times when hybridising the pollen tube stops growing and trying and overcome this intervention may work by application of agents to the stigma; Auxins (IAA), Ethylene, Gibberellins, Cytokinins (Kinetin or Benzyl adenine - BA), or Sugars (glucose, fructose, sucrose or sometimes honey). Other tricks to fool the system may be: mixing pollen of the male you need with pollen acceptable to the female.

Sometimes the plants bloom at different times and pollen storage is the key. Liquid nitrogen is great but not readily available to most nurseries but a standard freezer set to minus 20 to 30 °C may work. Collect fresh pollen, dry in a desiccator for one or two days, remove and place in a test tube covered with Naptha solvent (lighter fluid) and cover and store in the freezer for up to 6 to 12 months. Many breeding examples were discussed as well as various strategies. His parting words were "success is largely built on the accumulation of failures" -Winston Churchill.

Bill recommend that those interested in breeding get: "Flow Cytometry with Plant Cells: Analysis of Genes, Chromosomes and Genomes" by Jaroslav Doležel, Johann Greilhuber and Jan Sudan, and

"Index to Plant Chromosome numbers 2001-2003" by Peter Goldblatt and Dale E. Johnson, eds.

## Saturday conference coach tours

**Stan and Jane Walkley's** garden at Rosemount is on a 5.5 ha property. On entry we were greeted by beautiful lawns, and the view of sprawling gardens. The 'front' yard is filled with a variety of spectacular looking palms with a good variety of *Alcantareas* and some large *Neoregelias* and many other plants. At the rear of the house there is a covered area filled with a mixed collec-



tion of a full range on different bromeliaceae.

At **Camelia Glen Nursery**, Palmwoods Darryl and Stephanie Baptie showed us around their nursery. They specialise in growing *Camellia*, *Azalea* and *Rhododendron vireya*. Their plant list contains some 50 Sasanqua camellia varieties, about 150 Japonica and hybrid camellia varieties, a small number of Reticulata camellias and some of the species camellias that are suited to



a sub-tropical climate.

<http://www.camelliaglen.com.au/>

Then on to **Ricks Garage** at Palmwoods for lunch. They used to be a garage but with new environmental legislation the old bowsers had to go, so they reinvented themselves as a popular place for car and bike enthusiasts to hang out. <https://www.ricksgarage.com.au/>

**Heatons Fern Nursery** at Perwillowen we saw a great collection of ferns as we were shown around by Peter Heaton, Gavin Porter and Daphne Heaton. The collection included some 100 varieties of Adiantums (Maidenhair fern). They also have a great range of over a dozen varieties of Anthuriums grown from deflasked micro-propagated plants.



At **Blue Sky Nursery** at North Arm we were shown around by the owners; Edward & Matthew Brain. The wholesale nursery supplies the Landscape and Nursery Industries from their new 70 acre site where they are still expanding growing areas.

<https://blueskynursery.com.au/>

The other coach went to **Fernland Agencies** at Yandina



where they were shown around by Kevin Parsons. They are a family-owned and operated business with 40 years trading history, supplying a comprehensive range of products to the nursery, landscape and turf-care industries. <https://fernland.com.au/>

## 2019 International Tour : It's All In The Latitude.

The recent 2019 conference marked the Australian regions turn to host the IPPS International tour. A group of 53 enthusiastic plant people from 8 countries gathered in Cairns to tour down the East Coast, finishing in Twin Waters for the conference. Covering about 2500 km, and no less than 57 towns, we were treated to some of the world's most beautiful scenery, and its most interesting tropical horticulture. A brief summary of some of the many highlights of the tour is presented here.

### Flecker Botanical Gardens, Cairns:

Flecker Garden epitomises the diversity of tropical flora that can be found across the world's tropical regions including plants from South East Asia, South America, Africa and of course Tropical North Queensland. The Watkins Munro Martin Conservatory houses some of the Gardens' most valuable and tender plants and a collection of local butterflies. Inside the Conservatory, are carefully landscaped botanical displays featuring aroids - including the Gardens' significant amorphophallus collection - as well as bromeliads, tillandsias, carnivorous plants, cycads, ferns, palms, orchids and tassel ferns. The Gondwanan Heritage Garden is a garden tracing the evolution of plants from the first photosynthetic bacteria to the modern flowering plants. Emphasis is placed on the Gondwanan component of the plant kingdom and in particular the development of the distinctive Australian Wet Tropics flora.

### Whyanbeel Arboretum:

Peter Sargent showed us around the property he and his family have spent a lifetime developing into a botanical collection of international significance. Nestled in the hills north of Port Douglas, Queensland, it showcases rare tropical fruit trees, palms and flowering plants useful for food, fiber and floriculture. Peter's passion is evident in his tour. His knowledge is extensive, and he is only too willing to share it!



### Mossman Gorge: a forest in the clouds:

The Daintree Region is an area of ancient tropical rainforest containing one of the most complex ecosystems on earth. Spanning 120,000 hectares it's the largest portion of tropical rainforest in Australia. Nestled within this rainforest is Mossman Gorge, which contains the oldest, continuously surviving rainforest on earth. Just one hectare of the 120,000 hectare forest can contain over 30,000 species of plants and animals.



### 'Flames of the Forest' indigenous experience:

We dined under a marquee set in a flame lit section of rainforest. The night featured two local Aboriginal brothers sharing their remarkable culture with us. Their performance featured a cultural background, story telling, and didgeridoo playing. It was a remarkable experience for all the tour participants, both international and local.

### Flourish Plants Mareeba:



Started some 30 years ago, and now managed by second generation Elaine Duncan and her son. Its a diverse business growing seedlings, landscape plants for the retail market, and commercial blueberry varieties for a large national corporation.

It was great to see how the business has grown and evolved through changing markets and pressure from storm events. They recently were successful in applying for a substantial government grant to assist with building a new shadehouse and automating their production system.



**Paronella Park:**

Paronella Park, near the small sugarcane town of Mena Creek, was arguably the most enthralling visit on the 2019 IPPS International Tour. The story behind it is a fascinating tale of a mans dream to build a castle, and a life for his family. It was opened way back in 1935. Located beside the Mena creek waterfall, it used the falls to power a small hydroelectric plant! In an era when electricity was rare, this property had power, a cinema, an ice-cream shop, picnic area, tennis courts, bridges, an underground tunnel, the list goes on. Achievements of a man truly ahead of his time. There are thousands of different tropical plants planted in the surrounding gardens - tropical trees, vines, orchids, palms, ferns, gingers, lilies - both native and exotic. After falling into disrepair, the property has been carefully restored to create a 'lost in time' feel. A visit here is really a once in life time experience.

**CD Nursery:**

A family owned wholesale & tubestock nursery specialising in new releases and tropicals like ixora, allamanda and cordyline.



**Townsville Palmetum:**

The Townsville Palmetum is a botanical garden devoted to a particular plant family, the palms. The collection

contain all six subfamilies within the family Arecaceae. Approximately 60 species of palms are native to Australia; nearly all are represented. The collection contains about 300 species; including some rare and threatened in their natural habitat.

**Bowen Quality Seedlings:**

A commercial vegetable seedling supplier using modern automation and environmental monitoring to produce seedlings of exceptional quality, and to an exacting schedule.

**Fitzroy Nursery:**

Horst Dargel, founder of Fitzroy Nurseries, and long time IPPS contributor, celebrated his 90th birthday as the IPPS International Tour arrived in Rockhampton. Thanks to Horst, sons Bill & John, and all the Fitzroy Nurseries family for hosting us. It was a real honour to celebrate the occasion with such a great man.

**Lizard Mountain Nursery.**

Established in 1989, Lizard Mountain Nursery is a wholesale production nursery supplying to chain stores, independent garden centre, landscapers and plant hire operators. We were shown around by Ian and Elaine Stewart. They gave a great insight into the unique challenges of running a nursery in the tropics. Including the disaster recovery process following cyclones.

**Rockhampton botanic gardens:**

Rockhampton's Botanic Gardens are regarded as one of the best in regional Australia. Excellent specimens of palms, cycads and ferns are found throughout the beautifully manicured grounds. Some specimens are over 100 years old. The giant fig which we had breakfast



under is a wonderful thing to behold. It was heritage listed in 1999 due to its importance to conserving rare plants and its historical value.

### Wide Bay Passionvine Nursery & Farm:

This specialist nursery is a major supplier to the passionfruit production industry in Queensland and Northern New South Wales. Because of the short production life of a passionfruit vine, its an industry with a high turn over of plants. Peter and Sally Griffiths run an efficient operation producing their own rootstock, and grafting it to order. They ensure quality control right through the production process, right up to delivering the plants to growers themselves.



### Bamboo Land:

Bamboo Land Nursery & Parkland, at Torbanlea Queensland, on the banks of the Burrum River- a real highlight on the 2019 IPPS International Tour.

This innovative business combines e-commerce with hospitality. The stunning gardens showcase a huge variety of bamboo as effective landscape plants. Hard to believe the newest gardens are just 6 years old! Thanks to Janne & Tarissa Nilsson for hosting us and sharing their passion.

We also thank the following businesses for sharing what they do with our group: Limberlost Garden Center, Shannonvale Tropical Fruit Winery, Sunset Ridge Farm Atherton, Townsville Plant Wholesalers, Walker Farms, Ken Burgess Orchid House & Queens Park Mackay, Mackay Agricultural Productivity Services, Starlight Palm Plantation, Benaraby Junction Nursery, Bundaberg Rum Distillery, Bundaberg Wholesale Palms & Plants, Austchilli Group, Noosa Botanic Gardens, Manawee Garden Centre and Buderim Ginger.

Thanks go to the tour organisers Clive and Di Larkman, and Pam Berryman, for the mammoth effort in putting together one of IPPS's best ever international tours. Also to our President Tony Vander Staay for driving our second bus, and our South African exchange Elmien Coetser, for her marshalling and organisational work.

To see more of the tour highlights, be sure to follow the [IPPS Australia Facebook page!](#)

John Messina

### International Tour Dinner

At the end of the tour during the dinner at Twin Waters Angus Stewart gave a presentation on Australian Plants, then he was totally overwhelmed to receive the IPPS International Award of Honor for his contributions to horticulture. Clive Larkman was also recognised as 2019 International President.



## 2019 Conference Major Sponsors

Garden City Plastics



Seasol International



Transplant Systems Pty. Ltd.



Hort Journal Australia



NGIA Biosecure HACCP



Norwood Industries



These sponsors proudly help to support the activities of the society. We are also looking for others to help support the activities of IPPS as we seek and share for the 2020 Geelong Conference. With sponsorship comes naming and other promotional opportunities.

## 2019 Conference Sponsors / Trade Displays

Many thanks to all our sponsors for their support, and for the informative trade displays. We have a few new things to try now back at our businesses. We also acknowledge Plants Direct, Evergreen Connect, Croft Greenhouses, Powerplants Australia, Australian Correspondence School and Highsun Proptec.

We also would like to acknowledge support through plants used to decorate the stage and dinner tables from Blue Sky Nursery and Heaton's Fern Nursery.

## Horst Dargel Celebrates 90 years

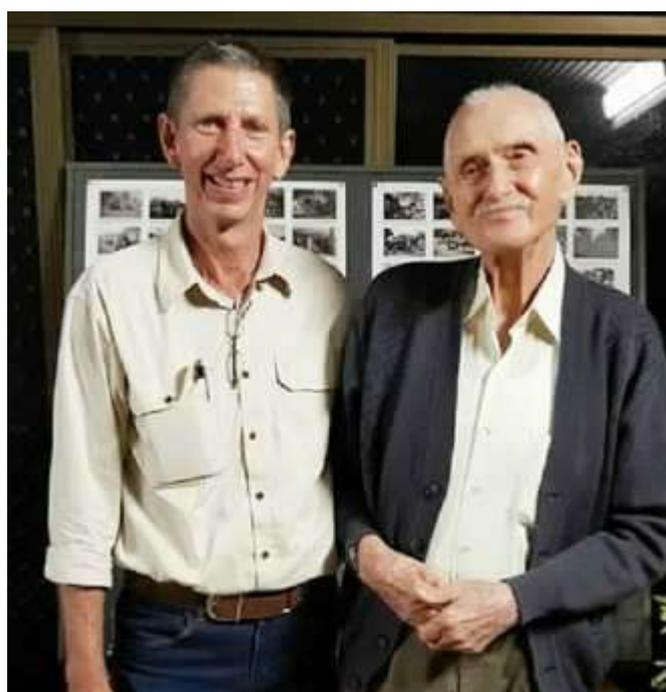
The recent IPPS International Tour was privileged to join in the 90th birthday celebration of Horst Dargel. A long time propagator and IPPS contributor, tour members enjoyed a BBQ steak dinner with Horst and the Fitzroy Nurseries family at Fitzroy Nurseries in Rockhampton. Horst's son Bill, provided a quite remarkable story of a skilled propagator, and a great man which has been edited to the following.

Horst migrated to Australia from Poland via England after W.W.II. He eventually established a thriving nursery with his brother and later joined the IPPS in 1970. He has attended many conferences across Australia, and joined a tour to the USA in 1975, and Europe in 1977. The IPPS Australia annual conference was held in Rockhampton in 1985, under President Ian Gordon. That was the time their packing shed became a banquet hall!

Horst has had many achievements in his life, including gaining a full pilots licence, and being a member of Rotary, where he has twice been president. Fitzroy Nurseries has now passed its 65th year of continuous operation. It continues to be an industry leader in subtropical fruit tree selection and production.

Horst's affinity for plant propagation and rootstock production has long been the mainstay of the nurseries production system. At 90 years old, Horst is still an active participant in the ongoing success of Fitzroy Nurseries.

*Courtesy of Bill Dargel*



## SOUTH AFRICA 2020

### YOUNG HORTICULTURISTS APPLY NOW

For the opportunity of a lifetime, it is now time to apply for the **Southern African Exchange Program**.

This IPPS project aims to give young propagators at the start of their career the opportunity to gain experience of the industry elsewhere and to build a better understanding of each country.

**In March 2020 the person chosen will spend approximately 3 weeks in South Africa hosted by local members**, where they will work and visit other nurseries and places of interest in South Africa, including tourist venues, plus attend the IPPS Southern African Region Conference in Johannesburg.

The exchange program is sponsored by Australia and Southern Africa IPPS. After the trip the chosen propagator will be expected to attend the Australian IPPS International Conference in Geelong 20 to 23 May.

Now that you are thinking about this or you know someone who may be suitable, check the following to make sure of eligibility:-

- You must be over the age of 18 and in the early years of your career of growing plants.
- You must be able to travel to South Africa in early March 2020 and attend our Australian Conference.
- Your employer must support this application and your time off work.
- You must be prepared to make notes and take photographs of your great experience and report back at the Australian IPPS Conference.

**If all of the above suits you and you would like to be hosted in South Africa (at no cost to you, except spending money) and gain from the experience. Then send in the application form which is available on the IPPS website <http://aus.ipps.org/members/exchange/south-africa-exchange> by the end of December 2019.**

#### News

\* The **Hort Innovation Strategy 2019-2023** has been developed and is available for viewing on the website now.

<https://www.horticulture.com.au/hort-innovation/the-company/corporate-governance/strategy-2019-2023/>

The strategy document lays out the organisation's focus, goals and key activities for the next four years, all of which are closely aligned to the industry's needs, now and into the future. We also congratulate Anthony Kachenko for being promoted to General Manager - Extension and Adoption at Hort Innovation.

- The IPPS International Board is interested in potential expansion into new areas of Asia. NZ Region is proposing a **Symposium and Field Trip to Singapore** from the 18th to 22nd November. More information about this should be available soon.

#### Newsletter Editors Comment

The Sunshine Coast conference was a great conference set in a sub-tropical resort. Who would not want to be there. It really is also special to have so many folk from other countries willing to share their knowledge. David Daley and his team are working to achieve something special for us in Geelong next year.

If you are not already a member join up soon. The region also has a **facebook site** with horticultural news items and photos as well from past conference tours and activities - search for "**International Plant Propagators Society (IPPS) Australia**".

**Pass your extra printed copy of the newsletter around at work.** Many of our members have joined through this. A copy of this newsletter and a selection of previous ones is available in colour at <http://aus.ipps.org/news>

*Bruce Higgs - editor "the Propagator"*

#### 2019 - 2020 IPPS Calendar <http://www.ipps.org/events-regional>

24 - 28 September 2019	Western Region Annual Conference, Hilton Santa Cruz/Scotts Valley
9 - 11 October 2019	European Conference, DoubleTree by Hilton, Stratford-upon-Avon, UK
12 - 16 October 2019	Southern Region Annual Meeting, Crown Plaza Executive Center, Baton Rouge, LA
16 - 19 October 2019	Eastern Region Annual Conference: Park Hotel, Madison, Wisconsin
3 - 5 March	South African Region Conference: Johannesburg, 6 Mar. Post conf. tour
16 - 19 April	New Zealand Region Conference: Ascot Hotel, Invercargill, 20 May Post Conf. tour
20 - 23 May	Australian Region Conference: Novotel Geelong (pre-conference tour 16 -19 May)
13 - 22 June	International Tour: Vancouver, BC, to Bellingham, WA,
22 - 27 June	Western Region Annual Conference: Bellingham, Washington