

Horticulture Innovation Australia

Final Report

Research and Development Program 2014/2015 for the Production Nursery Industry

Peter Vaughan
Nursery & Garden Industry Australia Ltd (NGIA)

Project Number: NY13029

NY13029

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Level 8, 1 Chifley Square
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Tel: (02) 8295 2300
Fax: (02) 8295 2399

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Summary

The Research & Development Program 2014/2015 for the Production Nursery industry facilitated a number of activities and research and development projects for the Australian nursery industry. This project included a series of discrete yet interconnected research, development, production, extension and communication activities and projects to address some of the investment priorities contained in the Nursery Industry Strategic Investment Plan (SIP) 2012-2016, including:

- Enhancement of capacity to prepare and manage pest and exotic pests (biosecurity)
- Strengthened industry research and development capacity to drive industry productivity
- Increased greenlife in urban landscapes

The objectives of this project were to in part address the following objectives of the Nursery and Garden Industry (NGI) Strategic Plan 2010-2015:

1. To build industry support through shaping government, public and related industry understanding of the industry's benefits, and enhance these benefits through communication; and
2. To invest in research and technology development across high priority areas.

The primary audience for delivering the outputs and subsequent outcomes from this project were the production nursery industry levy payers. The secondary audience was government and related industry stakeholders to build their understanding of the importance of green space in urban areas.

The projected outputs from the project were:

1. Two meetings of the NETC;
2. Updated nursery industry water policy;
3. Five Minor Use Permits;
4. Three collaborative research projects facilitated with higher education institutions across Australia aligned with the NGIA Strategic Plan 2010-2015;
5. Development of a Future Success of Landscape Trees guidelines and Certification Program; and
6. Evidence of industry meeting EPPRD and broader industry biosecurity obligations.

The key outcomes generated from the project:

1. Two meetings of the NETC were conducted during the life of the project in November 2014 (minutes in Appendix 1) and October 2015 (agenda and minutes in Appendix 1).
2. The updated water policy position was completed and circulated to the whole of Industry
3. The minor use permits program was completed successfully
4. Strategic linkages were forged between NGIA and a number of tertiary education and research sector organisations to foster greater research and development outputs
5. NGIA represented industry on all relevant biosecurity committees to meet its statutory obligations as a signatory to the Emergency Plant Pest Response Deed.

This project commenced in June 2014 and concluded in December 2015 following an extension from August 2015. It did not deliver on one of the stated outputs (Future Success of Landscape Trees guidelines and Certification Program) due to the following challenges, disruptions and changes to the project resources and operating environment:

1. Horticulture Australia Limited went through aspects its transition to Horticulture Innovation Australia during some of the period of the project; and
2. The Nursery and Garden Industry Australia (NGIA) project leader changed three times during the course of the project which effected the knowledge, understanding, continuity and operation of the project.

The recommendations from this project are:

1. Support the continuation of the operation of the biosecurity committee representation and minor use program for the nursery industry. (These activities have been included in a new project NY15004 – National Nursery Industry Biosecurity Program).
2. Ensure there is an administration function to provide management and governance of projects going beyond the life of a project managing a portfolio of activities.
3. Endeavour to have a stable governance framework and project management staffing to manage, facilitate and delivery projects.

Keywords

Research and development; Production Nursery; Biosecurity; Chemical minor use; Greenlife; Capacity; Productivity; Needs assessment; Governance; Interconnected.

Introduction

Nursery production in Australia is confronted with several challenges that can impact on the sectors productivity and profitability. Unlike other horticultural commodities such as table grapes and citrus, the nursery production sector produces over 10,000 product line annually and spans all corners of Australia. This often creates complexities with supply chain relationships and natural resource management.

Business maturity varies across the sector with a high percentage of small to medium businesses as compared to large business entities. Moreover, the nursery industry is reliant upon natural resources as production inputs and there is heightened recognition for the on-going sustainability with businesses having to work in cognition of natural resources within the immediate confines of their operation.

Historically, pest and disease has been a significant challenge to the sustainability of the sector, particularly the risk of exotic pathogens such as Sudden Oak Death and Citrus Greening. Interstate movement of plants and plant material also creates issues for the nursery sector through regulatory restrictions in relation to intra- and inter-, state market access. The export market also presents challenges to the sector with market access obligations for importing jurisdiction and the regulatory environment. In Australia restricting growth in this sector.

Research and development is required to address these challenges in a holistic approach as many of these issues are interconnected. The tactic to consolidate industry research, development and extension projects under this single holistic project, to ensure projects are managed in accordance with industry expectations and needs, builds on what has been the approach for the seven years prior to this project.

This project - Research & Development Program 2014/2015 for the Production Nursery Industry - is the overarching research and development program for the Australian nursery industry. This project included a series of discrete yet interconnected research, development, production, extension and communication activities and projects to address some of the investment priorities contained in the Nursery Industry Strategic Investment Plan (SIP) 2012-2016, including:

- Enhancement of capacity to prepare and manage pest and exotic pests (biosecurity)
- Strengthened industry research and development capacity to drive Industry productivity
- Increased greenlife in urban landscapes

In developing this project, an industry consultative needs assessment was undertaken to develop and prioritise key projects. Each of these projects was ranked against priorities identified in the Nursery and Garden Industry Strategic Plan 2010-2015 to ensure alignment. The following projects were highest ranked and include the development of:

1. Industry Minor Use Permits for key agrochemicals to provide growers with new and often safer chemistries that would otherwise be unavailable to industry.
2. Collaborative research and development projects with the higher educate on sector to better leverage the capacity for the nursery industry to invest in research projects.

3. Policy positions according to the NGI Environmental Risk Matrix on national Issues such as irrigation and water management.
4. Future Success of Landscape Trees guidelines and Certification Program in response to the proposed Australian Standard AS2303 for Landscape Trees to improve nursery practices and increase the production of quality trees for the Australian urban forest.

This project also assisted the Nursery and Garden Industry Australia (NGIA) adhere to the statutory obligations as a signatory to the Emergency Plant Pest Response Deed (EPPRD) including participation on emergency plant pest categorisation and consultative committees.

Governance to this project was through the NGIA NETC (NETC) to provide the Australian NGI with the relevant leadership, support and guidance on key research and development issues as identified within the Nursery Industry 2010-2015 Strategic Plan.

Methodology

This project was developed through a consultative bottom up approach with levy payers and industry representatives to ensure alignment with the NGI Strategic Investment Plan 2012-2016. Each sub project under this Research & Development Program 2014/2015 for the Production Nursery Industry was developed through an industry based consultation process. A number of proposed projects was ranked by all State/Territory NGI Associations using the industry needs assessment process. During this process, all projects are discussed and agreed to at several levels including State/Territory technical committees, with State/Territory Presidents, CEO's and with the NETC. A summary of the ranked proposals was provided with the project applications.

This project and its individual sub-projects has been managed through the support of NGIA staff in Projects NY12014 - Management of Technical Research and Market Development projects for the Nursery Industry 2013-2016.

The minor use pesticide program, and all projects facilitated with the higher education sector were subcontracted through research agreements or consultancy contracts. Each of these projects was overseen by the NETC.

Overall project governance was provided by the NETC chaired by NGIA Board Director Hamish Mitchell which met twice during the project in November 2014 and October 2015. This committee played an integral role in tracking emerging technical and environmental issues as they impact industry and ensured that all projects were aligned with the NGIA Strategic Plan 2010-2015.

The updated water policy was overseen by the NETC. Integral to this process is the NGI Environmental Risk Matrix that was updated at each meeting to assist in directing future investment into research, development and extension activities.

Outputs

The outputs included to be delivered from this project included

1. Two meetings of the NETC;
2. Updated nursery industry water policy;
3. Five Minor Use Permits;
4. Three collaborative research projects facilitated with higher education institutions across Australia aligned with the NGIA Strategic Plan 2010-2015;
5. Development of a Future Success of Landscape Trees guidelines and Certification Program; and
6. Evidence of industry meeting EPPRD and broader industry biosecurity obligations.

Outcomes

The key outcomes from this project have been:

1. Two meetings of the NETC were conducted during the life of the project in November 2014 (minutes in Appendix 1) and October 2015 (agenda and minutes in Appendix 1). The meetings discussed key aspects of the project in the context of the nursery industry and provide governance and guidance to the project.
2. The updated water policy position (Appendix 2) was completed and circulated to the whole of Industry and key influences/stakeholders to drive greater awareness of key issues whilst raising the profile of industry.
3. The minor use permits program (Final Report is included as Appendix 3) was completed successfully under the management of the project and provided nursery industry growers with access to new chemistry that may have greater efficacy against the target pest(s), pesticides with reduced environmental impact and pesticides with lower toxicity to humans or off-target impacts. The activities including:
 - i. Monitoring and finalising the 2013-14 submitted permit applications with APVMA.
 - ii. Renewal of the permits that were to expire during 2014-15 with APVMA.
 - iii. Apply for new minor-use permit applications to APVMA.
 - iv. Identify new pesticide options for nursery stock.
4. Strategic linkages were forged between NGIA and a number of tertiary education and research sector organisations to foster greater research and development output and leverage the capacity for the industry to invest in research projects for the benefit of the whole industry. The three projects managed under this project were:
 - i. Effect of street trees on property values – does tree type, size and age make a difference? – University of Queensland. (This project was completed in December 2015 and the final report is attached in Appendix 4)
 - ii. Species traits, substrates and storm water grates: improving the health of urban trees by using polluted storm water as a resource – University of Melbourne. (This project is continuing)
 - iii. Understanding and enhancing place attachment children experience for their local nature through participatory digital interventions – University of Technology Sydney. (This project is continuing)

NGIA is also participating in a project with the Cooperative Research Centre for Low Carbon Living. The project is - Urban Micro Climates: Comparative study of major contributors to the Urban Heat Island effect in three Australian cities (Sydney, Melbourne, Adelaide). A workshop on the program that includes this project is to be conducted in March 2016 as per the agenda in Appendix 4.

5. The development of a Future Success of Landscape Trees Guidelines and Certification Program to enable industry to provide guidance on the adoption of the Australian Standard for Trees for Landscape Use and an appropriate vehicle for certification was budgeted in this project. A number of attempts were made to have this project contracted but these were not successful. A project through the University of Western Sydney - Evaluation of Nursery Tree Stock Balance Parameters has been contracted. It has been decided to wait for that project to be completed to determine if the guidelines and certification program should be developed and communicated.
6. NGIA represented industry on all relevant biosecurity committees to meet its statutory obligations as a signatory to the EPPRD. A report on NGIA's representation on biosecurity committees is contained as Appendix 5.

Evaluation and Discussion

This project provided the funding to conduct a range of research and development and other activities in a coordinated manner to deliver outputs for nursery industry levy payers. A number of activities, including the minor use permit program, development of nursery industry policy papers and management of biosecurity representation were successfully delivered. The overall governance of the project through the NETC generally ensured all identified project outputs were delivered and activities kept on track.

The longer term research and development projects were always likely to continue beyond the length of this project, however the University of Queensland project was completed within the extension of the project. The University of Melbourne, University of Technology and the CRC for Low Carbon Living projects administrative and governance mechanism will need to be established to ensure the projects are managed and conducted appropriately.

The development of the Future Success of Landscape Trees Guidelines and Certification Program was not conducted due to not identifying an appropriate service provider in a timely manner. The changing of project management staff over the life of the project impacted on this part of the project to be conducted. Also the commissioning of the Evaluation of Nursery Tree Stock Balance Parameters project would provide valuable information for the guidelines and certification program, and it was decided to wait for the completion of that project to determine if this work should be conducted.

Recommendations

The recommendations from this project:

- i. Support the continuation of the operation of the biosecurity committee representation and minor use program for the nursery industry. (These activities have been included in a new project NY15004 – National Nursery Industry Biosecurity Program).
- ii. Ensure there is an administration function to provide management and governance of projects going beyond the life of a project managing a portfolio of activities. This will need to be addressed for the University of Melbourne, University of Technology Sydney and the CRC for Low Carbon Living projects.
- iii. Have a stable governance framework and project management staffing to manage, facilitate and delivery projects. A breakdown in a project's administrative function can lead to the non-delivery of aspects of a project.

Scientific Refereed Publications

None to report.

Intellectual Property/Commercialisation

No Commercial IP generated.

Acknowledgements

The input from the NETC and key stakeholders need to be acknowledged as providing governance to the project and good ideas that only come to fruition by people supporting them.

Appendices

1. NETC Meeting – Nov 2014 minutes; Oct 2015 Agenda and Minutes
2. Water Policy
3. Minor Use Permit Project Final Report
4. UQ Final Report; Uni of Melb Progress Report; CRC for LCL Workshop Agenda
5. NGIA biosecurity activities report

MINUTES



Nursery & Garden Industry
Australia

Environment Committee Meeting

Date: Wednesday 12th Nov 2014

Time: 12:00 pm – 1:00 pm

Location: Teleconference

Attendees Hamish Mitchell (Chair), Peter Douglas, Steve Burdette, Chris O'Connor, Robert Prince

Apologies John Bunker

ITEM TOPIC

1 Welcome and Apologies

H Mitchell opened the meeting at 12pm and welcomed the attendees. J Bunker was noted as an apology

2 Confirmations of Minutes Jun 2014

Minutes of the last meeting were confirmed by S Burdette and P Douglas

3 Matters arising from last meeting

C O'Connor reviewed the current action item list.

Current Government enquiries. C O'Connor noted that this would be covered in the meeting

Skype facilitated meetings. C O'Connor noted that he would investigate this but may also look at other options such as goto meeting. C O'Connor noted that all participants have businesses to run so if a face to face meeting is not required a phone conference is a better option for an hour or two. C O'Connor commented that this also gives more flexibility in that rather than flying participants in for a full day meeting once every 6 months there is the ability to have more frequent but shorter phone meetings of approximately 1 hour.

Tree standard would be addressed in this meeting. C O'Connor will forward minutes of the PEPICC meeting to the group once received.

H Mitchell will raise the need for increased focus on key FMS and 202020 at the consultation meeting which has been delayed until 20/21 Jan in response to changes with HAL.

4 Matters Arising

R Prince provided the committee with a current update on HAL. R Prince met with John Lloyd CEO of HAL and at this stage it is still uncertain as to how HAL will be structured. R Prince noted that funding would be split into two funds - Pool 1 will be industry levy funds reserved for industry critical issues. Pool 2 will be multiple funds from other sources for large long term industry wide research an example of which is fruit fly.

R Prince noted that whilst not an issue for the nursery industry fruit fly appears to be of concern for a number of other horticultural sectors involved in export. Other possible areas include robotics. R Prince noted that we have pushed for Green Cities to be included noting the health and wellbeing benefits. R Prince noted that there is little information yet as to how projects will be managed and what will happen with existing projects.

Likewise the information/consultation feedback mechanisms with industry are not yet finalised. R Prince also noted that there has been no direction on how to submit new projects. There will be considerable impact on the pool of funds available due to the removal of matched VC funding from pool 1 projects.

H Mitchell suggested that we need to focus on the industry direction and how we can achieve this and not worry about what could happen with regards to funding. If there is opportunity to do this with commonwealth funds then how do take advantage of this and how do we do this? R Prince agreed noting that we need to focus on where we need to go, what resources we need and how to achieve this.

R Prince advised that there are two current relevant senate reviews. The first focused on the future of the levy which was initiated by Senator Leyonhjelm. A central element to this review was the drive to have levies reviewed every 3 years. A submission was tabled to the review.

The second senate submission was on the environment and controls to protect it in regards to biosecurity. R Prince noted that there are controls in place to protect this through Plant Health Australia and Animal Health Australia and that another body (Environment Health Australia) would not be necessary and would contribute more red tape to government. R Prince noted that some of the other bodies present which were lobbying hard for the establishment of Environment Health Australia were also quite damming of the Nursery Industry and its perceived contribution to weed problems. R Prince noted that he has sent information to the relevant parties on the programs the Industry has under taken in relation to weed education and mitigation in the industry. R Prince also noted that there is no control process/ barriers to entry for anyone to plant up some pots and sell these on. R Prince also noted that he advised the senators that we have petitioned for registration of growers in order to control this and industry would be very supportive of this.

C O'Connor noted a recent inquiry from a WA weeds researcher questioning the methodology of the weed risk assessment website the industry has. H Mitchell suggested there are opportunities to work with these groups to become allied to our cause.

C O'Connor noted the work being done in relation to water treatment and waste streams as part of NY13003 was coming to fruition.

C O'Connor noted that the waste stream work was of interest especially with materials which were traditionally non-recyclable such as plastics from poly tunnels or shade cloth. C O'Connor also noted that he had recently done some work in this area in conjunction with Terracycle and a scheme they have for recycling nespresso coffee pods. The scheme is operated out of florists and now garden centres and provides for a drop off facility to be used for consumers to recycle their used pods.

R Prince noted that milestone reports were submitted to HAL prior to the 4th of Nov to ensure that we received payment for these prior to the rollover of HAL into HIA and funding is frozen. At this stage now no funds are being released from HIA.

R Prince noted that there is currently a 2020 Vision roadshow taking place. The list of councils registered to attend has been circulated to the state associations. The NSW meeting is being held on the 6th of Nov where 30 councils will be presented to. The format of the day relates to 5 key topics and 4 key objectives under each topic. Participants will work shop these objectives and identify the barriers to achieving these objectives. The expectation is that the involved parties are able to identify the problems and the solutions can be provided or targeted for priority and research. R Prince noted that in South Australia some participants were not aware that green space appreciates in value. By highlighting this it enables justifying funds for maintenance at the local council level.

ITEM TOPIC

H Mitchell reiterated the importance of 2020 Vision and suggested that there is opportunity to utilise the industry more.

R Prince agreed in relation to exposure or understanding the issues but noted that the program had the industry as the beneficiary rather than actually undertaking the engagement. Likewise some of the skillsets being utilised in the engagement of the influencers are not held within the industry.

P Douglas observed that if industry was to get value out of it (2020 Vision) there needed to be some clear links established/ actions for industry to play.

R Prince noted that a question moving forward will be that without an IAC how are these projects to be managed? With no clear HIA direction this will be a watching brief.

Tree Standards - R Prince provided an update on the AS2303 Australian Standard - Tree stock for landscape use, noting that there will be an upcoming Standards committee meeting. R Prince also noted that he would be attending an upcoming LGTRA conference. LGTRA have had issues with the draft standard and have requested changes to the draft, with new tables proposed for discussion. Feedback received has been mixed with both positive and negative responses.

R Prince suggested that in regards to industry standards a harmonisation of container sizes would be of immense benefit to industry. H Mitchell noted that one thing which needs to be done is that each pot should have the volume of the container printed on the container. C O'Connor noted that he had issues in relation to this in previous roles. H Mitchell noted that this may be an issue in regards to the ACCC. R Prince observed the impact of this in relation to product quality and consistency for the consumer. Likewise the impact that standard container size harmonisation would have on supply chain and production efficiencies would be considerable.

General discussion on this point followed.

R Prince suggested that LED lighting would be an area to view for research in the coming years as well as focus on biosecurity especially in regards to BioSecure HACCP and an independent auditing ability.

R Prince departs the meeting 12:40pm

C O'Connor provided a brief update on the BioSecure HACCP trial and its successful completion in QLD/VIC and extension to the other states. C O'Connor noted to the committee that the FMS manuals are being updated to incorporate a greater degree of consistency of terminology as well as cosmetic updates.

H Mitchell asked what will happen to the IAC. C O'Connor replied that at this stage the IAC will be dissolved and that HAL/HIA do not have a process in place for a replacement mechanism. The HIA board will be meeting 08 December and hopefully some more clarity will flow on from here.

C O'Connor noted that there may be opportunities to lobby for the industry biosecurity program to fund a cross horticulture project through the tier 2 investment pool.

C O'Connor provided a brief on PEPICC and quarantine covering the ICON upgrade to BICON and noted the government focus on cost recover for quarantine operations.

C O'Connor covered the environmental risk matrix, noting that little had changed in the status of the threats/issues identified.

C O'Connor noted that at this stage the research project proposals which had been identified through the industry research pre-call and discussed at the previous meeting, have been placed on hold until clarification arrives from HAL/HIA on the processes for submitting research proposals.

P Douglas asked the question who is responsible for ensuring the pipeline for research remains open noting that there are still priorities for research. C O'Connor noted that the research still needs to be done and that the current unstable climate will settle. The industry levy is still in place and funding for research will be available however the process by which this happens may differ. It would be prudent to consider other avenues for funding from other sources, perhaps looking at some targeted research. C O'Connor noted that existing VC contribution funds although now not matched may be perhaps be used in joint partnerships with overseas entities. C O'Connor went further to note that many countries are experience similar issues to ourselves citing the Californian drought and their response to water management and the link this has to our 2020 Vision as one such example which we could leverage.

ITEM TOPIC

P Douglas question in light of the changes to research mechanisms did this committee have a role? C O'Connor responded saying that as an industry we still need research to be conducted and that internally we still have the need to identify areas of concern to target and a mechanism to do so. C O'Connor went further to note that in part this committee was an industry think tank to focus on our environmental and technical issues.

S Burdette noted that in this time of change would it not be an ideal time to consider what we as an industry want and the direction we need to take. C O'Connor agreed noting that the upcoming consultation to discuss this issue has been postponed until January to allow more time for us to determine the lie of land moving forward with HIA and to critically review our industry makeup and what we can do to improve it.

S Burdette noted that this needs to have a time line. H Mitchell responded, the focus of the board and consultation meeting will be on this and that there has been significant discussion on this. C O'Connor noted that our objectives/goals remain the same such as broadening the market increasing the quality of product etc. The methodology on how we achieve those goals may differ but not the goals themselves.

Both S Burdette and H Mitchell noted that we cannot afford to wait on HAL/HIA and that we need to continue to work towards our industry goals.

General discussion followed.

S Burdette liked the concept of more regular phone meetings which was agreed to by the rest of the committee with a yearly face to face meeting.

MEETING CLOSE 1pm

Next Meeting TBA

AGENDA



Nursery & Garden Industry
Australia

Environmental and Technical Committee Meeting

Date: Tuesday 20 Oct 2015

Time: 12:00pm – 2:00pm AEDT

Location: Phone Conference

Contact Number **1800 153 721** Access Code **990427#**

Attendees Hamish Mitchell (Chair), John Bunker, Peter Douglas, Steve Burdette, Chris O'Connor,

Apologies

Contact Chris O'Connor - 0481 172 217

ITEM	TOPIC	DETAILS
1	Welcome and Apologies 12:00pm – 12:05pm	<i>H Mitchell</i>
2	Confirmation of Minutes – Nov 2014 12:05pm - 12:10pm	<i>H Mitchell</i>
3	Matters arising from Last Meeting 12:10pm – 12:15pm	
3.1	Review of Action List	<i>C O'Connor</i>
4	Matters arising (not addressed in this agenda) 12:15pm-12:25pm	<i>All</i>
5	Export Update 12:25pm - 12:30pm	<i>C O'Connor</i>
6	HIA Update 12:30pm - 12:45pm	<i>C O'Connor</i>
7	NGI Project Updates 12:45pm – 1:00pm	<i>C O'Connor</i>
8	Environment Issues 1:00pm - 1:25pm	
8.1	Environmental Risk Matrix Review - New and emerging issues	<i>All</i>
8.2	Invasive plants policy	<i>C O'Connor</i>
9	GENERAL BUSINESS 1:30PM - 2:00PM	<i>All</i>
9.1	Role of the committee into the future	<i>All</i>

MEETING CLOSE 2:00PM

NEXT MEETING: TBC



Nursery & Garden Industry
Australia

MINUTES

Environment & Technical Committee Meeting

Date: Wednesday 12th Nov 2014

Time: 12:00 pm – 1:45 pm

Location: Teleconference

Attendees Hamish Mitchell (Chair), Steve Burdette, Chris O'Connor, John Bunker

Apologies Peter Douglas

ITEM TOPIC

1 Welcome and Apologies

H Mitchell opened the meeting at 12pm and welcomed the attendees. P Douglas was noted as an apology.

2 Confirmations of Minutes Jun 2014

Minutes of the last meeting were proposed by H Mitchell and confirmed by S Burdette.

3 Matters arising from last meeting

C O'Connor reviewed the current action item list.

4 Matters Arising

C O'Connor asked the committee if there were any matters arising for this meeting.

5 HIA Update

C O'Connor provided an update on HIA, noting that he had sent all attendees a copy of the presentation delivery by Anthony Kachenko during the NGI CEO meeting held on 22-23 Sep 2015. C O'Connor noted that there had been one industry advisory meeting to date and that the key focus of the meeting was the investment opportunities for levy funds with discussion held on 202020 and the IDO project. From this meeting HIA advised NGIA that the IDO project NY12006 would cease 17 Nov 2015 and that a new biosecurity project would be in place moving forward. The communication project is intended to finish mid Dec 2015 based upon the outcomes of a newly contracted project which has gone to tender. C O'Connor noted that based on this HIA projects managed by NGIA would be decreased.

C O'Connor provided background on the Industry biosecurity project. J Bunker noted that he had been on the review panel for this project tender. C O'Connor noted that there would be changes to

ITEM	TOPIC
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	<p>the method of operation of FMS and the role of the states. C O'Connor noted that a working group was in place and was working towards developing the new operating model in the absence of levy funded support. C O'Connor noted that NIASA and EcoHort would still need to be retained as NIASA is the bedrock for the BioSecure HACCP program.</p> <p>C O'Connor noted that the industry communications project was up for tender and that NY12011 and NY12012 had recently been independently reviewed by RM Consulting Group. C O'Connor noted that review included an online survey as well as phone interviews. C O'Connor reported that the review was generally favourable with opportunities in establishing a more rigorous monitoring and evaluation mechanism and covered additional outcomes out of the review.</p> <p>C O'Connor noted that the outcomes of the review have informed the development of the new industry communications tender. C O'Connor reported that the new program would not have a policy development aspect despite industry indicating that this was valuable and important. C O'Connor noted that Policy in the future would need to be funded out of member funds moving forward.</p> <p>H Mitchell noted that challenge going forward is that areas which are no longer funded via levy projects will still need to be funded, but managing those funds will be the real challenge. C O'Connor noted that this will be part of the transition moving forward and that it could be an opportune time to review the role of NGIA and how NGIA works in collaboration with state associations and what the value proposition is to members.</p> <p>H Mitchell enquired as to the timing of the communications project and biosecurity projects, C O'Connor noted that the tenders for communication close on 15 Nov and it is anticipated that the project should be awarded and running by mid Dec 2015. The industry biosecurity project would need to be approved by the HIA board in November.</p> <p>C O'Connor advised that the industry advisory mechanism would be known as Industry Advisory Panels and noted that the presentation had some details on this.</p> <p>C O'Connor noted that there were a limited number of nursery industry projects being conducted through HIA as old projects com the other end of their life. Moving forward identified projects include the biosecurity project, communications project and the treestock balance project with other projects conducted through the auspices of 202020.</p> <p>H Mitchell asked if 202020 would move into pool 2 funding. C O'Connor noted that 202020 remains the industry marketing program; with pool 2 green cities funding being stand alone with perhaps collaboration through CAUL and CSIRO green cities programs to match funding around green cities research which will support 202020 Vision messages through R&D.</p> <p>J Bunker questioned if the young leaders and conferences would be supported through levy funds. C O'Connor noted that conferences would not be supported through levy funds moving forward, but that there was a standalone pool 2 to support leadership development opportunities. Existing projects in these areas for industry would finish after the national conference in Feb 2016. C O'Connor noted the announced pool 2 funding pools which have been confirmed by HIA. C O'Connor noted that the industry has a new industry relationship manager and that Craig Perring has moved to marketing, managing 202020.</p> <p>C O'Connor noted that HIA was looking at establishing a mechanism for seeking broader exposure for R&D proposals through an online submission mechanism. H Mitchell noted that this was good idea as long as industry still had an opportunity to review submissions. C O'Connor noted that there was significant opportunity to leverage the R&D from other industries as well.</p>
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6 NGIA Project Updates

C O'Connor noted that as the end of year approaches a number of projects will be coming to an end and that NGIA would be writing project final reports and covered which projects would be finishing. Once new projects have been tendered information would be sent out to the network. With regards to the biosecurity project the intent was to have a transitional period from the existing FMS operation for the first 6 months.

H Mitchell noted that it is important that as an industry we stay positive during the transitional period and that HIA will be useful to industry and that continuing R&D is critical for our industry. H Mitchell noted that one of the big challenges for industry will be the vote on the levy in 2017 and ensuring that the levy continues past 2019. C O'Connor agreed noting that the amount of R&D generated as a result of the levy over the last 20 years is amazing. C O'Connor noted that the opportunities around pool 2 are quite exciting and given the current focus on agricultural investment the ability to leverage pool 2 is considerable.

7 Environmental Issues

C O'Connor noted that he had updated the NGI environmental risk matrix with annotations based upon NGIA management of the risks.

C O'Connor noted that he had also included an element around the social aspects for industry as well now. For example there has been some focus on 457 visas and foreign workers in industry and for that reason and the close alignment to environment risk; he had included the social aspects. C O'Connor noted that ethical sourcing is an issue citing that the Dumen group had highlighted their ethical sourcing program with respect to their propagation material being produced in third world countries. C O'Connor noted that this had been an issue with other industries but is something relatively new to the nursery industry and suggested keeping watching brief on.

H Mitchell noted issues around PBR and the ethics surrounding protection of naturally occurring products and this could be considered in light of ethical sourcing. General discussion on this topic followed.

H Mitchell noted that having the ethical sourcing of materials is a good addition and may be worthwhile investigating for policy options for the future.

J Bunker noted that possible additional items would be the relationship industry has with AQIS and the Subcommittee on domestic quarantine and market access regarding plant movement. C O'Connor noted that he sat on the Post-Entry Plant Industry Consultative Committee and that John MacDonald had significant involvement with the Subcommittee on domestic quarantine and market access through the Biosecurity project and work with the biosecurity national management group.

C O'Connor suggested that the key environmental issue on the horizon is water, in light of the return of el Niño, and noted that he had updated the water policy in preparedness for this as well as updating the policy from its previous stance.

C O'Connor noted that he was working on updating the industry weeds policy and provided a background to this. C O'Connor noted that the industry had done quite a lot since the last weeds policy was introduced and cited examples such as the plant labelling policy, the weeds risk assessment tool and the grow me instead campaign.

ITEM TOPIC

C O'Connor highlighted the difficulties in getting access to weed declarations across the country noting from a business perspective trying to manage this can be hard especially considering the cross border trade of plant stock.

C O'Connor noted that the ease of access of this information can be used to help enforce controls across the non-professionals as well.

C O'Connor noted the need for a more consistent weed risk assessment across states, noting that although based from the same handbook (HB294:2006) there are significant differences.

A mechanism for consultation and contestability is also required considering that weed species are not identified to cultivar level and noting that sterile cultivars may be classed as weeds. C O'Connor commented on the high level of emotion involved in discussion around weeds and the drive of issue motivated groups. The opportunity for consultation and a seat at the table to bring business cases forward would be good for industry.

H Mitchell noted that the issue of weeds needs to be balanced with their performance in the environment and that whilst being a weed else where a specific plant may be considered an important amenity plant locally. C O'Connor highlighted the approach of WA noting that weeds listed in the country are effectively banned in WA. C O'Connor also noted the issues around climate change and the potential for the industry to be charged with the sins of the father, noting the potential for spread of plants. H Mitchell noted that perhaps in this circumstance it may be about how do we manage the "new" natural environment.

C O'Connor asked the committee for their thoughts and noted that the draft would be sent to the committee and state associations for comment prior to NGIA board sign off.

8 General Business

C O'Connor provided background on the NGIA environment committee history and noted that HIA would not fund association meetings moving forward leaving the question what do we do with the committee in the future? NGIA would need to fund the committee moving forward. C O'Connor noted that from his perspective the committee has been quite valuable as an industry think tank noted its evolution from purely environmental aspects to one covering technical aspects as well.

C O'Connor asked the committee their thoughts on the role of the environment committee moving forward.

J Bunker responded noting that he saw it important as being able to provide support and feedback and to generate ideas. J Bunker noted that he saw there was a role still moving forward.

S Burdette noted it was difficult to provide direction at this point given the amount of unknowns regarding HIA and the role NGIA has in relation to R&D priority setting. C O'Connor noted that the changes HIA were undergoing have still left a lot of questions unanswered. C O'Connor noted that NGIA still relies on the feedback from its members. C O'Connor noted that the role of the association has perhaps in the past focused on the service delivery side based upon the amount of staff members who were funded out of project funding. This could require a change in the focus of NGIA to more of an advocacy based approach.

H Mitchell noted the importance of the committee is that the NGIA board has another group of industry persons which can be called on for advice/guidance and to provide recommendation.

ITEM	TOPIC
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Without the funding through HIA it could free up this committee to look at other things such as advocacy issues with government.

H Mitchell noted that his vote would be to keep the committee going with quarterly meetings with a fairly loose agenda to discuss issues of importance to industry. C O'Connor noted that he considered the think tank aspect of the committee was important.

C O'Connor noted that the lack of HIA funding could certainly free up resources for agripolitical lobbying and that the committee could help to support this.

H Mitchell suggested that this could be discussed at the next board meeting with and would have further discussion with C O'Connor. C O'Connor responded noting that this committee and the NACC committee are the only two board subcommittees operating at present and both are affected by funding changes. This could be an opportune time for the board to assess what subcommittees it will require as well as what advice sources it will need both internal and external to industry.

H Mitchell thanked the committee for the time and input and closed the meeting at 1:45pm

ACTION ITEM: H Mitchell and C O'Connor to discuss board subcommittee requirements and the function of the Environment and Technical Committee moving forward.

ACTION ITEM: C O'Connor to forward draft of Weeds Policy to committee once completed for comment.

ESSENTIAL FOR GROWTH

The Australian Nursery
& Garden Industry's
Policy Position on Water



Essential For Growth

The Australian Nursery & Garden Industry's Policy Position on Water

The viability of the Australian Nursery and Garden Industry is intrinsically linked to the availability and affordability of suitable quality water for the production and ongoing care of plants.

The impact of water availability in the wider community plays an important part through influencing the profitability and strength of markets in which the Nursery and Garden Industry (NGI) operates. These markets consist primarily of the retail market, landscape sector, and farming and forestry markets.

Given this, it is clear to see how water is essential for growth in the NGI in more ways than one. Likewise, based upon its reliance on water, the nursery industry acknowledges that it has a lead role to play in the wider water debate in Australia.

Since the mid-2000's the industry has undergone much change as wide spread drought resulted in water restrictions being placed upon businesses, the public and environment. These restrictions caused massive impacts to nursery industry markets and certainly had a detrimental impact upon industry profitability. Since then however, there has been a greater understanding develop within the industry and the wider community of the value of water, along with a number of cultural shifts in the use of water.

Focus at the consumer level has been directed upon smart water practices, conservation methods, such as alternate irrigation methods (drip irrigation) cultural practices (appropriate plant selection, mulching and the prudent use of allied products) and alternative water sources such as grey water, recycled water and rain water.

At the industry level more growers have adopted improved water conservation methods, updated irrigation infrastructure and adopted a more prudent approach to water budgeting, management and stewardship.

Water regulators have also taken a more considered approach to water restrictions and have indeed shifted their focus beyond water being a commodity to that of an enabling resource.

However we now operate in an era where the effects of climate change and variability expressed through increasingly frequent extreme weather events are being more strongly felt. Drought still remains an issue and is likely to remain so into the future. Storms and large scale floods have the potential to pollute our water environment and these events have been seen numerous times in recent years. This level of climate uncertainty therefore drives the NGI to continue undertaking a proactive approach to water policy.



Issues facing the Australian Nursery and Garden Industry

The Australian NGI faces a number of intrinsically linked challenges in relation to water, which can be broadly summarised into the areas of climate uncertainty and the influence of government policy on water.

First and foremost of these are the ongoing impacts of drought and climate variability. The past decade has seen some of the most extreme weather conditions reflected in recorded Australian weather data. This high degree of climate impact places stresses upon the industry, indeed unlike other horticultural industries the Australian NGI is affected on both sides of supply and demand through weather events.

Rising water costs are another issue which poses challenges to the industry, as water is a key production input. Cost pressures on water supply directly influence the cost of production and these costs are by necessity passed onto the markets which influence sales volumes. Likewise rising water costs also influence the market directly as user markets need to supply water to maintain the product post farm gate. Water quality must also be factored into consideration when discussing water costs as in production nursery systems high quality water is essential for producing quality plant material. There are costs associated with establishing and operating recycled water schemes and this may result in a price discrepancy between recycled and mains water.¹ These pricing discrepancies limit adoption rates of recycled water products and leave industry and the markets more vulnerable to the impact of water restrictions and conservation measures if and when introduced in peak demand/limited supply periods.

Noted with water restrictions and enforced conservation measures are the influence that policy decisions have upon the Australian NGI. Policy decisions and how they are implemented directly impact the industry. Evidence of this was certainly seen beforehand with the introduction of widespread water restrictions in the middle of the previous decade.

Flowing on from the impact of policy and its implementation is the influence of general public opinion. There has been a considerable shift in the public's attitude to water in Australia in the past decades and this has certainly impacted upon sales² and indeed the product demographics of the industry, with focus certainly in the height of drought to low water use plants and increasing use of xeriscaping (low water use landscaping).

¹ Water recycling; What to consider before setting up a recycled water scheme Sydney Water, 2013 http://www.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdu3/~edisp/dd_057020.pdf

² Queensland lifestyle horticulture industry survey report Queensland Department of Employment, Economic Development and Innovation, July 2011

The variation in markets has also been demonstrated in the changing of urban demographics. Populations in urban areas are increasing, as is population density in these areas. The flow on effects from this will influence the debate around urban water in the coming years and will certainly impact upon the Australian NGI.

With the high degree of volatility surrounding weather impacts and the increasing pressures on urban water, comes the need for the Australian NGI to take proactive steps. This will ensure it and its markets have the ability to access sufficient water in a sustainable and economical manner, maintaining the viability of both the industry and urban green infrastructure which will enhance the livability of cities.

Responding to these challenges, six central strategies have been formulated with industry consultation:

- 1. Leadership in policy development and investment in the area of water.**
Recognising the impact of policy decisions and investment on businesses and their customers, and the need for consultation.
- 2. Investment in on-farm support to address water management.**
The realignment of investment and a commitment by governments to support on-farm practices, innovation and incentives to adapt, manage and respond to water issues.
- 3. Building upon established industry best management practice.**
Recognising and supporting the Nursery Production Farm Management System (NPFMS) as a key water management strategy for the industry and investment in research development and extension.
- 4. Water security and assurance of access.**
Without water and a future for water management both at the industry and community level then the industry will suffer and decline.
- 5. Recognition of water as an enabling resource.**
This recognises the capacity that water has to enable jobs, economic development as well as the impact it has on the livability of our cities.
- 6. Support and acknowledgment for industry initiatives in water management by government and water regulators.**



1. Leadership in policy development and investment in the area of water

Recognising the impact of policy decisions and investment on businesses and their customers, and the need for consultation.



Policy development by state, territory and federal governments has significant implications for the Australian NGI. Rapid policy development that is poorly designed and orchestrated may lead to greater impact on the industry than current water management arrangements across Australia.

Changes in water policy, especially urban water policy have significant impact upon the sustainability of the Australian NGI. Therefore, the opportunity to provide input into strategies and decisions made by Commonwealth, State and Territory Governments or authorities will always be required.

Proposed changes to water policy must be based upon sound science, credible and accurate data and demonstrated improvements to water conservation.

Policy impact statements must be undertaken with any proposed changes to water policy to identify and consider all impacts and benefits including social environmental and economic aspects before implementation.

Water policy must be based upon principles of fairness and equitability and conservation measures must be applied in a transparent, consistent and predictable manner complimented with industry consultation.

The Australian NGI requests that they be consulted and given adequate time and mechanisms to respond to issues regarding current and future changes to water management arrangements. This will ensure the industry has the best opportunity to contribute meaningfully in these discussions, take ownership of decisions made and assist in producing policy of substance.

Water policy must also be subjected to ongoing review and improvement processes. This will ensure an adaptive approach to the changing needs of industry, community and government and will see the continual incorporation of new knowledge and best practice into policy.

The Australian NGI is in principle supportive of national coordinated water policy approaches.

Likewise the Australian NGI is supportive of the ongoing development of water market and pricing mechanisms to support water conservation efforts, provided that such pricing mechanisms are fair and equitable across the water use spectrum and the development of water markets do not unduly disadvantage the Australian NGI and are based upon sound information on water use needs.

2. Investment in on-farm support to address water management

The realignment of investment and a commitment by governments to support on-farm practices, innovation and incentives to adapt, manage and respond to water issues.

The production of quality plants requires access to reliable water supplies of appropriate quality. As a result the Australian NGI has valued water as the foundation on which industry growth and productivity is based. As such the Australian NGI support government policy which encourages on-farm practices, innovations and incentives to manage water use and improve efficiencies.

This importance of water has led to the development of innovative approaches to water management and use and has driven continued improvements in water use efficiency.

In the past years a great deal of investment has been directed into water use efficiency. Much of this investment has been in partnership with the Federal Government and Horticulture Innovation Australia Limited (previously Horticulture Australia Limited) through the Nursery Industry levy.

Some examples of this investment include;

Nursery Industry Water Management Best Practice Guidelines³ - first produced in 1997 it was incorporated into the Nursery Production Farm Management System (FMS) in 2005 and subsequently updated in 2010. These guidelines focus upon 6 goals including; efficient water use, irrigation management tools, reuse of waste water, management of sediment, nutrient retention, and the environmentally responsible use of plant protection products.

Waterworks industry workshop series is a suite of workshops designed to assist growers in better understanding and improving on-farm water management practices through practical workshop delivered information. Delivery of these workshops is primarily conducted through the industry extension network, which deliver and facilitate on farm extension outcomes.

Water Management Tool Box for Nursery Production⁴ is a group of excel based calculators designed to support growers with water budgeting and managing irrigation and drainage water. This assists in the sustainable and responsible use of water on farm.

These examples constitute some of the change management tools which deliver results at the industry coal face and result in direct positive outcomes for industry water management. They also constitute a great method for delivering R&D outcomes through the industry extension network. It is also cognisant to consider that behavioural change in water management will be fundamental in ensuring long term water security.

Given the success of these initiatives it is of no doubt that further investment into this area will continue to see positive returns, as growers adopt these basic processes into their business practices and continue to translate new information into on farm practice and better water management outcomes.



³ Water Management Best Practice Guidelines
http://www.ngia.com.au/Section?Action=View&Section_id=556

⁴ Water Management Tool Box for Nursery Production
<http://www.watertoolbox.ngi.org.au/>

3. Building upon established industry best management practice

Recognising and supporting the Nursery Production Farm Management System (NPFMS) as a key water management strategy for the industry and investment in research development and extension.

The Australian NGI seeks recognition and support of the Nursery Production Farm Management System (FMS) by all levels of government as a key water management tool for the local industry. This industry driven best management practice (BMP) program provides production nurseries, growing media suppliers and greenlife markets with a framework for sound on farm risk management in relation to water amongst other key areas.⁵

The Nursery Production FMS incorporates three key programs

- **Nursery Industry Accreditation Scheme Australia – Best Management Practice** (NIASA-BMP),
- **EcoHort®** - which promotes best management practices in environmental and natural resource management and;
- **BioSecure HACCP**- which promotes best practice in pest and disease management and biosecurity risk assessment and management

Both the EcoHort® and BioSecure HACCP programs play key roles in managing the impact of nursery use on water in areas such as nutrient loads and pathogen control.

It is essential that the NPFMS utilise the best available science and are regularly updated as research evolves and new findings on innovative practices to manage water become available. Investment in R&D into these best practice programs is vital to ensure these programs are relevant and in line with innovation and technological advancements in areas such as water scheduling, application methods, recycling and treatment.



Ongoing investment is also required to ensure the resources are available to deliver this valuable program to whole of industry through an extension network. Extension activities will ensure businesses can apply the outcomes of the Nursery Production FMS, as well as provide businesses with the outcomes of other government and industry research and development programs to directly address water management and water use efficiency.

⁵ Nursery Production Farm Management System
http://www.ngia.com.au/Category?Action=View&Category_id=524

4. Water security and assurance of access

Without water and a future for water management both at the industry and community level then the industry will suffer and decline.

This policy position acknowledges that the availability of reliable and appropriate quality water supply is integral to the sustainability of the Australian nursery and garden industry at both the industry level and at an individual business level.

The Australian NGI acknowledges that water is a finite resource and is committed to sustainable water use. The industry is an efficient and responsible water user, and has demonstrated a commitment to addressing water issues and making ongoing performance improvements.

The availability of water extends to the markets that the Australian NGI services namely, the retail sector, landscape sector, farming and forestry sectors. Without access to water these markets will suffer which will directly influence the profitability of the Australian NGI. In addition water availability will impact upon urban greenspace quality and viability.



Complementing the need for industry water security and assurance of access, urban water use supply must be considered in a broader context addressing the whole of water cycle. Such considerations include the disposal, capture, treatment and reuse of water, as well as the incorporation of storm water, wastewater and treated effluent into the commonly available suite of water resources.

The Australian NGI strongly supports a move away from reliance on potable water sources in both production nurseries and in the urban forest setting and actively encourages moves to on site recycling and improved access to reclaimed storm water or treated effluent fit for use where available. Indeed the Australian NGI supports moves to optimise the use of all available water resources.

This will ensure that our water sources are diverse and will drive resilience to the impacts of climate change and variability.

With the importance of water to the industry clearly seen the Australian NGI will seek to develop a greater understanding of the risks to long term water availability and seek to develop strategies to manage these risks.



5. Recognition of water as an enabling resource

This recognises the capacity that water has to enable jobs, economic development as well as the impact it has on the livability of our cities.

The Australian nursery and garden industry is a significant sector of the Australian horticultural industry with an estimated value in excess of \$1.5 billion annually.⁶ It is important to note that the breadth of the industry is quite diverse with end user markets being supported in nurseries, forestry, revegetation, fruit and vegetable farming, cut flower markets and other specialised arenas.

Central to supporting this industry is water, without it the economic impacts would be significant. This has been demonstrated in the past, in the wake of the 2004 drought and the introduction of stringent water restrictions at business, consumer and public levels, which led to job losses and reduced turnover.

Transitioning beyond the direct economic impacts to the NGI, it is prudent to consider the impact of water as an enabling resource on the urban green infrastructure of our cities, towns and suburbs.

Improving our urban green infrastructure is increasingly being seen as an essential component to managing some of the key negative products of the urban environment.⁷ A good level of tree canopy coverage has positive benefits to ameliorate the urban heat island effect which has flow on effects to the levels of human mortality rates due to heat injury. Another important flow on effect of a good tree canopy cover is the positive influences on power consumption for heating and cooling. By shading our suburbs and reducing wind velocities with trees, peak energy use demands can be reduced. This can reduce load requirements on energy infrastructure.

Further to this good tree canopy coverage will reduce the impact of rainfall events, especially through reducing peak load pressures upon existing water management infrastructure. This is especially important as urban population densities increase and the base load on waste water management systems is placed under strain.

Likewise it has been documented through numerous peer reviewed studies that a good level of urban green infrastructure plays an invaluable role in improving human mental health and physical wellbeing in the urban environment. Biodiversity is also improved through increasing the levels of urban green infrastructure.

However without the support of water these benefits would cease or would be at the very least severely impacted upon. It is therefore vitally important that the extended green infrastructure of our cities, towns and suburbs be incorporated into water policy and that the enabling ability of water is recognised in this arena.



⁶ IBISWorld Industry report A0111 Plant Nurseries in Australia

⁷ Green Infrastructure: Life support for human habitats Ely M. and Pitman S. 2014 http://www.environment.sa.gov.au/files/1a6b24e1-d957-4da7-bb86-a12d0114fccd/bg-gen-Green_Infrastructure_Evidence_Base_December_2012.pdf

6. Support and acknowledgment for industry initiatives in water management by government and water regulators

Over the past 20 years the Australian NGI has undertaken a number of initiatives designed to promote and improve water management both within the industry and the wider community. Indeed the Australian NGI is both well positioned and committed to educate consumers on water management within the urban environment. Likewise Nursery & Garden Industry Australia (NGIA) is, and will continue to be, committed to improving industry water management through promoting best practice supported by sound science and the delivery of innovation and implementation of new technologies.

Some of the current initiatives that the industry has developed and support are detailed;



Smart Approved Water Mark⁸; A collaborative effort between NGIA, Water Services Association of Australia, Australian Water Authority and Irrigators association of Australia developed the Smart Approved Water Mark scheme. This scheme provides a channel to inform consumers about the outdoor products and services they can use to save water.



Best Management Practice (BMP); as previously acknowledged in this policy the Nursery Production Farm Management System (NPFMS), incorporating Nursery Industry Accreditation Scheme, Australia (NIASA), EcoHort and BioSecure HACCP, is a suite of best management practice programs (BMP) which are designed to facilitate incremental improvements and assist in a systematic management of processes in production nursery businesses. A key aspect of this is the integration of water management into each of the NPFMS programs.



202020 Vision⁹; An initiative of the Nursery & Garden Industry Australia in conjunction with Horticulture Innovation Australia, the 202020 Vision is a national campaign with the goal of increasing urban

green space in Australia by 20 percent by 2020. Complementing this vision is a significant body of research supportive of the need for increasing urban green space and infrastructure. Aspects of this research relate directly to water management in the urban environment through the use of trees and plants to intercept rainfall and control run off, thereby reducing load on waste water systems and limiting the impact of erosion.

These initiatives demonstrate the determination of the Australian NGI in relation to being a leader in pertinent water issues. It also clearly demonstrate the ability of the Australian NGI to act as an educator of the public in water conservation and conduit of water conservation information.



⁸ Smart Approved Water Mark www.smartwatermark.info

⁹ 202020 Vision www.202020vision.com.au

Further Information

If you would like further information about the Australian Nursery & Garden Industry's Policy Position on Water please contact:

Nursery and Garden Industry Australia
Unit 58, 5 Gladstone Road
Castle Hill, NSW, 2154



Mailing Address

PO Box 7129
Baulkham Hills BC
NSW 2153

Phone: 02 8861 5100

Email: info@ngia.com.au

Web: www.ngia.com.au

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**Horticulture
Innovation
Australia**



NURSERY & GARDEN INDUSTRY AUSTRALIA

Minor Use Permit Program

2014-15 Final Report

Organisation: NGIA and AgAware Consulting Pty Ltd

Date: 14 December 2015

Report period: 30 August 2014 to 31 August 2015

Summary

During the project period, AgAware undertook various pesticide minor use permit related activities for the Australian Nursery Industry.

The activities including:

- Monitoring and finalising the 2013-14 submitted permit applications with APVMA.
- Renewal of the permits that were to expire during 2014-15 with APVMA.
- Apply for new minor-use permit applications to APVMA.
- Identify new pesticide options for nursery stock.

All tasks have been completed on time.

Background

Most pesticide labels do not include registrations for nursery crops. The Australian agchem industry has failed to identify nursery production as an industry that requires a suite of pesticides to manage the diverse range of insects, diseases and weeds that can impact of the various crops (approximately 10 000 unique cultivars cropped).

Therefore, the likelihood of new pesticide registrations being processes against most pests in the nursery industry is remote. The only option available to the nursery industry is the APVMA minor-use permit program. This is an efficient and effective option available to the nursery industry to legally access pesticides, particularly those utilising new and improved chemistry.

This report outlines the minor use permit related activities during 2014-15.

Activities

1. Monitoring and finalising 2013-14 submitted applications with APVMA

During the 2013-14 Minor Use Permit Program, AgAware on behalf of NGIA submitted 6 permit applications to the APVMA.

Of these, 3 remained outstanding and yet to be finalised by APVMA as at 30 August 2014.

The applications and activities undertaken were:

- #14856 - bifenthrin, chlorothalonil, chlorpyrifos, imidacloprid, mancozeb / quarantine management
 - Resubmitted a new application at APVMA's request with new 'directions for use' on 22-May-14.
 - APVMA have indicated that the application will be finalised by the end of September 2015.

- Permit has yet to be issued.
- #14879 - emamectin / various insects
 - The permit PER14879 was issued by APVMA on 24-Feb-15.
 - The new permit was included in the insecticide permit consolidation. See below.
- #14878 - fipronil / ants
 - The permit PER12983 was issued by APVMA on 21-Mar-14.
 - The new permit was included in the insecticide permit consolidation. See below.

For all permits, the permit holder is Nursery & Garden Industry Australia (NGIA) c/o AgAware Consulting Pty Ltd.

The due date for the monitoring and finalising of the 2013-14 submitted permit applications to APVMA was 31-Aug-15. This is yet to be completed.

2. Renewal of permits that were to expire during 2014-15 with APVMA

AgAware on behalf of NGIA submitted for the renewal of existing permits under 4 categories:

A: Renewal and consolidation of all possible existing fungicide permits into one new permit:

The following fungicide permits were included:

- PER14767 - azoxystrobin
- PER12156 - azoxystrobin, copper, mancozeb, oxycarboxin, propiconazole, triadimenol, triflorine
- PER12661 - boscalid + pyraclostrobin
- PER12662 - bupirimate
- PER14225 - copper oxychloride, mancozeb, triflorine
- PER13328 - copper hydroxide
- PER12660 - cyprodinil + fludioxonil
- PER14768 - dimethomorph + mancozeb
- PER14880 - mancozeb
- PER12028 - metalaxyl + mancozeb
- PER13330 - potassium bicarbonate

The consolidated renewal application was submitted to APVMA on 27-Mar-15.

APVMA issued the new permit PER81419 for the period 17-Jul-15 to 31-Jul-20.

Unfortunately, there are a few minor errors with the 'direction for use' in the permit and a request for these to be corrected was made to APVMA in late July. The changes are yet to be confirmed by APVMA.

The due date for the consolidated fungicide permit submission to APVMA was 31-Mar-15. This was achieved.

B: Renewal and consolidation of all possible existing insecticide permits into one new permit:

- The following insecticide permits were included:
 - PER12982 - alpha-cypermethrin
 - PER14623 - Bacillus thuringiensis
 - PER11972 - bifenazate
 - PER14769 - buprofezin
 - PER12027 - chlorantraniliprole
 - PER12983 - fipronil
 - PER13942 - imidacloprid (Suscon)
 - PER13953- imidacloprid

- PER12029 - indoxacarb
- PER13329 - petroleum oil
- PER11973 - pymetrozine
- PER14881 - pyrethrins
- PER12659 - pyriproxyfen
- PER13382 - chlorantraniliprole + thiamethoxam
- PER14879 - emamectin
- PER11971 – diafenthiuron

The consolidated renewal application was submitted to APVMA on 30-Apr-15. APVMA have provided a draft of the permit that has been edited and modified. Bifenazate, diafenthiuron and pymetrozine were consolidated and the APVMA issued permit PER80241 for the period 14-Apr-15 to 30-Apr-17. Alpha-cypermethrin, chlorantraniliprole, imidacloprid, indoxacarb and chlorantraniliprole + thiamethoxam were consolidated and the APVMA issued permit PER81707 for the period 30-Sept-15 to 30-Sept-20.

It is expected that the new consolidated insecticide permit covering the outstanding actives will be issued in mid-January 2016 by APVMA.

The due date for the consolidated insecticide permit submission to APVMA was 30-Apr-15. This was achieved.

C: Renewal of stand-alone permits that could not be consolidated as additional data was required (APVMA will not allow the consolidation of a permit if there are outstanding conditions):

The following permits were submitted:

- PER13760 – dimethoate / Spiraling whitefly
 - The renewal application + efficacy data was submitted to APVMA on 15-Jan-15.
 - APVMA issued the new permit, PER80688, for the period 26-Mar-15 to 31-Mar-17.
- PER11971 – diafenthiuron / Aphids, mites and whitefly
 - The renewal application + efficacy data was submitted to APVMA on 15-Jan-15.
 - APVMA issued the new permit PER80241 for the period 14-Apr-15 to 30-Apr-17.
 - The new permit was included in the insecticide consolidation permit application (see above).
- PER13459 - metiram + pyraclostrobin / various diseases
 - The renewal application + crop safety data was submitted to APVMA on 12 May-15.
 - APVMA have indicated that the due date for the permit is 27-Oct-15.
- PER13330 - potassium bicarbonate / Powdery mildew
 - The renewal application + crop safety data was submitted to APVMA on 13-May -15.
 - APVMA have indicated that the due date for the permit 11-Nov-15.
- PER12543 - spirotetramat / Aphids
 - The renewal application + crop safety data was submitted to APVMA on 27- May -15.
 - APVMA issued the new permit PER81331 for the period 14-Aug-15 to 31-Jul-18.

- AgAware has asked APVMA to change the permit holder from AgAware Consulting to NGIA / AgAware.

D: Renewal of existing Growcom held nursery permit:

The following permit was submitted:

- #81519 – acephate / Western flower thrips
 - The nursery stock component of the Growcom/HIA held permit was renewed for nursery stock only.
 - The renewal application was submitted to APVMA on 13-Jul-15.
 - APVMA issued the new permit PER81519 for the period 8-Sep-15 to 31-Jul-18.

The due date for the submission of all stand-alone permits to APVMA was 31-Jul -15. This was achieved.

For all permits, the permit holder is Nursery & Garden Industry Australia c/o AgAware Consulting Pty Ltd.

3. Apply for new minor-use permit applications to APVMA

AgAware on behalf of NGIA submitted 4 new minor-use permit applications to APVMA.

The following new permits were submitted:

- #80699 – Decontamination products (copper, methylated spirit, quaternary ammonium) / bacterial and fungal pathogens on growing surfaces and equipment
 - The new application + efficacy data was submitted to APVMA on 28-Jan-15.
 - APVMA issued the new permit PER80699 for the period 26-May-15 to 30-Apr-20.
- #81311 – Etoxazole / mites
 - The new application + efficacy data was submitted to APVMA on 27-May-15.
 - APVMA issued the new permit PER81311 for the period 7-Aug-15 to 31-Jul-18.
- #81466 - Fenoxycarb / scale, Lightbrown apple moth
 - The new application + efficacy data was submitted to APVMA on 6-Jul-15.
 - APVMA have indicated that the due date for the permit 21-Dec-15.
- #81448 - Prochloraz / Anthracnose
 - The new application + efficacy data was submitted to APVMA on 27-Jun-15.
 - APVMA issued the new permit PER81448 for the period 12-Oct-15 to 31-Oct-20.

The due date for the submission of all new permit applications to APVMA was 31-Aug -15. This was achieved.

Following is a table from the APVMA online permit site on the permit application submitted by AgAware on behalf of NGIA.

Decision ID	Application Number	Item No	Item Status	Submitted by	Product Name	Product ID	Lodgement Date	Due Date	Finalised Date
DC21-11877835	103279	21	Finalised / Permit Issued	Peter Dal Santo	Acephate / Nursery stock (non-food) / Western flower thrips	81519	13-Jul-15	21-Sep-15	17-Sep-15
DC21-83104728	103165	21	Evaluation / Evaluation	Peter Dal Santo	Fenoxycarb / Nursery stock / Lightbrown apple moth	81466	6-Jul-15	21-Dec-15	
DC21-19441866	102832	21	Finalised / Permit Issued	Peter Dal Santo	Spirotetramat / Nursery stock / Aphids	81331	3-Jun-15	17-Aug-15	13-Aug-15
DC21-93550572	102797	21	Finalised / Permit Issued	Peter Dal Santo	Paramite Selective Miticide / Nursery stock (non-food) / Various mites	81311	27-May-15	4-Nov-15	26-Aug-15
DC21-32076584	102749	21	Evaluation / Evaluation	Peter Dal Santo	Ecocarb Fungicide / Nursery stock (non-food) / Powdery mildew	81290	20-May-15	11-Nov-15	
DC21-14857888	102702	21	Evaluation / Evaluation	Peter Dal Santo	Aero Fungicide / Nursery stock / Various diseases	81263	21-May-15	27-Oct-15	
DC20-69668249	102533	20	Evaluation / Evaluation	Peter Dal Santo	Insecticide consolidation / Nursery stock (non-food) / Thrips, Grasshoppers, Locusts, Aphids, Cutworm and Rutherglen bug	81707	30-Apr-15	22-Aug-15	30-Sep-20
DC20-47351826	102213	20	Finalised / Permit Issued	Peter Dal Santo	Fungicide consolidation / Nursery (non-food) / Downy mildew, Powdery mildew, Grey mould, Rusts and Leaf spots	81491	27-Mar-15	17-Jul-15	20-Jul-15
DC21-19662590	101454	21	Finalised / Permit Issued	Peter Dal Santo	Nursery stock growing surfaces / Pathogens (Bacterial and fungal organisms) / Copper oxychloride	80699	19-Jan-15	28-Mar-15	2-Jun-15
DC21-82353677	101424	21	Finalised / Permit Issued	Peter Dal Santo	Dimethoate / Cut flowers & ornamentals / Spiraling whitefly	80688	15-Jan-15	22-Mar-15	8-Apr-15
DC20-72487279	101421	20	Finalised / Permit Issued	Peter Dal Santo	Pegasus (diafenthion) / Nursery stock / Aphids, Mites and Whitefly	80241	15-Jan-15	23-Apr-15	21-Apr-15

4. Identify new pesticide options for nursery stock.

AgAware has prepared an initial list of possible new pesticides for future new minor-use permit applications.

The potential list of pesticides is in the following table.

Target Pest (common name)	Target Pest (scientific name)	Potential Solution (type)	Potential Solution (active ingredient)	Chemical Group/MOA	Proposed timing/use pattern	Generic	Proposed supporting company	Comments
						Yes/No		
Nematodes	Meloidogyne sp	Nematacide	Abamectin	6	Soil	No	Syngenta	ABA bait - lots IR-4 crop phyto data
Cereal cyst nematode	Heterodera avenae	Nematacide	Abamectin	6	Soil	No	Syngenta	
Downy mildew		Fungicide	Ametoctradin	45	Foliar	No		(Zampro) AME+dimethomorph - rego in veges, grapes, hops & potato.
Phytophthora		Fungicide	Ametoctradin	45	Foliar	No		
Broadleaf weeds and grasses		Herbicide	Bicyclopyrone	H		No		X
Broadleaf weeds		Herbicide	Clomazone	Q		Yes		X
Downy mildew		Fungicide	Cyazofamid	21	Foliar	No		FMC - Ranman. Herbs, vege, grapes, hops - pythium, phytophthora, DM
Pythium		Fungicide	Cyazofamid	21		No		
Phytophthora		Fungicide	Cyazofamid	21		No		
Pythium		Fungicide	Cyazofamid	21		No		
Mites		Insecticide	Cyflumetafen	25	Foliar	No		?
Plant bugs		Insecticide	Dinotefuran	4A	Foliar	No		Gp 4A
Thrips		Insecticide	Dinotefuran	4A	Foliar	No		
Whitefly		Insecticide	Dinotefuran	4A	Foliar	No		
Aphids		Insecticide	Dinotefuran	4A	Foliar	No		
Diamond back moth	Plutella xylostella	Insecticide	Etofenprox	3A	Foliar	No		?
Aphids		Insecticide	Etofenprox	3A	Foliar	No		
Botrytis rot	Botrytis cinerea	Fungicide	Fenpyrazamine	17	Foliar	No	Sumitomo	US - Protexio Gp 17 + Teldor. Botrytis & Monilinia in BB, raspberry, grapes, strawberry
Plant bugs		Insecticide	Flonicamid	9C	Foliar	No	ISK	US - Beleaf /Carbine Gp 9C aphids, bugs whitefly. Veges, hops, pome, stone, tree nuts, berries, canola, lucerne, clover, mint, cotton
Whitefly		Insecticide	Flonicamid	9C	Foliar	No	ISK	
Thrips	Frankiniella occidentalis	Insecticide	Flonicamid	9C	Foliar	No	ISK	
Aphids		Insecticide	Flonicamid	9C	Foliar	No	ISK	
Potato Psyllids		Insecticide	Flonicamid	9C	Foliar	No	ISK	
Plant bugs		Insecticide	Flubendiamide	28		No		Belt

Target Pest (common name)	Target Pest (scientific name)	Potential Solution (type)	Potential Solution (active ingredient)	Chemical Group/MOA	Proposed timing/use pattern	Generic	Proposed supporting company	Comments
						Yes/No		
Anthracnose	Colletotrichum sp.	Fungicide	fludioxonil	12	Foliar	Yes	Syngenta	Scholar, Maxim IR-4 - data on coleus emergence.
Cereal cyst nematode	Heterodera avenae	Nematacide	Fluensulfone	?	Soil	No		Adama Nimitz - nematodes in veges.
Broadleaf weeds	Cyperus spp., Portulaca spp., Solanum nigrum	Herbicide	Flumioxazin	G		No	Sumitomo	Valent - Broadstar & Suregard
Broadleaf weeds and grasses	Sonchus oleraceus, Chenopodium album, Amaranthus spp.	Herbicide	Flumioxazin	G		No	Sumitomo	
Downy mildew	Peronospora spp.	Fungicide	Fluopicolide	43	Foliar	No	Bayer	Valent - Presidio Gp 43 veges, grapes pythium, phytophthora, DM
Aphids	Myzus persicae, Macrosiphum euphorbiae	Insecticide	Flupyradifurone	4D	Foliar	No	Bayer	Bayer Sivanto
Brown spot	Alternaria alternata	Fungicide	Fluxapyroxad	7	Foliar	No	BASF	
Alternaria	Alternaria mali	Fungicide	Fluxapyroxad + pyraclostrobin	7+11	Foliar	No	BASF	Gp 7
Root-Knot and lesion nematodes		Nematacide	Fosthiazate	1B	Soil	No		
Potatoe cyst nematode		Nematacide	Fosthiazate	1B	Soil	No		
Botrytis rot / Anthracnose	Botrytis cinerea / Colletotrichum sp.	Fungicide	Isofetamid	7	Foliar	No	ISK	
Sclerotinia	Sclerotinia spp.	Fungicide	Isofetamid	7	Foliar	No	ISK	
Botrytis rot	Botrytis cinerea	Fungicide	Isofetamid	7	Foliar	No	ISK	
Phytophthora		Fungicide	Mandipropamid	40		No	Syngenta	
Diamond back moth	Plutella xylostella	Insecticide	Metaflumizone	22B	Foliar	No		BASF Altrevin / Siesta
Cutworm		Insecticide	Metaflumizone	22B		No		

Target Pest (common name)	Target Pest (scientific name)	Potential Solution (type)	Potential Solution (active ingredient)	Chemical Group/MOA	Proposed timing/use pattern	Generic	Proposed supporting company	Comments
						Yes/No		
Broadleaf and grass weeds		Herbicide	Metamitron	C	Pre-plant and post emergent	Yes	Tapuae Partnership, Hudson Rd, New Plymouth, New Zealand	
Green vegetable bug, Rutherglen bug	Nezara viridula, Nysius vinitor	Insecticide	Novaluron	15	Foliar	?	Adama	Chemtura - Diamond, Mayhem, Rimon Gp 15 Rego in berries, veges, pome, stone - many pests
Diamond back moth	Plutella xylostella	Insecticide	Novaluron	15	Foliar	?	Adama	
Cutworm/Thrips	Agrotis spp./Frankiniella occidentalis	Insecticide	Novaluron	15	Foliar	?	Adama	
Downy mildew	Peronospora spp.	Fungicide	Oxathiapiprolin	U15	Foliar	No	DuPont/Syngenta	
Grass weeds		Herbicide	Pethoxamid	K		No		
Broadleaf weeds		Herbicide	Pyraflufen-ethyl	G		No		X
Powdery mildew		Fungicide	Pyriofenone	U8	Foliar	No		
Broadleaf weeds and grasses		Herbicide	Pyroxasulfone	K		No	Bayer	BASF - Zidua Gp 15
Broadleaf weeds		Herbicide	Topramezone	H		No		BASF - Armezon, Pylex Gp27

Other pesticide comments:

- Benevia (cyantraniliprole) is in the same chemical group as Coragen (chlorantraniliprole), but with a slightly different activity profile.
- Transform (sulfoxaflor) is in a similar chemical group as Confidor (imidacloprid), but with a different activity profile.
- Sivanto (US) flupyradifurone Gp 4D Bayer - aphids, beetles, leafhoppers, mealybugs, psyllids, scales, thrips, whiteflies; RR: rego in AU after 2016.

Effect of street trees on property values – does tree type, size and age make a difference?

Lyndal Plant
PhD candidate
University of Queensland
School of Geography, Planning and Environmental Management
e-mail: Lyndal.plant@uq.edu.au Phone: 0408 779 488

Summary:

Little is known about resident tolerances for mixtures of species in Australian streetscapes. Yet diversity of tree species within the urban forest is required to suit the vast range of growing conditions and constraints, provide resilience to changing climatic conditions, pests and disease and optimize the multiple functions of this type of green infrastructure.

Residential home-buyers in Brisbane revealed their support for a limited level of species diversity within streets through their willingness to pay around 3% above median house sale price for up to six different species within 100m of the property. A greater diversity of tree species in nearby streetscapes reduced house sale price. Similar premiums revealed home-buyers preference for trees of mature age nearby. Ongoing planting, maintenance, protection and celebration of these features of streetscapes also translate to property tax revenues and therefore represent good value for money. Revealed preference valuations provide a useful tool for testing the delicate balance between promoting resilient, multipurpose streetscapes with mixtures of tree species and the unique needs and aspirations of each community.

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Introduction

Street trees have an important and changing role as front-line components of the urban forest in rapidly growing cities. As Australian cities attempt to reduce the environmental, social and economic impacts of urban sprawl by fitting more dwellings into existing urban footprints, some forms of urban consolidation are already causing irreversible loss of tree cover on private land in existing residential areas (Hall 2010, Daniel 2012). Streetscapes are likely to become important components of the diverse network of greenspace needed to meet the demands of densifying cities and their changing climates (Byrne et al., 2010; Hamin and Gurran, 2009).

Trees within streetscapes are also a form of multi-functional “green infrastructure” (Ely, 2010). Roadside street tree pits and trenches not only allow trees to grow to their full potential, but capture and treat stormwater runoff to ease the burden on existing piped systems already at capacity and improve waterway health (CRC Water Sensitive Cities 2015). Such leafy streets are also supporting healthier neighbourhoods by providing cooler, comfortable walking and cycling routes and spaces that attract active use, social connections (Heart Foundation 2014) and business vitality (Wolf 2007). The extent to which tree cover in public spaces like parks and streets can help compensate for losses on private land and help deliver more compact and liveable cities will depend on significant and strategic investments in urban greening and “green infrastructure”.

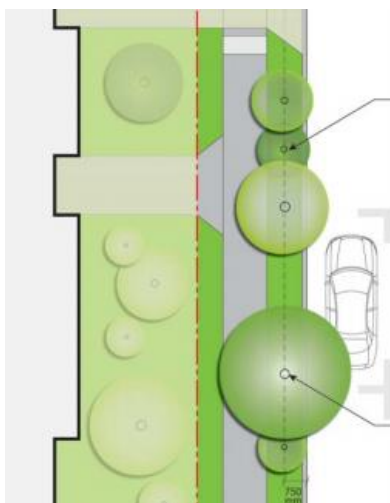
In Australian cities, street trees are mostly managed by local government authorities and funded from rates revenue. Developers may be required to pay for some street tree planting and establishment along with contributions to a range of community infrastructure. It is possible to measure some of the returns to both primary and secondary investors like local government, developers and ratepayers provided by street trees. A topical and relevant measure is property value benefits. Local government rates revenue is indirectly based on property value, yet no published research is available about the net return on local government investment in street trees from property values. While Australians have expressed their willingness to pay an average 7% above base house price to live in leafy neighbourhoods (Planet Ark 2014), local councillors are often bombarded with complaints about street trees. Evidence about actual and forecast rates of return to local governments are likely to build stronger business cases for the ongoing investment required to deliver and sustain healthy, functional street tree assets.

A limited number of studies have quantified and valued the benefits of urban trees in Australian cities (Amarti, et al. 2013; Brack 2002; Brindal and Stringer 2009; Moore 2009; Plant 2006; Planet Ark 2014). Even fewer have measured property value benefits of street trees (Pandit et al., 2014; Pandit et al., 2013), although houses in leafy streets are often said to attract higher prices at sale time. In addition to providing quantifiable evidence of returns on investment, measuring effects of trees on property value can also reveal a little more about home-buyers tree preferences. Street tree preferences are usually canvassed by community surveys (Williams 2002; Brisbane City Council 2013). However, Pandit (2013) found that home-buyers were willing to pay 4.27% more than median property price, for houses with a broad-leaved street tree on the front footpath, while palms provided no significant impact on house sale prices in Perth. These measures also help evaluate the economic impact of policies such as using smaller growing species or mixtures of species within a street.

Diversity of tree species within the urban forest is required to suit the vast range of growing conditions and constraints, provide resilience to changing climatic conditions, pests and disease and optimize the multifunctionality of this type of green infrastructure (Clark et al., 1997; Dobbs et al., 2014; Kendal et al., 2014). Physical factors such as suburb age, original vegetation type and developer preferences are strong determinants of street tree species diversity (Kendal et al., 2012). Urban forest managers are guided by targets for urban forest diversity (Frank and Santamour, 1990) and local knowledge of matching species to site conditions, yet monocultures of species within a street, or at least on one side of the street, are often the policy norm in Australian cities. Although most residents believe that benefits provided by street trees outweigh problems such as falling branches, leaf litter, tree debris and infrastructure damage, preferences for both tree size and type can also reflect problem avoidance as much as benefits (Schroeder et al., 2006).

Little is known about resident tolerances for mixtures of species in Australian streetscapes. Home-buyers and residents may support the policy norm, preferring order and less diversity in streetscapes as a point of difference from more diverse, natural forest surrounds in cities of milder climates. In tropical countries like Bangladesh and cities like Singapore, Bangkok and Rio de Janeiro, low levels of diversity in street trees have been reported (Deb et al., 2013; Pedlowski et al., 2002; Sreetheran et al., 2011; Thaiutsa et al., 2008).

Mixtures of feature and shade tree species within a street is now part of Brisbane's desired subtropical aesthetic (Brisbane City Plan 2013) (Fig 1a). Yet some of the most prestigious streets in Brisbane showcase a monoculture of mature trees (Fig 1b).



a)



b)

Fig 1. a) "Neighbourhood street" design guideline, b) mature aged street trees of a single species in a residential Brisbane street

More informed of the vulnerability of urban forests dominated by a small number of drought intolerant species, and the biodiversity values of species mixes, Melbourne residents are supporting greater levels of species diversity within local precincts (Melbourne 2015). Insights from home-buyers, as a substantial subset of Australian residents (69% of Australians own or are paying off their homes), may help build a better understanding of preferences for street tree diversity.

Context of this study

Brisbane's urban forest

Brisbane is the third most populated and fastest growing city in Australia (United Nations, 2012). In 2010, 1.97 million people were living in just over 200 suburbs of the 13,300 sq km local government area (LGA). New residents are attracted to Brisbane's subtropical climate and clean, green residential suburbs where the development footprint supports an extensive but unevenly distributed tree canopy covering 51% of the LGA land area, including an estimated 575,000 street trees (Brisbane City Council 2013). Although more than 200 different species of street trees grow alongside the 4,800km of residential streets in Brisbane, 70% of trees are just 30 species and the most common species makes up 8.9% of the population.

Subset study

This study is a subset of a larger post-graduate research project to build a better understanding of how contemporary techniques of analysing urban forest structure and valuing ecosystem services can be adapted and applied, to inform planning and investment in green infrastructure, using street trees in Brisbane, Australia as a case study.

The research has already confirmed that the annual property value benefits of Brisbane's leafy streets are worth more than twice the annual costs of planting and maintenance, justifying ongoing investment in a community asset also returning just over \$2million per year in property taxes to Brisbane City Council (BCC) and the state government. When combined with an analysis of the extent, structure and needs of Brisbane's street tree population, priorities for such investment were identified, including continued progress towards 50% footpath tree shade target by 2031. These findings were based on the small but positive effect of 35% tree canopy coverage of footpaths within 100m of 2299 house sales, between 2008 and 2010, across 52 residential suburbs in the study area.

This subset study firstly used more detailed information about the number, type, size, condition and age of street trees on the front footpath of those house sales that was available for around 20% of the house sale locations. Only one of those features was significant. Home-buyers were willing to pay a small but significant premium for mature and aged street trees on the front footpath, when all other house, property and neighbourhood variables were held constant. However, it was important to acknowledge that this was a small sample (549 house sales) and that street tree cover on the front footpath in the larger study had no significant effect on the sale price of houses. In other words, home-buyers in the study area were indifferent about the street trees on front footpaths and more influenced by the leafiness of the streets nearby, and perhaps also by the features of street trees nearby. Information about the types, sizes and age of street trees within 100m of 1883 (82%) house sale sites was therefore similarly analysed test if tree age was still significant and to investigate the effect of species diversity within that zone. Fig 2. shows that the 100m zone used in this study captures a portion of street in which the house sale was located and about two or three nearby streets.

Results of both the initial analysis of street trees on the frontage and street trees nearby are provided and discussed in this report.



Fig. 2 Street trees (red dots) within 100m (yellow shaded footpaths, of house sale site (red outline).

Research Objectives

The aim of this study was to examine to what extent house sale prices are influenced by the sizes, age, condition and types of street trees in an Australian city. In particular the effect of species diversity within the street and the extent to which preferences for smaller growing trees may influence the property value benefits derived from leafy streets.

The principle objective was to add to the evidence base that helps the nursery industry and others engage with stakeholders and customers about the benefits of trees in cities. Associated objectives are:

- to provide an alternative test of community preference for tree size, age and species diversity in streetscapes, and
- assist cities in Australia build stronger business cases for cost-effective and sustainable urban greening.

Methods

This study used both linear and spatial regression analysis of house sale price as the dependent variable and ten (10) house, property and suburb attributes, and six (6) street tree attributes as independent/explanatory variables. This type of analysis is also called a Hedonic Price Model, where the sale price of the house is explained as a function of its characteristics, location and proximity to amenities or disamenities, like busy roads or industry. The value of each characteristic that makes a significant contribution to explaining the price variance in a sample of house sales can themselves be estimated. Not every potential explanatory characteristic can be measured, so the validity of estimated values depends on the strength of the model and accounting for analytical assumptions in the regression technique, including spatial patterns in unexplained variance.

Data from house sales between 2008 and 2010 was combined with attribute data from spatial analysis, Census 2011 and Brisbane City Council street tree survey data across 80 sample sites in 2010. Unlike the associated project which focused only on tree canopy cover measures, this study looked at the composition and features of the street tree canopy cover.

A subset of 459 of the 2299 house sales within the study area had survey information about the number and features of street trees on the frontages of those properties. The effects of the features of 874 street trees on the frontages of those 459 house sales, including number of trees, presence of powerlines, tree species type, condition, age and size were explored. Data from the sample survey was converted to two (2) continuous and four (4) dummy variables for each house sale (Table 1). Dummy variables are used to test the contribution of just two scenarios of a particular characteristic, such as the effect of street trees of maturing age compared to all other age categories. Where there was more than one street tree on the frontage of a house sale, the type of species, health and age of tree was defined from the first tree entry in the data set.

In the larger data set of street trees within 100m of house sales (1882 house sales), excluding the front footpath, both species richness (number of different species) and species diversity (using Shannon-Weiner index of diversity), average tree height and percentage of trees in each age category were calculated for each house sale. Features of street trees on the front footpath not found to be significant were not tested again for street trees nearby. Dummy variables for age categories and species richness were also tested.

The 3 house, 2 property and 5 suburb variables found to be significant in the associated project were used in this study analysis. Based on studies of surveyed street tree preferences (Williams 2002) it was expected that the presence of medium sized, mature age street trees in good condition would have the greatest positive effect on house sale price. Tolerance for mixtures of tree species within nearby streets was unknown. House, property, suburb and street tree features used in this study are summarised in Table 1 and street tree variables used in the analyses are listed in Table 2.

Lastly, the larger study found home-buyers were willing (and able) to pay higher premiums for street tree canopy cover in suburbs with higher household income and education levels, over less advantaged suburbs. Bivariate correlations between species diversity and richness and socioeconomic conditions were therefore also tested in this study.

Table 1

Summary of the house, property, suburb and features of street trees, on the front footpath and nearby within the two house sales data sets.

House sale price	<i>(n=459 house sales)</i>	<i>(n=1882 house sales)</i>
	Front footpath of house sale site	Nearby footpaths within 100m of house sale site
Median sale price (\$)	513,500	525,000
House variables		
Average Number of bedrooms	3.44	3.45
Average number of bathrooms	1.64	1.70
Average number of garages	1.50	1.53
Property variables		
Average Lot size	618.44	582.19
Average Distance to nearest park	181.01	194.09
Suburb variables		
% house sales in prewar suburbs	35.07	23.9
% house sales in postwar suburbs	45.1	60.2
% household income, upper quartile	9.71	10.08
% Yr 12 education level in suburb	49.0	49.0
Distance to CBD (Translink zone)	3.49	3.350
Street tree features		
Average tree height (m)	5.76	5.55
% properties powerline constrained	30.24	X
% properties with trees poor health	5.87	X
% properties with trees good health	26.63	X
% properties with Mature+aged trees	28.35	27.66
% properties with Maturing aged trees	58.20	55.47
% properties with New+Juvenile trees	13.45	16.87
Av. Number footpath trees	1.42	17.09
Species richness (number of species)	X	5.85
Species diversity (Shannon-Weiner)	X	1.30

Table 2

Street tree variables used in the two analyses.

Frontage Street tree feature variables (n=459)		Nearby Street Trees feature variables (n=1883)
Number of street trees at frontage		Number of street trees within 100m
Height of highest street tree on the frontage		Average street tree height
D_Powerlines		
Type of species		Diversity of species (Shannon- Weiner index)
Small	Species type -small	Richness of species (number of species)
D_medium	Species type -medium	D_richness≤ 6 species
D_large	Species type -large	
Health of tree		
Fair		
D_poor		
D_good		
Age of trees		Age of trees
Maturing		
D_new		D_new+juvenile
D_juvenile		
D_mature	Mature or aged	D_mature+aged

The steps in the methodology can be summarised as follows:

- Identify if street tree features (and presence or absence of powerlines within the street) are contributing a premium to Brisbane house prices while controlling for the effect of other variables
- use dummy variables to explore differences amongst street tree types, health and age and thresholds for species mix tolerance.
- use the statistically significant effects of independent variables in the model, to reveal a marginal implicit price of that component, which also reflects the premium home-buyers are willing to pay, above median sale price, for that street tree feature, when all other variables are held constant.

Results

Table 3 firstly shows that the OLS model for street tree features on the front footpath explained 70.4% of the variance in house sale prices of that sample. However only one of the six street tree attributes was significant at the 10% probability level. Street trees in the mature and aged (>16 years) category had a significant positive effect and when other variables were held constant, were adding a 6.92% premium to median house sale price. Although the effects of house, property and suburb variables remained similar to the tree cover model, such a small sample size limits the robustness of this model.

In the second stage of this analysis, both the OLS and spatial (SAR) model confirmed the significant effect of mature and aged street trees nearby on house sale price, yet explained much less of the variance in sale prices across the larger sample. While species diversity, measured using Shannon-Weiner index, had no significant effect on house price, species richness was significant and negative. Each additional species of street tree nearby reduced house sale price by between \$2,573 to \$2,625 (or 0.49%-0.5% above median house sale price). The greater the number of different tree species in the street, the lower the house sale price. Using a dummy variable equivalent to the mean number of street tree species nearby (5.85 species), a threshold of no more than six species reversed the negative effect to a significant positive effect. The number of street trees nearby was also positive and significant at 90% probability, yet tree height had no significant effect. Interestingly, average tree height for properties that had at least some street trees of mature age was 6.05m while the sample average was just 0.5m less. In summary, the more street trees, especially of mature age and less variety, the higher the house price.

The presence of some street trees of mature age nearby added between \$17,168 and \$17,220 to house sale price (or 3.27 to 3.28% above median house sale price). This premium is equivalent to the price the same home-buyers were willing to pay for houses with 0.66 extra bedrooms or located almost twice as close to the city centre. Six or fewer different species added \$15,015 (or 2.86% above median house sale price) when evaluated using least squares regression only, and each additional street tree nearby added \$683 to median house sale price.

Lastly, while socio-economically advantaged suburbs in Brisbane, and elsewhere, have been found to have more tree cover (Shanahan et al., 2014) and leafier streetscapes (Plant, Sipe, Rambaldi – submitted for publication), species diversity was not inequitably distributed (Pearson's 2-tailed 0.060 – 0.071). This is in contrast to streetscapes in subtropical Rio de Janeiro (Pedlowski et al., 2002).

Table 3

Linear and spatial regression model results, including features of street trees on the front footpath and nearby.

Variable	Front footpath			Footpath nearby (100m)							
	OLS			OLS				SAR			
	Coeff	HCSE	Prob	Coeff	HCSE	t-value		Coeff	HCSE	t-value	
Intercept	11.8939	0.2083	***	11.8749	0.0908	130.8110	***	11.8545	0.1093	108.4970	***
D_2010	0.0573	0.02	***	0.0458	0.0113	4.0518	***	0.0464	0.0112	4.1315	***
Structure											
No. bedrooms	0.0447	0.0204	**	0.0535	0.0087	6.1250	***	0.0526	0.0082	6.3795	***
No. bathrooms	0.1437	0.0251	***	0.1541	0.0099	15.5500	***	0.1550	0.0098	15.8449	***
No. garage spaces	0.0052	0.0131		0.0236	0.0066	3.6009	**	0.0237	0.0065	3.6617	**
Land											
Lot size	0.0004	0.0001	***	0.0004	0.0000	12.8794	***	0.0003	0.0000	12.8097	***
D_ < 200m to nearest park	-0.0287	0.0217	*	-0.0436	0.0120	-3.6369	**	-0.0432	0.0119	-3.6228	**
Suburb											
D_Prewar	0.1701	0.0469	***	0.2419	0.0247	9.7825	***	0.2406	0.0144	16.7188	***
D_Postwar	0.0147	0.0396		0.1030	0.0213	4.8392	***	0.1026	0.0035	29.0914	***
Suburb household income	0.0184	0.0036	***	0.0204	0.0016	12.7219	***	0.0203	0.0014	14.0141	***
Suburb Education	0.0095	0.0025	***	0.0086	0.0010	8.7634	***	0.0086	0.0006	13.8169	***
Location -distance to CBD	-0.0358	0.019	*	-0.0338	0.0102	-3.3329	**	-0.0342	0.0080	-4.3023	**
Front Footpath Street Tree Features											
No. of footpath trees	-0.0181	0.0184									
D_Powerlines	0.0299	0.0281									
Hgt tallest tree (m)	-0.0041	0.0039									
Health D_poor	0.0172	0.0649									
Health D_good	0.0074	0.0242									
Age D_maturing	0.0028	0.0282									
Age D_mature/aged	0.0692	0.0368	*								
Species D_medium	0.0155	0.0278									
Species D_large	0.0214	0.0304									
Nearby Footpath Street Tree Features											
Age D_mature/aged				0.0327	0.0134	2.4311	**	0.0328	0.0127	2.5865	**
Age D_new/juvenile				-0.0045	0.0120	-0.3793		-0.0049	0.0119	-0.4117	
Diversity SW #				-0.0001	0.01	-0.0088					
Species Richness				-0.0050	0.0024	-2.0705	**	-0.0049	0.0024	-2.0886	**
(D_Species richness≤6)##				0.0286	0.0138	2.0644	**				
Av_Height				-0.0012	0.0021	-0.5792		-0.0013	0.0021	-0.5959	
No. of nearby street trees				0.0013	0.0007	1.7783	*	0.0013	0.0007	1.8347	*
Adjusted R 2											
Adjusted R 2	0.704			0.6513				0.6514			
Standard Error of Estimate	0.2118			0.2324							
Sum of Sq Residuals	19.699			100.7160							
F-stat	58.376		***	217.1740			***				*(rho)
* p< 0.1	** p < 0.05	*** p < 0.01									
# Diversity SW and Richness were run in separate regressions											
## 6 species or less - run in separate regression											

Discussion

The results suggest that while residents express preferences for certain types, sizes and forms of street trees (Williams, 2002), home-buyers focus on the presence of mature street trees when faced with a choice of the same features of a house and neighbourhood in different streets. Both the presence of mature street trees and a level of diversity of tree types in nearby streetscapes were highly valued by home-buyers, worth premiums of 3.27% and 2.86% above median house sale price, respectively.

Importantly, these results suggest a threshold of tolerance for species diversity within residential streets. A threshold that, in Brisbane, is equivalent to the average level of species richness found within 100m of the property. A threshold that also supports the mix of tree species proposed for “neighbourhood streets” in Brisbane’s subtropical streetscape aesthetic. However, negative effects found across the full range of species richness in this study, sound a caution for local councils about introducing too much of a mixture of tree species to simply satisfy resilience or biodiversity targets at the scale of individual streetscapes. A concurrent caution was raised by Kendal (et al 2014) from an evaluation of patterns of diversity found at the city wide scale, in urban forest inventories. Setting climate relevant targets, avoiding the application of generic rules such as 10/20/30 for streetscapes and gauging community tolerances for species diversity is important.

Home-buyers preferences for mature trees in nearby streetscapes may simply align with the pragmatic benefits residents rate highest for trees in cities – attractiveness and shade (Lo and Jim, 2012; Lohr et al., 2004) which come with greater proportions of mature trees. Trees of mature age are also associated with identity and stability that home-buyers may be seeking from their neighbourhood. In Brisbane, where street tree age classes are relatively uneven (Fig 2.), sustaining shaded and attractive streetscapes will depend on transitioning a significant proportion of street trees of “maturing” age (60%) to maturity.

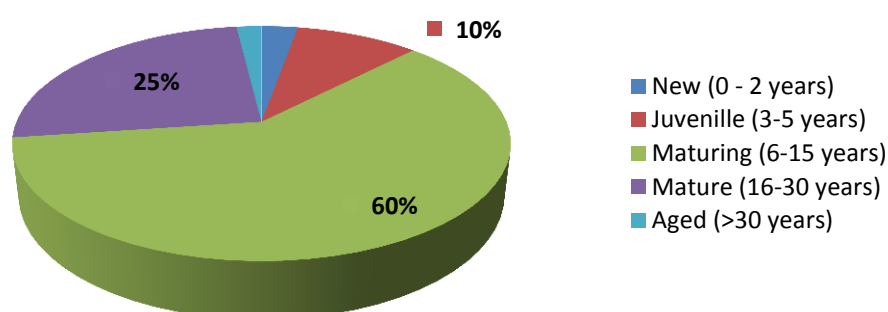


Fig 2 Age class profile of Brisbane’s street tree population in 2010

Such a caution may only apply to trees as dominant vegetative elements within individual streetscapes. Mixtures of understorey ground cover and shrub species at street tree sites are integral to Brisbane's subtropical boulevards, encouraged in cities like NYC as an opportunity for promoting urban forest stewardship (New York City 2013) and tolerated along roadsides in Cologne and Berlin as a recognised source of biodiversity (Weber et al., 2014). Understorey species also help slow and clean roadside storm water runoff in "green street" facilities (Susilo and Abe, 2010)(Philadelphia 2014).

The value expressed by home-buyers in having a limited mix of mature trees in streetscapes near their property in this study, also suggests that investments by local government in the past that have achieved high levels of diversity ($H' = 4.1$) across Brisbane's residential street tree population (Plant and Sipe, submitted for publication) are justified. Ongoing planting, maintenance, protection and celebration of these features of streetscapes also translate to property tax revenues and therefore represent good value for money.

Monitoring community preferences at the street, suburb and city-wide scale in conjunction with valuation techniques like HPM can also be undertaken using the same foundational data set that informs structural assessment and measures of other urban ecosystem services. Efficient evidence gathering and analysis assists local councils in managing the delicate balance between promoting resilient, multipurpose streetscapes and responding to the unique needs and aspirations of each community.

Limitations of the models

Preferences revealed from home-buyers willingness to pay for structural features of street trees may differ from broader community preferences. However it is more likely that features such as mature aged street trees may be similarly valued by local residents, but for different reasons. Home-buyers favouring the neighbourhood stability and attractiveness values and local residents favouring the walkability and local narratives associated with such streetscapes.

The models in this study explained 65.1 to 70.4% of the variation in house prices, indicating that some characteristics of home buyer decisions may have been excluded. Not all attributes of housing market or features of houses and neighbourhoods can be measured nor such data accessed. Instead, neighbourhood scale characteristics and additional dummy variables were used to proxy for some omitted attributes and capture variations in house sales prices of the sample that wouldn't otherwise have been captured. However, some level of the effect of a variable like street tree maturity on house sale price may have been capturing the effect of a related missing variable such as type of house construction that was preferred.

Finally, only a limited number of other studies, using different methods, have explored community preferences for species diversity within streets, therefore no specific comparisons could be made, nor would it be appropriate to apply the quantified and valued effects measured in this study to other cities.

Conclusion

This project provided a unique insight into preferences for features of trees within residential streetscapes, revealed through the effects of those features on house sale prices. Indifferent to limited variation in tree size or condition, of greatest significance to home-buyers is the presence of some mature or aged street trees on the frontage or nearby. The benefits, in property value premiums alone, translate to around 3% of added value to home-owners and consequent returns for local council investment.

Of greater importance, from the perspective of ensuring an appropriate level of resilience and multifunctionality within our front-line urban forest warriors, home-buyers expressed a threshold of tolerance for species diversity within nearby streets. A tolerance that supports the current mix found at that scale across residential Brisbane and statutory streetscape design requirements for residential development. Species diversity within streets is perhaps the most delicate scale which must continue to be tested with local communities in other cities, particularly across different land-use types.

Techniques, such as revealed preference valuation, have also been demonstrated in this study and shown to be a useful “desk-top” addition to foundational resource management and business case development. A technique that advances the range of tools to support evidence-based planning and management of urban forests.

Acknowledgements

Achieving the research objectives has been made possible by generous support from the Nursery and Garden Industry of Australia, who have championed significant advances in promoting and sustaining the benefits of trees to the quality of life in Australian cities.

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ARC LP140100885 - Species traits, substrates and stormwater grates: improving the health of urban trees by using polluted stormwater as a resource

Researchers: Stephen Livesley, Tim Fletcher, Stefan Arndt, Chris Szota

Funding Period: 2015-2017

Funding Bodies: ARC, Melbourne Water, City West Water, Nursery and Gardens Industry Australia

The ARC linkage agreement was signed and received from all industry parties in May 2015. We then employed Dr Chris Szota as the project Research Fellow and he commenced at the end of June 2015. Chris has commenced several research experiments in the glass house and nursery that will run into 2016. In mid-2015 we advertised for two PhD students to join the Research project and received 20 applications. Only one of these was promising and this candidate (Jasmine Thom) has submitted an application for full PhD scholarship with the University of Melbourne. We will learn whether this students is successful in January 2015. The PhD student is scheduled to receive a \$7k top-up scholarship from the NGIA cash contribution to the project.

Patricia Torquato (Brazil) began a 6 month internship at The University of Melbourne in July 2015 and has been working with Chris Szota and then CIs (Livesley, Fletcher and Arndt) on a nursery trial of tree water relations at the plant and leaf scale for 13 of the most common street trees species in Greater Melbourne. This study of 2-3 m tall saplings in 70 litres pots will assist in understanding the suitability of using existing urban tree species in water sensitive urban design.

Margaret McCarthy commenced a 1 year research project within her Masters of Urban Horticulture in July 2015. Margaret is supervised by Chris Szota and Steve Livesley, but collaborates with CIs Fletcher, Arndt and Dr Claire Farrell. Margaret has selected 20 native tree species from throughout Australia to provide a wide gradient in 'aridity'; from sites where rainfall approximately equals evapotranspiration, to sites where evapotranspiration far exceeds annual rainfall. This study will be based on seedlings in a glasshouse where leave level physiology will be studied in relation to increasing soil drought conditions.

In 2016 the intention is to continue the nursery and glasshouse studies to identify the nutrient uptake and water quality impacts of promising tree species. Furthermore, to identify a local government in Western Melbourne with a cooperative housing developer to investigate at the street-scale the efficiency and water quality benefits of street tree systems.



Making Australian Cities Cooler and Greener

A Joint CRC Low Carbon Living & CRC for Water Sensitive Cities,
Workshop on Urban Micro-Climates and Adaptive Urban Design

Swinburne University of Technology

Hawthorn Arts Centre, 360 Burwood Rd, Hawthorn, (Chandelier Room)

21-22 March 2016

DAY 1: Monday 21 March	Coffee available from 9.30; informal meet and greet pre-session 1		
SESSION & CHAIR	TOPIC	Presenter	Time
Session 1 Prof Peter Newton	Welcome and Objectives of Workshop	Prof Peter Newton	10.00-10.15
	Overview and background to urban climate research in the CRCWSC, including the heat-health drivers for research	Prof Nigel Tapper Monash (WSC)	10.15-10.35
	Overview and background to urban climate research in the CRCLCL	Prof John Boland UniSA (LCL)	10.35-10.55
	Discussion: Recap of Objectives		10.55-11.00
METRO	Thermal imaging of urban land surfaces using remote sensing	Dr Conrad Philipp, UniSA (LCL)	11.00-11.15
	Mesoscale modelling of human comfort and health under heatwave conditions	Stephanie Jacobs Monash PhD (WSC)	11.15-11.30
	Potential of extreme heat events to exacerbate the UHI effect within Australian cities	Cassandra Rogers Monash PhD (WSC)	11.30-11.45
	Discussion: knowledge synthesis. Is there a theory of urban fabric relating to urban microclimates and urban heat islands? What variability in surface temperatures exists across Australian cities spatially and temporally and how do we explain this?		11.45-12.30
	LUNCH		12.30-1.30
Session 2 Prof John Boland			
PRECINCT	WSUD/vegetation impact on precinct microclimates (including impact of irrigation on reduction of thermal stress)	Ashley Broadbent Monash PhD (WSC)	1.30-1.45
	Population heat stress resilience and the built environment	Gertrud Hatvani-Kovacs UniSA PhD (LCL)	1.45-2.00
	Discussion: what functionality would a precinct assessment tool require? Precinct Heat Island Assessment :data, methods, tools for local planning approval process/modelling of microclimatic impact of urban development (greenfields) and redevelopment (brownfields & greyfields) projects		2.00-2.30
	TEA BREAK		2.30-3.00

Session 3 Prof Nigel Tapper			
PUBLIC REALM OPEN SPACE			
	Human thermal comfort in botanical gardens during heatwave conditions.	Charlie Lam Monash PhD (WSC)	3.00-3.15
	The climatic and bio-climatic impact of a small central city park on the surrounding urban environment during extreme heat events	Asieh Motazedian Monash PhD (WSC)	3.15-3.30
	Thermal resilience of human activity patterns in public green spaces in periods of heat stress	Eshan Sharifi UniSA PhD (LCL)	3.30-3.45
	Urban forests, microclimates and urban heat island mitigation	Dr Scott Rayburg Swinburne	3.45-4.00
	Discussion: what are some of the issues to be canvassed here? How critical is public open space for resilience to extreme heat? How can planners of public space be best brought into the discussion?		4.00-5.00
DAY 2: Tuesday 22 March			
Session 4 Dr Andy Coutts			
STREETSCAPES			
	Microclimate of isolated trees in the urban environment	Andy Coutts Research Fellow, Monash (WSC)	8.30-8.45
	Microscale model for assessing impact of water and vegetation on human thermal comfort	Kerry Nice Monash PhD (WSC)	8.45-9.00
	UHI mitigation policy	Judy Bush Uni Melb PhD (LCJ)	9.00-9.15
	Heat and vulnerable (Jewish) communities in Melbourne	Rachel Bareket Monash PhD (WSC)	9.15-9.30
	Discussion: how to optimise greenery for maximum benefit?		9.30-10.00
Session 5 Prof Deo Prasad/ Dr Lan Ding			
BUILDINGS			
	Solar Resource Assessment	John Boland, UniSA (LCL)	10.00-10.15
	Microclimatic effects of building facades at the architectural level (vertical surface temperatures)	Jonathan Fox UNSW PhD (LCL)	10.15-10.30
	Discussion: what are the key building/streetscape /precinct interactions?		10.30-11.00
	Tea Break		11.00-11.30
Session 6 Dr Conrad Philipp			

POLICY	Economic Valuation of UHI Mitigation	Jasmine Thom Monash (WSC)	11.30- 11.45
	Economic valuation of ecosystem services: the benefits of green infrastructure	Sharolyn Anderson UniSA (LCL)	11.45- 12.00
Session 7 Professors Prasad, Tapper, Newton and Boland	Discussion and wrap up: see questions below; synthesis; National Forum discussion		12.00- 12.45
	LUNCH		12.45

NGIA Biosecurity Committee Representation Emergency Plant Pest Response Deed (EPPRD) 2015

Peter Vaughan is the NGIA representative on the National Management Group (NMG) and John McDonald is the NGIA representative on the Consultative Committee on Emergency Plant Pests (CCEPP). These committees are integral to the operation of the Emergency Plant Pest Response Deed (EPPRD) administered by Plant Health Australia.

NGIA has participated and contributed to 51 facilitated meetings (face to face, email out of session (OoS) and teleconferencing) as per its signatory obligations under the Emergency Plant Pest Response Deed (EPPRD) during 2015 (Jan – Dec). The meetings and committee representation primarily centered around the CCEPP addressing plant pest incursions and Plant Health Australia (PHA) Issues Resolution Groups and Working Groups in the functioning of both the EPPRD and PlantPlan.

NGIA also participated in the PHA facilitated incursion response exercise ‘Yellow Dragon’ (Asiatic citrus psyllid/Huanglongbing) on the 11 and 12 March 2015. This exercise simulated an incursion of an emergency plant pest into Australia under an evolving scenario to test current resources (e.g. PlantPlan, job cards, etc) and assess parties responses to managing a major plant pest incursion and the decision making pathways to implement a response plan.

NGIA has been an affected party across ten significant emergency plant pests in 2015 plus carry-over issues from 2014 including Cucumber Green Mottle Mosaic Virus (CGMMV) and Banana freckle in the Northern Territory. NGIA identified an industry party affected by the NT banana freckle response plan however not eligible for owner reimbursement costs which left the business more than \$350 000 out of pocket. NGIA progressed the issue to a Dispute Resolution procedure under the EPPRD and to the NMG as an ‘Additional other cost’ under the Response Plan.

Note: Most areas under the EPPRD have various levels of confidentiality attached and the above table needs to be considered within light of the sensitivity and impact of specific pest details on individuals and trading partners.

NGIA Biosecurity Committee Representation

Emergency Plant Pest Response Deed (EPPRD)

Date	Activity
28/01/2015	CSIRO Northern Biosecurity Engagement Forum - Brisbane
29/01/2015	CSIRO Northern Biosecurity Engagement Forum - Brisbane
30/01/2015	Giant Pine Scale - Review Response Plan
5/02/2015	EPPRD Review Working Group Teleconference and document review
11/02/2015	CCEPP - Efficiency and Operations Workshop - Melbourne
27/02/2015	CCEPP Banana Freckle Teleconference and document review
2/03/2015	EPPRD Review Working Group Teleconference and document review
5/03/2015	PHA - EPPRD Review Working Group discussion (telephone)
6/03/2015	CCEPP Panama TR4 Teleconference
11-12/03/2015	PHA – Incursion Response Exercise Yellow Dragon (Sydney)
19/03/2015	CCEPP OoS Responses to: Cherry necrotic rusty mottle virus, Cherry green ring mottle virus & Plum bark necrosis stem pitting associated virus.
24/03/2015	CCEPP PTSTV'd teleconference and document review
26/03/2015	PHA - EPPRD CCEPP Job Card Working Group - review and comment on draft Job Card
26/03/2015	PHA - EPPRD Proposed Variations - review & advice to NGIA
31/03/2015	PHA - Regional Member Meeting (Brisbane)
2/04/2015	PHA - EPPRD Pest categorisation Meeting (giant Pine Scale) + document review
10/04/2015	PHA - EPPRD Pest categorisation Meeting (giant Pine Scale) + document review
15/04/2015	PHA meeting Categorisation IRG - ABARES presentation on economic assessment report
15/04/2015	CGMMV - NT Management Plant Teleconference (DPI NT, AUSVEG, AMA)
21/04/2015	CCEPP CGMMV (Qld) Teleconference and doc review
24/04/2015	CCEPP CGMMV (Qld) Teleconference and doc review
24/04/2015	PHA - Notice of Dispute Teleconference
27/04/2015	PHA Cost Sharing IRG Teleconference and doc review
30/04/2015	CCEPP Pest notifications - doc review (SPLCV, <i>Fusarium flocciferum</i> , PSTV'd, CGMMV)
28/05/2015	CGMMV National Management Strategy Teleconference & document review
1/06/2015	CCEPP Responses & document review - CGMMV, Custard apple rust, Giant pine scale.
10/06/2015	CCEPP (OoS) Chestnut blight and PHA IRG Multi-crop parties to EPPRD
26/06/2015	CCEPP OoS Responses to: Multiple pests for notification to NMG
10/07/2015	NMG Agenda Paper - Banana Freckle Proposal for Cost Sharing Additional Other Costs (Mission Beach TC)
22/07/2015	Plant Health Committee CGMMV National Strategy Teleconference (meeting + document review)
24/07/2015	CCEPP Mealbugs Queensland (3 x species - <i>Planoccus lilacinus</i> , <i>Pseudococcus jackbeardsleyi</i> & <i>P. cryptus</i>)
3/08/2015	PHC - PSTV'd National Management Strategy Teleconference and document review
3/08/2015	Department of Agriculture Biosecurity Preparedness & Response Review
6/08/2015	CCEPP Multiple Pest document review and response (Whitefly, LCV1, LCV2, <i>Verticillium tricorpus</i> , Giant Pine Scale Response Plan)
15-16/09/2015	National <i>Liriomyza sativae</i> Working Group Meeting (Brisbane)

NGIA Biosecurity Committee Representation Emergency Plant Pest Response Deed (EPPRD)

2015

18/09/2015	CCEPP OoS Response Cordyline gall midge (doc review, crop assessment and response)
23/09/2015	CCEPP Review of Parties OoS response (cordyline gall midge) and response
25/09/2015	CCEPP Citrus Powdery Mildew Teleconference & Document review
30/09/2015	CCEPP - Response to Actions and Draft Hygiene and Destruction Protocols (review documents & engage with industry)
1/10/2015	CCEPP - OoS Response Fusarium on Hoop Pine - document review and industry data gathering
8/10/2015	SDQMA - BioSecure HACCP Progress and National Third Party Auditing
9/10/2015	CCEPP Citrus Powdery Mildew Teleconference & Document review
15/10/2015	NMG - Banana Freckle: Submission for "Additional Other Costs" under Response Plan (Mission Beach TC)
20/10/2015	CCEPP - Rugonectria castaneicola, Pseudoidium sp. (powdery mildew) on citrus, Pantoea stewartii subsp. nov. of Pawpaw & Marchalina hellenica
26/10/2015	NMG - Banana Freckle Working Group - Consideration of impact from NMG on Mission Beach TC
10-11/11/2015	PHC (Plant Health Committee) - Meeting Canberra - BioSecure HACCP Implementation
11/11/2015	PHA - Plant Health Australia (Canberra) presentation on BioSecure HACCP
13/11/2015	CCEPP - Giant Pine Scale update review, T.evansi response, Vegetable leaf miner document review
19/11/2015	CCEPP - Giant Pine Scale further detections in Vic
19/11/2015	PHC - National Management Plan for CGMMV (Risk assessment docs, pathway control, SAP reports, etc.
23/11/2015	CCEPP - Giant Pine Scale further detections in Vic & SA
24-25/11/2015	Plant Health Australia – Industry Forum, Industry Parties & EPPRD Meetings - Canberra