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Sharing Plant Production Knowledge Globally

the Propagator

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International Plant Propagators' Society

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Australian Region - Newsletter Spring 2019 - No: 63

Passionate about Breeding

"The secret of improved plant breeding, apart from scientific knowledge, is love."

- Luther Burbank (American botanist & horticulturist who developed more than 800 strains and varieties of plants)

We need to seek and share that plant knowledge but behind it all is our passion for growing plants. For some it is growing the perfect specimen, for others their collection or the art of propagation, and for some the thrill of the quest in producing something new and desirable. It is the passion that drives us and keeps us going even when things are not working out the way we imagined they would.

Bill Barnes was one of many great speakers at our Australian International Conference at Twin Waters Qld. this year. As well as the content and relevance to us, it was his passion and humour that inspired us. At the conclusion to his talk he reminded us of a quote from -Winston Churchill that "success is largely built on the accumulation of failures'. Howard "Bill" Barnes is an International Director from the IPPS Eastern Region, and was the recipient this year of the IPPS Anita Boucher Memorial Award sponsored by Hort Journal Australia.

His talk reminded us not only of the many things that we needed to be doing to improve our success with breeding, but also spoke of his many attempts to breeding desirable characteristics into species, sometimes with very novel approaches. But above all it was Bill's passion for plants that really stood out.

Bruce Higgs

Congratulations Bill Barnes for being the recipient of our Anita Boucher Award for best paper this year

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President's Report

As I sit here in front of my computer late in the day of the 2nd Day of Spring (weather sunny and very still), I ponder where in the ''Hell" do we get enough time to do anything but keep up with **nature.**

No such thing as a holiday with **nature,** plants are continuously growing or dying! It's absolutely amazing what a few sunny spring days can do to a **little** stick or a tiny sprouting seed, and then us mere humans have to try and catch it before its gets too far along the road to a fully grown plant.

It's good to be busy, in doing the things we love, you go home tired but satisfied, knowing full well that its starts again tomorrow morning. It's the same for the society we have periods of a lot of activity (fortunately not in the spring,) and then bit of a lull until the summer arrives, when we start thinking about our membership and the possibility adding to our numbers. Along this line we as a committee are thinking about adding students to our membership, allowing them to either join for free or a minimal membership cost.

We are currently seeing an encouraging increase in people taking up horticulture as either a career or serious interest, most TAFE colleges are reporting good intake for horticulture courses, which bides well for our future, so we need to get in early with our society 'To Seek and Share', so if you have a local TAFE college in your area, make yourself known, and encourage your local students to join. It will be on online

I hope you all have a busy spring, and I look forward to lots of student members coming on line

Cheers
Tony Vander Staay

Executive Officer's Report

The IPPS Office slows down at this time of the year so not much to report on from the administration side of things, apart from the 'day to day' running of the Office.

Subscriptions

Maintaining membership is still a challenge as membership continues to decline. If your dues are still outstanding I would really appreciate it if you could contact me to finalise this as soon as possible.

Contact Detail Changes

To ensure Office records are kept ***'up to date'*** I would appreciate it if Members could please notify me of any changes. In particular, if you have changed telephone provider recently, please advise me of your new email address at pam@ipps.org.au

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

2020 CONFERENCE – GEELONG, VIC – 20th to 23rd May 2020 – *'Propagation in Action – Coast to Country'*

Every year IPPS Australia holds a conference, an essential event for anyone in the plant propagation industry. Next years conference is shaping up to be an event ***'Not to be Missed'***.

Keep a look out over the coming months as information on Pre-Conference tour and conference will be available on the website shortly www.ipps.org

Pam Berryman

Six Pack

Applications are open for the chance to be a 6 pack member in Geelong. **Send your forms by the closing date of Friday 14th February 2020**. 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 14th Feb. 2020**. Contact details are on the IPPS website (see under members at **http://aus.ipps.org/**)

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**.

Edward and Mary Bunker Award

This new IPPS Australian Region award serves to recognise someone who has demonstrated the IPPS motto "to seek and to share" for the betterment of the industry at large. Here are the guidelines for the new award for our society.

1. The award is to be named "The Edward and Mary Bunker Award". Edward Bunker was a foundation member and inaugural President of IPPS Australian Region. He has been an active member for almost 5 decades, and has served the Society in many official roles during that time. The inclusion of both names in the title of the award recognizes that the contributions made to IPPS and to the wider Australian nursery industry have been a team effort, and would not have been possible without commitment and support from both partners.

2. The focus of the Edward and Mary Bunker Award is to recognize an outstanding contribution from someone who has demonstrated the IPPS motto "To Seek and To Share" for the betterment of the industry at large. The selection criteria are not limited, and could include any of the following or other related categories:-

a. Innovation and development in plant propagation, production, or nursery systems,
b. Mentoring new propagators, promoting horticultural training, education and extension
c. Plant breeding that has impacted Australian or International markets or resulted in the introduction of new plants or varieties to Australia
d. Facilitation of market access within Australia or internationally,
e. Innovation or problem solving in any aspect of business including WHS, transport, logistics, supply chain management, new technologies, etc.

3. Although preference for awarding the Edward and Mary Bunker Award should be given to IPPS members, candidates from outside the society should be considered on merit against the listed criteria. It is considered that opening this award to nonmembers will raise awareness and recognition of IPPS throughout a wider expanse of Horticultural Industries.

4. The Edward and Mary Bunker Award need not be awarded annually, but will be awarded on merit when suitable candidates who meet the selection criteria have been identified and selected by the Awards Committee.

5. The format of the Edward and Mary Bunker Award will be a suitably marked, printed, or engraved certificate or trophy which will be presented to the recipient by the President of IPPS and which will reside with the recipient in perpetuity.

Rod Tallis award

This year we were pleased to have a number of applications and to have Ou Wen Jin from China selected to receive this prestigious IPPS award from Ray Doherty.

"Like most professional bodies, the International Plant Propagator's Society recognizes outstanding achievement by the younger section of our industry. The IPPS does this through the Rod Tallis Youth Award which is presented annually to the most commendable achievement by a person over 18 years of age who is working or studying in horticulture.

The award is named after one of the Society's most respected members, Rod Tallis. Rod was an avid nurseryman with a passion for plant propagating, for the IPPS and for the youth of our industry. He was a mainstay in many of the early conferences and made significant contributions to plant propagation in Australia before his sudden death in 1981.

The winner will have completed a research project, written an article or series of articles or developed a new process or product. They will then write up their work in a paper to be presented at the next IPPS conference.

The paper is assessed on issues or clarity, originality and relevance to the industry. The achievements of the applicant to date will also be reviewed."

The winner of next years award will be invited to the Annual Conference in GEELONG, VICTORIA from 20th to 23rd May 2020.

They will have their airfare accommodation and conference registration paid for. They will also receive one year's membership to the IPPS and a commemorative plaque.

Many of the previous winners have gone onto establish very successful careers in horticulture around Australia or elsewhere. One of these winners will assist the successful applicant in preparing and delivering their paper.

If you know of anyone; friend, family member, employee or student that fits the above criteria then encourage them to apply.

Energy Audits

Some years ago in this newsletter a comparison of various energy sources was compared, but things have changed. One of these is the cost of readily available solar electricity systems with highly efficient mono-crystalline silicon solar panels of over 300W capacity (costing under A$1000 per kW installed) with inverters from reputable suppliers. Storage batteries for use when the sun is not shining, and micro-inverters working to optimise the output of the system even when sections of a string are shaded are now available.

Matched panel performance is important otherwise hot spots could develop, and most systems include electronics to achieve this to some extent. Solar power options can also present Work Heath and Safety issues particularly for anyone working on the same roof (especially for metal roofs).

There have been a few energy audits at members nurseries reported over the last few years that have delivered for the owners in different ways: Mansfield Propagation Nursery and Aspley Nursery.

Mansfield Propagation Nursery at Skye in Victoria are recognised as one of Australia's largest propagation nurseries with an impressive tissue culture facility (Tissue Culture Australia). They produce around six million plants a year with a thousand different varieties of trees, shrubs and grasses. Growth of their tissue culture business particularly led to increased electricity demand and a lot of power outages and lost production. With energy costs rising they also needed to have continuity of supply at an affordable price.

Matt Mansfield said that about three years ago they recognised they needed more power than was available to them. They overcame these problems, and then asked Greenwood Solutions to help them to review their energy demand and provide sufficient flexibility for growth; potentially doubling their size with renewable sources of energy. All the switchboards and pumps across the nursery were monitored.

Everything is now monitored through a live system which better enables their management and use of energy for irrigation and other uses.

Photo courtesy Mansfield Propagation Nursery

A 135 MWh per annum commercial solar system totalling 300 panels (over 90 kW capacity) was installed across the site. Mansfield have not installed batteries yet, but have the flexibility to do so if needed. After the first year they have saved about 45% of their daily energy use.
https://www.greenwoodsolutions.com.au/customer-stories/mansfield-nursery

Aspley Nursery is a wholesale Nursery to the north of Brisbane supplying plants to the landscape industry from two sites. They have large range of stock plants or grow to order for specific projects. The nursery has been owned and operated by the Percy Family since 1951. In 2013 the current owners and brothers Robert and Noel Percy were recognised as Joint Nurseryman of the Year.

Aspley Nursery also participates in the EcoHort program under the Nursery Production Farm Management System of the Nursery & Garden Industry. This requires the nursery to undertake regular monitoring of fuel and energy use. Regular routine monitoring showed increasing monthly electricity usage at their Hunt Road site. This has been reported on, and summarised here from the NGIA / NGIQ 2016 report (photos from Noel Percy of Aspley Nursery used with permission) : http://nurseryproductionfms.com.au/download/aspley-nursery-energy-efficiency/

"As at July 1 2015, new demand pricing was introduced in Queensland with charges based on power supplied (kVA) rather than power used (kWh) for larger businesses (those using more than 100 megawatts (MW) per annum). This charge is based on a business's highest recorded demand during a billing period; the maximum amount of electricity supplied in any 30 minute interval." Larger businesses operating pumps and equipment that might start and operate together in any 30 minute period may experience a significant increase in energy charges due to reactive power, so you may need to be aware of the power factor ratio of electric motors (especially pumps)

"Through the Nursery & Garden Industry Queensland's Rural Water Use Efficiency - Irrigation Futures initiative, Aspley Nursery was provided with an opportunity to participate in the 'Queensland Farmers Federation Irrigation Energy Savers - Stage 2 Network Demand Management (NDM)' project that proposes on-site energy saving upgrades and identifies their potential costs and benefits."

Aspley Nursery commissioned an energy audit to provide a breakdown of electricity consumption at their Hunt Road site. The breakdown of energy use in 2015 was: Propagation hot bench system 57%, Air circulation fans 1%, Office air-conditioning 5%, Office & shed lighting 4%, and Irrigation 33%. As you would imagine usage is typically very seasonally dependent with power used for heating benches being highest in winter, and power for irrigation pumps and greenhouse fans being greatest in summer.

Aspley Nursery's irrigation system consisted of an aerator pump, a transfer pump and a 3 kW pressure system supported by a 'Regent' 7.5 kW main irrigation supply pump. The old 7.5 kW centrifugal irrigation pump was upgraded to a 'Grundfos CRIE 15' 5.5 kW vertical, multistage, variable frequency drive (VFD) centrifugal pump. Robert Percy has confirmed this was a great decision with better than the estimated 3 year payback, saving the business approximately $3,000 per year (based on supply at 26 cents per kWh).

It would be a good idea if contemplating replacing your pumps to seek the advice of a trained pump expert to assess your demand (head height, and flow rates required for your irrigation system).

In the NGIQ report Robert Percy said "The new pump system is quiet, efficient and provides the degree of flexibility required by the nursery. The Grundfos system costs considerably less to operate. It simply does a better job than the old pump".

"The new pump system, by virtue of its variable frequency drive, adapts the pump motor speed to the varying pressure and flow requirements of the different sized production areas leading to improved water use efficiency. The versatility of the new pumping system has allowed a reduction in operating pressure from 700 kpa to 550 kpa. This reduced pressure, along with the VFD pump's soft start, has all but eliminated distribution pipe work emergency repairs and significantly reduced maintenance activities and costs. "

"Forty-four twin and single fluorescent light fittings in the office and sheds at Aspley Nursery (36 W tubes and 18 W ballast) were responsible for 4% of the energy consumption at the Hunt Road site". The fluorescent lights were operated for forty hours a week for fifty weeks each year.

The fluorescent tubes were replaced with energy efficient Light Emitting Diode (LED) tubes and the ballasts bypassed. This improvement cost $800 and delivered savings of 2.75 MW ($715) per year. The LED tubes are expected to last up to twice the life of the fluorescent tubes. Phillips offer 10.5 W LED tubes of the same illumination as 36W fluorescents.

Noel Percy said "The lighting upgrade was a simple easy task to complete after conducting some basic research into the technology. The upgrade immediately provided the benefits of reduced energy consumption and improved lighting".

The propagation hot water system amounted to 57% of the electricity consumed at the Hunt Road site. It was intended to maintain the surface temperature of the propagation benches at 24.7°C and provide an environment for cutting root formation and seed germination.

Hot water used to be drawn from a 2,000 litre concrete storage tank heated powered by a 18 kW electric circulation element on off-peak 'time of day' tariff. Water in this tank was maintained at 60-70°C. Hot water was drawn from the tank to maintain the constant temperature required at the benches. High water temperatures resulted in tank and under bench pipe and fixture failure and downtime and a loss of productivity.

They initially installed a solar hot water system consisting of three banks of evacuated tube collectors and a 400 litre storage tank. Another bank was subsequently installed. The evacuated coated tubes are between two layers of glass allowing them to retain up to 95% of the

energy captured, and can work in cold climates as well as in the tropics.

The hot water from the solar 400l storage tank is used to preheat water in the 2,000 litre concrete storage tank which still uses the heating element which in turn heats the propagation benches. Cheap temperature data loggers are used to monitor the performance of the upgraded system with sensors located at the propagation hot water storage tank as well as both the bench surface and propagation media.

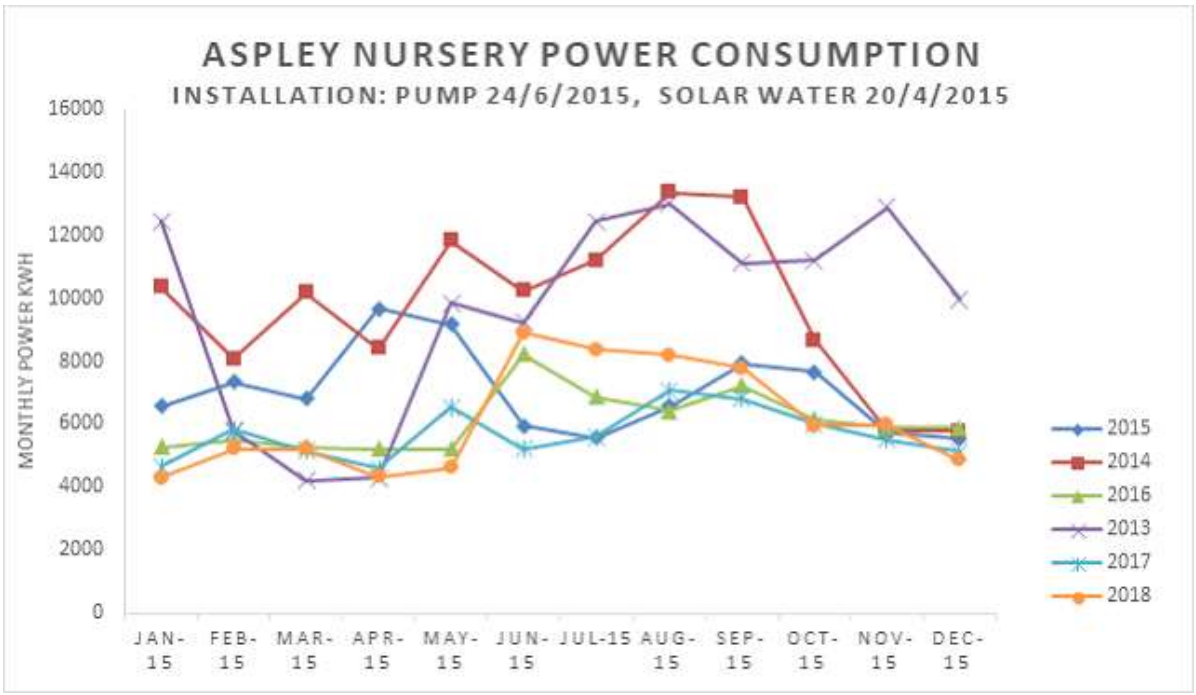
Installation of solar heated hot water heating has enabled the propagation hot water storage tank temperature to be reduced from 60-70°C to 45-55°C in winter and even lower in summer. This daytime heating greatly reduced the electricity consumption from the 18 kW off-peak heater.

Noel Percy noted "Monitoring of the propagation heating system upgrade has made it possible to reduce storage temperatures and save thousands of dollars. For less than a hundred dollars, two data loggers have provided the information required to allow us to make informed decisions".

Robert and Noel Percy substantiated that while the solar heating system for propagation is very efficient during the longer days of summer, some of the energy saving gains are offset by the increased irrigation demands through the warmer weather.

Aspley Nursery's reported 2016 power consumption of 87.5 MW per year provided an energy saving of 36.5 MW (29%) and a yearly cost saving of approximately $9,500 (based on 26c per kWh) with a payback period of less than 2 years. Since installing Solar Power at their Roth Park site in late 2017 they have saved around 80% of their power use. NGIQ is still active in delivering both water use efficiency and energy use efficiency programs to industry in Qld. www.ngiq.asn.au

Not all of our businesses could be considered as large operations and there may be many ways that we can reduce our energy costs. The first step is monitoring where and when your power is being consumed. Your business electricity bills will give you an idea of your usage over a period, and if you have a smart metre installed by your supplier you can interrogate it or view a daily time based usage which could give you an idea where your main demand is coming from. You could also install temporary meters to record usage on heating elements and pumps and fans when operating throughout the year. Or you could employ a company to conduct an energy audit and design an improved system if you



think your potential savings warrant this or you decide that is what you should be doing for the environment.

If you are considering a new solar system, and have a reasonable amount of roof space oriented in the right direction with good pitch then there may be some details that potential suppliers may not make you aware of.

Supply authorities across Australia tend to limit single phase 240V solar systems to 5 kW (meaning a maximum of 6.5 kW with 30% tolerance) but allow much larger systems for three phase supply, potentially enabling excess generated to be supplied to the grid. In our own review earlier this year we were quoted many systems for our location near Sydney with an average of 4.3 hours a day of solar radiation (allowing for typical overcast conditions and seasonal variations), and we were looking at potential payback periods of under three years. But there are traps to be aware of.

Australian Standard AS 60038 states that the nominal mains voltage is 230 V (+10%, – 6%), giving a range of 216.2 to 253 V. AS4777.1, the Australian Standard for Solar Inverters mandates that an inverter must disconnect from the grid if the average AC voltage over any 10 minute period goes over 255V, or the voltage exceeds 260V. Inverters need to exceed the supply voltage when resetting after tripping (with a 2%, 4 V limit), if still working they may respond to high mains voltage (over 250V) by reducing output to 80% in some cases. Our nursery is located in a rural area and is close to a pole-top transformer and our supply voltage averages 254.3V per phase, meaning that a solar system feeding to the grid through an inverter would be unreliable. So we are exploring other alternatives.

I encourage you to conduct an energy audit and identify where your major costs are and what you could change at your farm or nursery.

Bruce Higgs

News

i-Tree has launched a sleek new look website! The Davey Institute and the USDA Forest Service are continuously updating information and data that i-Tree can deliver about tree canopy and benefits. Everything is still at the same address (www.itreetools.org)

Powerplants Australia and **PB tec** announced their strategic partnership in July. Powerplants were a welcome exhibitor at our conference this year.

The latest edition of **Plant Varieties Journal** Vol. 32 (2) published in August is available at: https://www.ipaustralia.gov.au/tools-resources/pbr-journals

Newsletter Editors Comment

You will be well aware by now that 2019 is a watershed year for the International IPPS, with the Black Books no longer being published and distributed by the International Office from this year onwards. Alternative options are being evaluated, however Proceedings continues to be available for members on the website.

Spare a thought for all those businesses suffering from drought and bush fires and how we could help.

David Daley and his team are working to achieve something special for us in Geelong next year. Unfortunately many of our members are unable to attend conferences. We all however need to be encouraging others to attend. Please also talk to colleagues in the industry and get them to join or apply for one of our awards.

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**" . We also now have an **Instagram** page.

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 are 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