Horticulture Innovation Australia

Final Report

Industry Development Network for the Nursery Industry

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Nursery & Garden Industry Australia Ltd (NGIA)

Project Number: NY12006

NY12006

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Summary

The nursery and garden industry was one of the first horticulture industries to engage Industry Development Officers (IDOs) and develop an industry accreditation scheme in the 1990s. The Australian Nursery Industry Development Network has been a key project for industry levy investment for over 15 years. During that period the business environment has experienced dramatic changes and as a result the Industry Development Network has changed to ensure it meets the needs of levy payers. The Industry Development Needs Assessment (IDNA) undertaken in 2009, identified a number of key areas for industry investment. The IDNA identified the need for the Industry Development Network to facilitate technology transfer and communications with all sectors of nursery production throughout Australia. Government support services in the area of horticultural technical extension and research has been reduced dramatically by Federal and State agencies, placing a greater emphasis on industry to undertake this role.

The broad aim of the Nursery Industry Development Network was to enhance the ability of all levy payers to remain current with industry developments, marketing activities and technical issues. By utilising a regionally-based skills network and aligning their activities towards specified outcomes, it was expected that levy payer awareness of and engagement with industry business improvement projects would have increased by 25 percent by 2016 over 2011 levels. The early cessation of the project has not enabled a full comparison to be undertaken but outputs show that over 1800 audits of businesses, including multiple annual audits and 160 technical training events undertaken. The Nursery Industry Development Network has also recorded over 12000 stakeholder engagements (multiple engagements are included in this figure) from industry and the extended value chain and attended 627 meetings with external parties on issues that are critical to the smooth operation of the industry. This was measured via a web based portal and an industry reporting on a quarterly basis.

Coordination of the Nursery Industry Development Network and overall delivery of this project was provided by Nursery & Garden Industry Australia (NGIA). When the project was implemented it was considered that by involving State or Regionally based personnel to deliver key project objectives, local participants/businesses would engage with the program more and feel activities were consistent with priorities for their region. The empowerment of the Nursery Industry Development Network would also be enhanced by sub-contracting the industry State associations or representatives to deliver specified programs. This objective was supported by the findings of an independent review of the project conducted in 2014. Changes in how the project should be managed by NGIA into the future could not be implemented due to the changes with Horticulture Australia Limited / Horticulture Innovation Australia (HAL/HIA) and the overall funding model impacts.

Adoption of technology and outcomes from research is critical to the continued, sustainable development of the nursery industry. NGIA is in consultation with levy payers and HIA regarding the development of a project that will utilise elements of the previous industry development programs to deliver targeted extension services and build on this projects outputs and lessons learnt for the future. The Australian nursery and garden industry is changing at such a pace that growers need a linkage to help them interpret the outcomes of research and development as well as marketing programs.

Keywords

Nursery Industry, Industry Development Officer, Nursery Industry Development Network, advisory, extension, regional management, technology adoption, productivity improvements.

Introduction

The nursery and garden industry represents a significant sector of the Australian horticultural industry. The reach is broad with business located in every State and Territory and distribution channels including food, forestry, landscaping and domestic markets. The industry moves “live plants” around the country so has an added responsibility for biosecurity issues off the production facility.

The Nursery Industry Strategic Investment Plan (2012-2016) identified the Australian nursery industry as being diverse in production outcome and locality. It also highlighted skills and business processes that are world’s best practice in both technology development, and utilisation of resources, both human and natural. The industry is noted to have reached this position as a result of investment over time by individuals and businesses through their own resources or as part of the funds provided by the nursery industry levy, which have been matched by funds from the Australian Federal Government.

The nursery and garden industry was one of the first horticulture industries to engage IDOs and develop an industry accreditation scheme in the 1990s. The Australian Nursery Industry Development Network has been a key project for industry levy investment for over 15 years. During that period the business environment has experienced dramatic changes and as a result the Industry Development Network has changed to ensure it meets the needs of levy payers. The IDNA undertaken in 2009, identified a number of key areas for industry investment. The IDNA identified the need for the Industry Development Network to facilitate technology transfer and communications with all sectors of production throughout Australia. Government support services in the area of horticultural technical extension and research has been reduced dramatically by Federal and State agencies, placing a greater emphasis on industry to undertake this role. Concurrent with these support service reductions there have been legislative changes covering environmental management, biosecurity regulations and interstate plant movements, industrial relations and occupational health and safety. These changes all impact on businesses and their need for assistance to interpret the impacts that may occur.

The Business Case Analysis done on the IDO network project in 2008 through project NY09010 showed a Return on Investment of 26% and Benefit Cost ratio of 5.1/1. This analysis was conducted over a range of projects that could be considered part of Technical development. A financial analysis of the Nursery Production Farm Management System program was conducted in 2012 and showed an improvement on these levels of return. The review also noted that apart from a few examples there was little impact evaluation data on the shifts achieved through the program over the years, however this was more reflective of the lack of systems for capture and report rather than lack of impact.

The Nursery Industry Advisory Committee (IAC) recognised these issues and supported the investment in a new four year project as reflected in NY12006, building upon the previous investment in the Nursery Industry Development Network through project NY09010 - Industry Development Officer Network for the Nursery Industry.

Project NY 12006 was linked with project NY12014 - Management of Technical, Research and Market Development projects for the Nursery Industry, which was also delivered by NGIA. This project was

responsible for managing IDO activity and ensuring the Nursery Industry Development Network was current on relevant environmental, technical and policy issues.

Methodology

A review of the nursery industry extension requirements showed that in order to have an efficient and sustainable industry there needs to be a holistic approach to business improvement. This was identified at the completion of the preceding project NY09010 and also was a key outcome of the industry consultation workshop held prior to the development of the Industry Strategic Investment Plan 2012-2016. The key requirements identified as critical for capacity and business skills development are demonstrated in the following table:

Table 1 - Matrix of Needs for Nursery Industry Business Improvement

Technical Issues	Market Outcomes
Industry Best Practice	
Accreditation programs Industry Standards	Quality product Government approval for market access by Industry representative
Water Management	
Risk management regarding treatment Utilisation of water fit for purpose Maximise production from resource Environmental management	Efficient use of water and management of run off Increased industry profitability
Pest and Disease Management	
Minor use program Compliance reporting Training	Quality product Residue management OH&S risk management
Biosecurity	
Compliance with legislation Training	Market and environment protection Incursion preparedness

The focus for the Nursery Industry Development Network was technology transfer, skills building, capacity development, relevant communications to levy payers and ensuring that effective measurements were undertaken and benefits quantified to ensure the investment in the program was providing industry with growth and sustainable development

A key aspect of the program was to foster a national collaborative environment for a business improvement network to operate. The project represented a significant percentage of levy funds available for investment and while there was a need to differentiate some State activities, there was an identified desire to rationalise delivery of programs that are common across States, or require skills from one State to be applied elsewhere. This was identified as a challenge for the program due to day to day management of IDOs not being centralised with the national body NGIA, but subcontracted to the states nursery and garden industry associations.

NGIA had responsibility for the overall management of the project, with input of a project reference group, and contracted each state based nursery organisation to manage the on ground activities. This was to ensure outcome delivery in accordance with an agreed annual plan. Funding was allocated in line with service delivery targets and expectations for the project. The details of this split are included in the appendices. The reporting matrix that was utilised was developed following a review of past projects and a need for full transparency and accountability for activities that was reported to HIA and industry levy payers.

Funding within the program was allocated on the basis of:

1. The number of production nurseries in the state/region that had the potential to engage with the transfer or extension of levy funded programs.

2. The level of engagement with all sectors of the industry. It was critical for the adoption of industry programs that all businesses in the value chain were engaged and aware of the industry issues as these could impact on trade i.e. interstate management controls.

3. The ability of the state organisation to meet its contractual obligations, regarding management of Industry programs such as the industry Farm Management System, training programs and accreditation audits. There was a sharing of resources across State borders to ensure coverage with levy payers.

This project was clearly focused on the delivery of measurable outputs, with quarterly reporting and the development of an annual operating plan setting priorities and time lines. The scheduled mid-term review provided a definitive independent check on the project performance.

The challenges that arose during the duration of the project related to changes in personnel at State level and the ability for the network to integrate new members without losing overall credibility in the region affected.

At the commencement of the project a full suite of support material was developed to assist the Nursery Industry Development Network with the implementation of the program. These included: Induction kit for new Industry Development Officers; priority guidelines for the States to manage the program; State sub contracts that had been approved by Horticulture Australia Limited; planning tools and a clear identification of the reporting matrix and fee structure.

The program mid-term review was conducted by an independent consultant, Dr Jeff Coutts, in October 2014. A copy of the review document is included in the appendices. The recommendations from that review have been considered by all stakeholders however changes resulting from the transition of HAL to HIA with respect to voluntary contribution project funding has meant that there will be changes in how industry development services for the nursery industry will be financed.

Outputs

NGIA had been managing the nursery industry development program since 2006. This project is the third within the program which has required and demonstrated greater reporting and measurement of activities. Some of the key outputs for NY12006 have been:

Farm Management System

Over 1800 audits, including multiple annual audits, have been recorded in the NGIA web portal for the Farm Management System. This enabled regular monitoring of on farm best management practice at both a state and national level. Development officers within the Nursery Industry Development Network were able to escalate on farm production issues to the wider network through the State Accreditation and Certification Committees and National Certification and Accreditation Committee as well as thorough the Nursery Industry Development Network itself. This information flow then enabled on going improvement to the Nursery Production Farm Management System (NPFMS). The industry portal is available at www.ngi.org.au

Over 4000 promotional activities such as advertisements, newsletter articles, presentations etc. were conducted encouraging/explaining the benefits to industry on the components of the Farm Management System (FMS) – Nursery Industry Accreditation Scheme, Australia (NIASA), EcoHort and BiosecureHACCP.

Workshops and training

There were 160 technical workshops held with 60 being delivered by the IDO's, and 3804 recorded industry attendees (not necessarily unique). These workshops enabled attendees to learn new technologies or processes important to their business. Workshop topics included Nursery Production Crop Nutrition and Red Imported Fire Ant-Authorised Person Training. Examples of workshops conducted can be found in appendix 3.

Communication

Over 12000 contacts with industry and the extended industry value chain relating to a range of issues but 1899 specifically regarding the investment of levy and R&D projects.

A summary report based on output reporting completed quarterly is included in the appendix 1. This reporting template aligns with the Priorities, Strategies, Actions and Key Performance Indicators as detailed in the project annual operating plan. Funding allocation to the service providers (State NGI's) was provided based upon completion of activities listed under the KPI's.

The Nursery Industry Development Network members wrote 17 Nursery papers and a further 451 articles for State publications and industry communication resources. Articles written by the Nursery Industry Development Network members were published in state NGI Association publications e.g. *Groundswell*, *Leaflet Magazine* and *Nursery & Garden News* as well as through the industry trade publication *Hort Journal.* Topics covered in these articles were diverse but included case studies on businesses engaged in the NPFMS. Titles of the nursery paper articles are listed below and details of the nursery papers can be found in the final report for project NY12011 - Nursery and Garden

Industry Communications 2013-2015.

- Nov-12 Fungicide resistance
- Dec-12 Minor Use Pesticide Program
- May-13 Emerging Biosecurity threats and industry preparedness.
- Jul-13 Managing iron in nursery irrigation systems
- Sep-13 Automating Irrigation Scheduling in Nursery Production
- Oct-13 Certified Budwood Schemes
- Mar-14 Pruning & Staking- Back to Basics
- Apr-14 Pesticide Application on Edibles
- May-14 The Importance of Suitable Sources of Irrigation Water to Nursery Businesses
- Jun-14 Growing Media Storage
- Jul-14 A Systems Approach to Managing Pests, Diseases & Weeds BioSecure HACCP
- Apr-15 The importance of the greenhouse environment in successful growing & merchandising of plants
- May-15 Plant photosynthetic growth and photo morphogenesis under LED light
- Jun-15 The use of gas in nursery management
- Jul-15 Nursery Production Pest Monitoring, Inspection and Surveillance Methodology
- Aug-15 How efficacious are chlorine, chlorine dioxide and ultraviolet radiation as disinfectants against waterborne pathogens in irrigation water?
- Sep-15 Roots, Hormones and in-between - Back to Fundamentals

The industry was represented at key meetings with government agencies and other stakeholders dealing with issues such as water management, biosecurity, invasive plants, natural resource management and climate change on 627 different occasions.

Over 90 detailed reports on activities and outcomes have been submitted by States and Territories to NGIA as part of their contract obligations. Reporting was submitted quarterly.

The key issue identified prior to the commencement of the program was the lack of quantifiable economic improvement data as a result of investments made. There is anecdotal evidence provided by industry, that there have been “major gains from the IDO projects” but no firm economic data linked to time and activities. This project sought to achieve this through linkages with measurements of water savings, cost reductions and productivity gains. The independent review indicated that key activities were undertaken but there was little linkage to industry financial benefits.

A comprehensive independent mid-term report was completed and reviewed by industry. A copy of this report is available in appendix 2.

Outcomes

The independent mid-term review conducted by Dr Jeff Coutts (Appendix 2) in October 2014 highlights a number of outcomes from the project. The midterm review identified that the project was delivering on the desired objectives of the project and a change in management structure to a centralised format could potentially improve on the capture of benefits and economic data.

The Business Case Analysis done on the IDO network project in 2008 through project NY09010 showed a Return on Investment of 26% and Benefit Cost ratio of 5.1/1. This analysis was conducted over a range of projects that could be considered part of Technical development. A financial analysis of the Nursery Production Farm Management System program was conducted in 2012 by AgEcon Plus through project NY11000: Nursery Environmental & Technical Research, Development and Extension 11/12. This analysis showed an improvement on these levels of return. The review also noted that apart from a few examples there was little impact evaluation data on the shifts achieved through the program over the years, however this was more reflective of the lack of systems for capture and report rather than lack of impact.

The review noted that the accreditation program had appeared to have hit a ceiling with regards to the type and number of businesses who see value in the Nursery Production Farm Management System program and are prepared to invest in program adoption. Based upon numbers of accredited businesses at the completion of the project (appendix 1), this would be a justified statement with a decrease in NIASA certified growers of 6% compared to the start of the project. The review however did note that despite the lack of gains in accreditation it provided an excellent framework for a holistic approach to efficient nursery management and that it appeared to be justified as a continued priority for the Nursery Industry Development Network.

Feedback from interviews conducted with representatives from industry through the review noted considerable range of opinion of the program. The outcomes of such an extensive program are impacted by external factors which the industry is facing; shift in market channels, pressure on businesses to expand in a climate of financial uncertainty and lack of key market drivers for business certification/risk management schemes. Internal factors such as business attributes e.g. scale and expertise of individual nursery operations have also influenced the participation levels. These have impacted on the contribution the program has been able to make to long-term outcomes for industry and has presented challenges to NGIA and the Nursery Industry Development Network.

This information and the outcomes of an industry priorities meeting in April 2015, has since informed the development of project NY15004 National Nursery Industry Biosecurity Program, which will see elements of the Nursery Industry Development Network redirected into a more focused approach to industry biosecurity management. This focused approach will incorporate and promote the use of a BioSecure *HACCP*, the industry on farm biosecurity management program, as a means to improving on farm biosecurity management as well as improving domestic market access. This new project will also incorporate recommendations from the review of NY12006 with national program governance, operation, improved reporting and evaluation as well as development of market drivers for the NPFMS.

Evaluation and Discussion

The Industry Development Officer Network project is the largest R&D investment made by industry, and the delivery of this project is seen as a critical key component of a growers levy investment. As the Nursery Industry Development Network has been in existence for over 10 years, a level of comfort or familiarity has developed in that relationship between growers and their state based Industry Development Officers. This relationship makes any change in the program to drive for commercially sensitive productivity data or tightening of audit guidelines very difficult to achieve.

As identified in the Mid Term review and subsequent responses from industry to the recommendations of the Review, as the program is funded by a combination of matched levy and matched voluntary contributions, the system of State based management hinders a nationally consistent approach. This has impacted on resources and a division within growers on the benefits of the program.

The development of a new project/s to meet the needs of industry has occupied key stakeholders towards the end of the project. The new priorities for R&D investment for the nursery and garden industry combined with changes to voluntary contributions with regards to the levy funding model has meant that other options need to be considered.

Moving forward, there are some concerns in the following areas:

1. The capacity of the industry to identify skilled Industry Development Officers who can deliver expertise for such a diverse industry.

2. The ability to identify and prioritise industry needs in a manner that can provide direction for future R&D investment. The research undertaken on water management and biosecurity was started 4-5 years in advance of industry requirements due to “vision” by experienced development officers.

3. The resources available to deliver in a sector where “user pays” and consultancy services are not common.

4. The dynamics of the industry where the splits between channels and business size are developing very quickly and as a result the needs between large producers and small - medium producers are very different. The expected investment priorities for levy funds of these two groups are very different.

Recommendations

The project recommendations are as detailed in the independent mid-term review by Jeff Coutts (Appendix 2), with modifications reflecting actions taken subsequent to changes with the transition of HAL to HIA.

1. The project has demonstrated that it has delivered on the contracted activities and should continue under the same structures and priorities for the remainder of this phase. It was suggested that this included:

    a. An emphasis on systematically gathering narratives and case studies from nurseries impacted on by the Nursery Industry Development Network activities to complement current reporting requirements.

    b. Continuing to provide a national support role for the IDOs including providing opportunities for them to network and learn from each other at least six times per year.

    c. Emphasise the need to focus on being proactive – and to use the accreditation framework as a basis for a holistic approach to finding efficiencies and improving performance.

    d. Review the training needs for IDOs and provide identified training opportunities for staff.

    e. Review salaries and take steps to improve future consistency across states and commensurate with the required duties going forward.

2. Include the following underpinning elements for future phases of development and extension support for the industry:

    a. Having IDO positions on the ground to proactively work with nurseries to achieve industry priorities and investment objectives.

    b. Having a consistent approach to qualifications, appropriate salary and expectations – with a built in training/upskilling strategy for IDOs.

    c. Maintaining the focus on the national Nursery Production Farm Management System program and using this as a holistic framework for improvement and change as well as supporting this by advocating at a national level for recognition of this by major customers of nurseries.

    d. Instituting a national audit approach - particularly for those with EcoHort and BioSecure HACCP accreditation.

    e. Having a monitoring, evaluation and reporting framework that includes capturing impact of IDO/IDN activities on practice changes and resulting impact on enterprises and the industry.

3. Consider the scenarios presented in the light of any implications of the restructure and de-focusing within HAL. Should funding remain the same, then Scenario 1 should be implemented:

a. Scenario 1: National IDO management with supporting State Committees

b. Scenario 2: States responsible for IDOs/RD&E – national complements state IDO delivery and delivers a supporting national focused extension/information delivery program

c. Scenario 3: Current structure and approach continuing – with incorporation of recommended underpinning elements.

Industry has identified Biosecurity as a critical issue and a new investment project has been developed. This will incorporate some of the certification and audit requirements that were undertaken within the IDO project but industry needs to communicate this change with all growers.

The key issue for the future is how industry will undertake extension, capacity development and grower support when the model that was the basis of this project is no longer active. The change in funding has meant that financial resources to support effective industry extension will need to be considered.

How key issues for investment are identified and subsequent adoption is managed will also need to be reviewed by industry advisory panels in the future.

Scientific Refereed Publications

Not applicable

Intellectual Property/Commercialisation

No commercial IP generated

Acknowledgements

Nursery & Garden Industry Australia Ltd acknowledges the diligence at which the Industry Development Officers have undertaken their roles in delivering this project. The State and Territory Associations who have managed the IDO's and reported in accordance with guidelines is acknowledged.

NGIA also thanks the growers who have funded this project and recognise that together all parties will need to work together in the development of a new extension project for the benefit of industry.

Appendices

1. Project Output Summary
2. Project mid-term evaluation Oct 2014
3. Workshop examples conducted by the Nursery Industry Development Network
4. Example articles written by the Nursery Industry Development Network

Appendix 1

Project Output Summary

Appendix 1 - Project Output Summary

Project Report - National	2012/13	2013/14	2014/15	Jul - Nov 15	TOTAL	Fees
1. Accreditation & Certification under Nursery Production FMS						
NIASA Accreditation						
Audits conducted by: **State IDO's**						
Number of NIASA Businesses (start of period)	243	235	236	233	243	
Number of NIASA Businesses (end of period)	235	236	233	228	228	
Net increase/decrease	-8	1	-3	-5	-15	
Businesses engaged with NIASA not yet accredited	196	191	190	186	763	
Number of audits conducted (single audit per business/year) as reflected on the National Audit Portal	333	281	327	141	1082	**500**
Number of NIASA promotional activities	133	160	277	1036	1606	**100**
Number of SACC/TOG/NACC Meetings - maximum 6 per annum per State	31	22	28	9	90	**500**
EcoHort Certification						
Audits conducted by: **State IDO's**						
Number of NIASA Businesses EcoHort Certified (start of period)	102	98	100	98	102	
Number of NIASA Businesses EcoHort Certified (end of period)	101	99	98	94	94	
Net increase/decrease	-1	1	-2	-4	-8	
Businesses engaged with EcoHort not yet certified but are NIASA	38	40	43	39	160	
Businesses engaged with EcoHort not certifiable (i.e. not NIASA)	163	162	155	154	634	
Number of audits conducted (based on single audit per business/year) as reflected on the National Audit Portal	202	183	209	81	675	**300**
Number of EcoHort promotional activities	82	75	235	1017	1409	**100**
BioSecure *HACCP* Certification						
Audits conducted by: State IDO's						
Number of NIASA Businesses BioSecure *HACCP* Certified (start of period)	2	7	7	8	2	
Number of NIASA Businesses BioSecure *HACCP* Certified (end of period)	6	7	8	8	8	
Net increase/decrease	2	0	1	0	6	
Businesses engaged with BioSecure *HACCP* not yet certified but are NIASA	88	89	88	84	349	
Businesses engaged with BioSecure *HACCP* not certifiable (i.e. not NIASA)	152	152	146	146	596	

Number of audits conducted (based on single audit per business/year) as reflected on the National Audit Portal	18	18	53	25	114	**500**
Number of BioSecure *HACCP* promotional activities	43	109	196	1006	1354	**200**
2. Technology adoption via workshops						
Number of technical workshops/field days conducted by State/Territory	44	44	50	22	160	**500**
Number of technical workshops/field days delivered by IDO	15	11	20	13	59	**1000**
Total number of workshop/field days participants	818	1001	1151	834	3804	**50**
3. Industry Engagement						
Program Adoption and Extension						
IDO contact with engaged (member) retailer	436	413	521	605	1975	**50**
IDO contact with non-engaged (non-member) retailer	194	155	216	81	646	**50**
IDO contact with engaged (member) production, greenlife market or growing media business	1689	1476	1233	1425	5823	**50**
IDO contact with non-engaged (non-member) production, greenlife market or growing media business	614	434	309	89	1446	**50**
IDO contact re supply chain improvements	98	64	226	98	486	**200**
IDO contact re levy research and development programs/activities	171	553	689	486	1899	**200**
IDO contact re Urban Forest Research/202020 Vision and associated activities	62	144	187	237	630	**200**
Special Interest Group Involvement/Facilitation						
Production/Growing Media	27	44	66	31	168	**400**
NextGen	13	19	26	6	64	**400**
Other events and national levy initiatives organised:	25	20	24	12	81	**400**
4. Communications of Technical Developments						
Number of technical articles written and published for State or Territory publications	110	98	134	44	386	**500**
Number of technical articles written and published for horticultural media	20	15	26	4	65	**1000**
Number of technical Nursery Papers written and published as per the Nursery Paper Schedule	5	6	9	2	22	**2500**
5. Engagement on Issues Management						
Environmental/Technical Extension and Representation - State and Local Government						
Water issues meeting attendance and reports circulated	25	48	46	25	144	**200**
Natural Resource Management meeting attendance and reports circulated	25	35	26	10	96	**200**
Invasive Plants meeting attendance and reports circulated	12	18	28	16	74	**200**
Biosecurity/Quarantine/Market Access meeting attendance and reports circulated	77	59	80	36	252	**200**
Climate Change/Urban Forest meeting attendance and reports circulated	16	17	20	8	61	**200**

Appendix 2

Project mid-term evaluation Oct 2014

Mid-term Nursery IDN Evaluation

October 2014

Coutts J&R

COUTTS J&R
MANAGING AND EVALUATING CHANGE

Nursery & Garden Industry Australia

ACKNOWLEDGEMENTS

This evaluation was dependant on the feedback and insights from levy payers, Industry Development Officers, State Executive Officers and members of the National Steering Committee. Their willingness to share their experiences and insights was much appreciated.

Dr Jeff Coutts
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September 2014

SUMMARY

Findings

This review has shown that the IDN project has overall directed its efforts at the required priorities and activities as per the project's AOP and contracts. The reporting system is a strength of the project which provides evidence of these activities and the associated outputs. The project should be continued with its current structure for the remaining period in this phase.

Issues emerging in the review included: the barriers to the adoption of the *Nursery Production Farm Management System* and hence the meeting of targets; the lack of consistency between state approaches to accreditation and auditing; the heavy demands on IDOs and concerns around salary and skill levels in some cases; and the general lack of impact evaluation and its reporting.

The review presents a need for structural change – including a stronger national role in the management/support of IDOs and in the auditing of accredited nurseries.

Recommendations

1. The project has demonstrated that it is delivering on the contracted activities and should continue under the same structures and priorities for the remainder of this phase. It is suggested that this includes:
    a. An emphasis on systematically gathering narratives and case studies from nurseries impacted on by the IDN activities to complement current reporting requirements. [Provide examples in time for reporting for October-December quarter 2014]
    b. Continuing to provide a national support role for the IDOs including providing opportunities for them to network and learn from each other at least six times per year.
    c. Emphasise the need to focus on being proactive – and to use the accreditation framework as a basis for a holistic approach to finding efficiencies and improving performance.
    d. Review the training needs for IDOs and provide identified training opportunities for staff. [Complete by March 2015 – use a web survey directed at IDOs and state (C)EOs].
    e. Review salaries and take steps to improve future consistency across states and commensurate with the required duties going forward. [Complete by May 2015].
2. Include the following underpinning elements for future phases of development and extension support for the industry:
    a. Having IDO positions on the ground to proactively work with nurseries to achieve industry priorities and investment objectives.
    b. Having a consistent approach to qualifications, appropriate salary and expectations – with a built in training/upskilling strategy for IDOs.
    c. Maintaining the focus on the national *Nursery Production Farm Management System* program and using this as a holistic framework for improvement and change as well as supporting this by advocating at a national level for recognition of this by major customers of nurseries.
    d. Instituting a national audit approach - particularly for those with EcoHort and BioSecure HACCP accreditation.

e. Having a monitoring, evaluation and reporting framework that includes capturing impact of IDO/IDN activities on practice changes and resulting impact on enterprises and the industry.

3. Consider the future scenarios presented in this report in the light of any implications of the restructure and de-focusing within HAL. Should funding remain the same, then Scenario 1 should be implemented:
    a. Scenario 1: National IDO management with supporting State Committees
    b. Scenario 2: States responsible for IDOs and local nursery interaction – national complements state IDO delivery and delivers a supporting national focused extension/information delivery program
    c. Scenario 3: Current structure and approach continuing – with incorporation of recommended underpinning elements.

These scenarios are described in detail in the report (pp 40-41) and are predicated by the recognition that the changes in HAL and possible changes in the model for funding RD&E may impact on the model being able to be funded and put into place in the future.

CONTENTS

PURPOSE

Objective

The objective of this review is to review progress against objectives of NY12006 and make recommendations that improve capacity building methodology.

In particular the review was designed to:

1. Review activities undertaken during the first two years and the benefits to industry.
2. Assess progress against the Annual Operating Plan and industry needs as identified in the Industry Strategic Investment Plan.
3. Assess the quality of outputs and overall adoption by the Australian nursery industry.
4. Assess the productivity gains arising from the adoption of outcomes.
5. Comment on the level of engagement of the Australian nursery industry with the NY12006 Industry Development Network for the Nursery Industry and how engagement could be enhanced.
6. Evaluate the structure and resources for supporting performance and propose changes that may be required to support improved performance.
7. Undertake a Strategic SWOT Analysis (to be completed with the input of the project Management Committee and Horticulture Australia Limited [HAL]).
8. Make clear recommendations for the remainder of the project, and propose three models/techniques which may also be utilised in the development of future extension/industry capacity project following completion of NY12006 Industry Development Network for the Nursery Industry on 31/7/2016.

Outcomes

The Australian nursery industry aims to optimise capacity building activities which will lead to the successful implementation of levy funded research and development activities arising from investment activities aligned to the Nursery Industry Strategic Investment Plan.

Scope of the Review

This is a mid-term review to determine the success of NY12006 so far and its likely future success. The mid-term review will also make recommendations for the remainder of the project. As per the project method, this review consisted of the engagement of an independent reviewer and a SWOT analysis by the Project Steering Committee and HAL. If in the opinion of HALs independent reviewer, the project is not achieving the stated outcomes and it appears as though it will not, HAL will terminate the project.

Benefits to industry will be greatest when capacity building efforts are reviewed and project methodology is refined to meet the needs of industry.

APPROACH

Review Team

The review team comprised of:

a) An independent reviewer (Jeff Coutts);

b) The Project Steering Committee: Colin Groom, Robert Prince, Anthony Kachenko (until 8 August 2014), HAL Portfolio Manager – Industry Development Manager (Alison Anderson) and. The Project Steering Committee helped co-ordinate the process, provided access to information and participated in the Strategic SWOT Analysis. NGIA member and past IAC Chair Russell Higginbotham and HAL Industry Services Manager – Nursery (Craig Perring) were initially nominated but did not participate.

Review Timeline

The review took place over 7 weeks - completed by Monday 6 October 2014. A draft report was made available by Friday 26 September 2014.

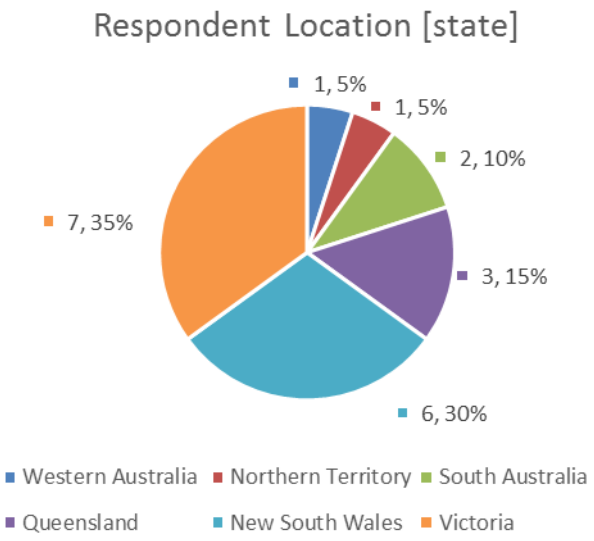
Key elements of the review included:

- Analysis of secondary data (detailed below) against Review Objectives (and by definition, project objectives) – including reviewer assessment of outputs provided;
- Interviews (by phone, email or in person) with the Project Steering Committee to provide clarification/extra information, follow up, analysis and inclusion of findings in analysis;
- Interviews with 20 informed nurseries/industry stakeholders (by phone, email or in person), analysis and inclusion of findings in analysis;
- Interviews with 6 Industry Development Officers (by phone, email or in person), analysis and inclusion of findings in analysis;
- Interviews with 4 State Managers (by phone, email or in person from small and large states), analysis and inclusion of findings in analysis;
- Critical review of Administration and Governance structures and processes to ensure effective interactions within the project/program;
- SWOT Analysis – started with secondary data review/interviews – supplemented by tele/skype conference with Project Steering Committee;
- Cost benefit analysis of project activities and assumption going forward;
- Benchmark of NY12006 against other agricultural sectors;
- Discussion on gaps in knowledge and new opportunities;
- Review of pathways to adoption, level of industry engagement and adoption
- Preparation of draft review report against Review Objectives – sending to Project Management Committee for comment;
- Verbal reporting (tele/skype conference) and responding to feedback to finalise report.

Levy payer interviews

There were **20 interviews undertaken**. Of the 20 nurseries included, 95% (19 nurseries) were **Production Nurseries**. Only one nursery was a **Growing Media Supplier**. Responses were collected from all states except Tasmania. The largest state representation was Victoria (35%, 7 responses), followed by New South Wales (30%, 6 responses).

Figure 1: Location of respondent nurseries



The majority of nurseries (80%, 16 nurseries) involved in the review had achieved **NIASA Accreditation** through the NGIA. Only four nurseries contacted had not undertaken any accreditation. Seven of the NIASA accredited nurseries had also gained **EcoHort Certification** and only one had completed the **BioSecure HACCP** Certification.

BACKGROUND

This background is based on secondary documentation and interview data is not directly included. Interview data has been collated and analysed and reported in the Findings section. The Background information provides a backdrop and context for the findings reported.

Overview

The nursery industry represents a significant sector of the Australian horticultural industry, reported as employing over 45,000 people in over 20,000 small to medium sized businesses, with a combined supply chain market value in excess of $15 billion dollars[1].

The Nursery Industry Strategic Development Plan (2012-2016) identified the Australian nursery industry as being diverse in production outcome and locality and as a result demonstrates *skills and business processes that are world's best practice in both technology development, and utilisation of resources, both human and natural*. The industry is noted to have reached this position as a result of

[1] Kachenko, A. 2013 Induction Guide for Australian IDO, version 1.0. Nursery and Garden Industry Australia.

investment over time by individuals and businesses through their own resources or as part of the funds provided by the nursery industry levy, which have been matched by funds from the Australian Federal Government[2]. The Nursery and Garden Industry was one of the first horticulture industries to engage Industry Development Officers (IDOs) and develop an industry accreditation scheme in the 1990s[3].

Nursery Industry Development Network

The Australian Nursery Industry Development Network has been a key project for industry levy investment for over 15 years according to project documentation (NY12006, 2012). During that period the business environment was reported to have experienced dramatic changes and as a result the Industry Development Network had to change to ensure it met the needs of levy payers. In 2009 the Nursery and Garden Industry (NGI) undertook an Industry Development Needs Assessment (IDNA) where industry input and analysis of previous strategic industry studies identified a number of key areas for future industry investment. Those that dealt specifically with industry development needs in the context of the IDNA included:

1. Enhanced industry benefits through the coordinated management and integration of industry programs
2. Sustainable industry development through a rejuvenated training and extension network
3. Informed decision making through targeted communication
4. Enhanced industry professionalism through accreditation and recognition
5. Improved industry governance through professional development.

The IDNA identified the need for the Industry Development Network to facilitate technology transfer and communications with all sectors of production throughout Australia.

According to project documentation (NY12006, 2012), government support services in the area of technical extension and research had been reduced dramatically by Federal and State agencies, placing a greater emphasis on industry to undertake this role. At that time, the Industry Advisory Committee increased activity and support of businesses which were struggling with demands placed on them as a result of *legislative changes covering environmental management, biosecurity regulations and interstate plant movements, industrial relations and occupational health and safety*[4].

Project Purpose

The Induction Guide described the IDO project *Industry Development Network for the Nursery Industry* (NY12006) as a key nursery levy funded program supported by Horticultural Australia Limited (HAL), it is a national R&D project and involves regional based personnel delivering key project objectives. The Nursery Industry Development Officer (IDO) Network was a key recommendation of the IDNA undertaken in 2008-9.

The Guide states that the aim of the Industry Development Network is to *enhance the ability of all levy payers to remain current with industry developments, marketing activities and technical issues.* Adoption of technology and outcomes from research was noted as critical to the continued, sustainable development of the nursery industry. Initial project documentation showed that NGIA had a target that 1500 nursery levy payers would have had regular engagement with programs managed by the Industry Development Network.

The project is sub-contracted through state and territory associations or representatives to deliver specified programs in accordance with the Annual Operating Plan (AOP). It was anticipated that use of personnel operating from state based associations to deliver key project objectives, local

[2] Nursery Industry Strategic Investment Plan 2012-2016. HAL and NGIA.
[3] Kachenko, A. 2013 Induction Guide for Australian IDO, version 1.0. Nursery And Garden Industry Australia
[4] NY12006 Industry Development Network for the Nursery Industry (2012)

participants would value project interaction more and would also ensure that activities were consistent with priorities for that region or particular business.

Each state association had been sub-contracted to deliver specified programs linked directly to quarterly reporting and achievement against negotiated outcomes. The quarterly reports detailed a suite of activities to be delivered by the Nursery IDN including workshops, training programs, accreditation audits, one-on-one nursery visits, and communications through printed and online media. Budget allocations between the state associations is based on number of levy payers[5] (with other factors such as population taken into consideration). Outlined in 2012 project documentation, reviews of performance occur on a regular basis, involved both State CEOs the NGIA and an independent Project Reference Committee, with funding allocation based on delivery of required reported activities and outcomes.

The IDO network has been underpinned by the development and implementation of the Nursery Industry Accreditation Scheme, Australia (NIASA) which has evolved and is now known as the Nursery Production Farm Management System. In July 2012, an independent cost benefit analysis of the Nursery Production Farm Management System indicated a benefit cost ratio of 8.01 and a return on investment of 40.5%.

Project Management

A comprehensive Induction Guide for Australian IDOs, prepared by Dr Anthony Kachenko (2013) outlined in detail the project structure and expectations of the Industry Development Network. In this guide it was noted that NGIA maintained overall management of the project, contracting state/regional based nursery organisations to manage the on ground activities and ensure effective and efficient delivery of outcomes.

A Project Reference Group (PRG) was established and comprised:

- NGIA CEO and NGIA Technical Manager
- HAL Program Manager responsible for Industry Development
- 3-4 key industry stakeholders.

The role of the PRG was noted as being to review performance six monthly based on quarterly reports submitted by the contracted states/regions, and recommend program improvements to be considered by industry and IAC.

It was noted that as part of a risk management process for the project that reporting by NGIA was to be on a six month basis, with sub contracted service providers reporting quarterly and funding applied post receipt of reports. According to Kachencko, this enabled *a close watch to be maintained over the activities being undertaken and ensured corrective action can be implemented promptly.*

National and State Committee Expectations

National and State management committees were noted to operate as part of the governance associated with the Nursery Production Farm Management System. These roles were outlined in the Induction Guide for Australian IDOs (2013) and included:

> **National Level**: National Accreditation and Certification Committee (NACC) oversee the administration and management of the Nursery Production Farm Management System at a national level, serviced by NGIA and chaired by a nominee of the NGIA Board or a person nominated by the NGIA Board who is a current member of NIASA (Meetings held biannually and require the participation of all IDOs).

[5] Kachenko, A. NY12006 Milestone Report. April 2013

State Level: State Accreditation and Certification Committee (SACC) oversee the administration and management of the Nursery Production Farm Management System, serviced by a State Association with input from the Technical Officer (Meetings held at least biannually and organised and serviced by the relevant Technical Officer).

Farm Management System Technical Officers Group (TOG): consisting of Technical Officers appointed by each State Association or the relevant State Managers (Meetings held at least annually)[6].

Industry Development Officers (IDOs)

The Induction Guide for Australian IDOs (2013) stated that the main role of the IDOs is to *provide advice to all sectors of nursery and garden industry relating to technical, environmental and horticultural issues.* IDOs are noted as providing on-site property assistance, links with research organisations and *representing the industry with State Government agencies to ensure the industry is represented on key issues that may impact on the industry throughout Australia*[7].

The role of the IDO is described as being *responsible for contributing to the local and national development of the industry by working predominantly with and for levy payers*. Industry development through the IDO role is noted to include five key strategies:

1. Industry Accreditation Programs- Management and Auditing
2. Improved technology adoption via training workshops
3. Engagement with industry to facilitate program adoption and issues awareness
4. Communications of Technical Developments
5. Engagement on Issues Management

Key responsibilities of an IDO outlined in the Guide include the requirement to:

- Assist with design, development and facilitation of targeted training and skills development opportunities
- Assist in development and implementation of a production nursery focused 12 month workshop and training calendar
- Ensure the transfer of technical knowledge and information to all levy payers in a timely and appropriate fashion
- Conduct activities that develop environmental and horticultural skills via field days, workshops, and nursery visits
- Contribute to other development tools such as nursery papers, magazines, websites and information bulletins at both regional and national levels
- Act as the first point of contact for the Nursery Production Farm Management System
- Support enterprise development through the promotion of best practice initiatives
- Support Nursery Production Farm Management System as a Technical Officer at national meetings, and via support to state committees including agendas, minutes and follow up of actions.
- Promote and support the adoption of the Farm Management System by relevant businesses
- Contribute to the formulation and implementation of national industry policy on relevant environmental and technical issues being coordinated through NGIA.
- Conduct audits and report using the Audit Management System for the Nursery Production Farm Management System ensuring this is managed and implemented in accordance with national standards
- Advise industry on relevant environmental and technical policy[8].

[6] Kachenko, A. 2013 Induction Guide for Australian IDO, version 1.0. Nursery And Garden Industry Australia
[7] www.ngia.com.au
[8] Kachenko, A. 2013 Induction Guide for Australian IDO, version 1.0. Nursery And Garden Industry Australia

Program Funding

As the national research, development and marketing organisation for the horticulture industry, HAL assists industry to grow and sell products more profitably by *investing in programs that create commercial opportunities for Australian horticulture producers and their value chain partners*[9]. Funding from HAL was outlined in the NY12006 Project documentation (2012) as being allocated based on the following:

- The number of production nurseries in the state/region that relate to transfer or extension of levy funded programs.
- The level of all sectors of the industry. It is critical to the adoption of industry programs that all businesses in the value chain are engaged/aware of the industry issues as they can impact on trade – i.e. interstate management controls.
- The ability of the state organisation to meet contractual obligations, regarding management of Industry programs such as the industry Farm Management System, training programs and accreditation audits[10].

Nursery Pot Levy

The nursery products levy (pot levy) was introduced at the request of the Nursery and Garden Industry Australia in 1989 after *long and comprehensive consultation* with the industry and is payable on all containers in which plants are grown for resale (Kachencko, 2013). The levy is currently set at 5% of the wholesale value of the container and is collected by the Levies Revenue Service (LRS) which is part of the Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF).

Once the funds are collected by LRS, they are passed on to HAL. The split between marketing and R&D is determined by a vote of levy payers. Currently the marketing program receives 2% and R&D receives 3% of the 5% collected. The R&D allocation attracts dollar for dollar matching contribution from the Federal Government. NGIA has developed an Industry Strategic Plan that covers industry marketing and R&D activities.

Allocation of NY12006 Project funds

The 2013 Milestone Report, the Annual Operating Plan for the NY12006 Budget shows the allocation of funds between the regional offices based on number of levy payers with a 5% growth factor year on year (demonstrated in Table 1 below)[11].

Table: Allocation of NY12006 Project funds for 2012/13 and 2013/14

State Association	Funding 2012-13	Funding 2013-14
New South Wales	$157,872	$164,187
Queensland	$157,872	$164,187
Victoria	$157,872	$164,187
Tasmania	$39,468	$41,047
South Australia	$71,760	$74,630

[9] https://www.ngia.com.au/Category?Action=View&Category_id=326
[10] NY12006 Industry Development Network for the Nursery Industry (2012)
[11] Kanchenko, A. NY12006 Milestone Report. October 2013

Northern Territory	$39,468	$41,047
Western Australia	$82,524	$85,825
Program Governance and Administration	$36,225	$37,673
Total	**$743,061**	**$772,783**

Source: Kanchenko, A. NY12006 Milestone Report, October 2013

For each of the state associations, the total allocation is apportioned across the strategies outlined in the AOP. For example, 40% of funds are allocated against Strategy 1: Accreditation and Certification under Nursery Production Farm Management System. Each strategy has growth targets for each of the activities detailed under a strategy. For example in 2012/2013, NY12006 aims to see a 5% growth in NIASA Accredited Businesses against June 30 2012 levels with each audit attracting $500[12].

Program Outputs and Outcomes

The project documentation (NY12006, 2012) reported that the IDNA review for the nursery industry showed that in order to have an efficient and sustainable industry there *needs to be a holistic approach to Industry Development and Technology Transfer*. The focus of activities carried out by the Nursery IDN were established with the view to build *capacity to address technical issues with key market outcomes (*this is demonstrated in Table 1) as well as *ensuring that effective measurements are undertaken and benefits are quantified to ensure the investment in the program is providing Industry growth and sustainable development*. Key activities to be delivered by the Nursery Industry Development Network were noted to include: workshops, training programs, accreditation audits, one-on-one nursery visits and communication through printed and online media[13].

Table: Matrix of technical issues and expected market outcomes

Technical Issues	Market Outcomes
Industry Best Practice	
Accreditation programs Industry Standards	Quality product Government approval for market access by Industry representative
Water Management	
Risk management re treatment Utilisation of water fit for purpose Maximise production from resource Environmental management	Efficient use of water and management run off Increased industry profitability
Pest and Disease Management	
Minor use program Compliance reporting Training	Quality product Residue management OH&S risk management
Biosecurity	

[12] Kanchenko, A. NY12006 Milestone Report. April 2013
[13] NY12006 Industry Development Network for the Nursery Industry (2012)

Compliance with legislation Training	Market and environment protection Incursion preparedness

Source: NY12006 Industry Development Network for the Nursery Industry (2012)

Initial project documentation (2012) included the following statement regarding program activities:

> *The IDN project is not about the NGI making greater demands of its State Associations and State-based networks, but [rather] fostering a national collaborative environment for this Technology Transfer Network to operate. A substantial proportion of industry levy funds are invested in this project, and while there is a need to differentiate some State activities, there is also a need to rationalise delivery of programs that are common across States, or require skills from one State to be applied elsewhere[14].*

Nursery Production Farm Management System

A key component of the Nursery IDO role, outlined in the 2013 Induction Guide for Australian IDOs, was noted as being the implementation of the Nursery Production Farm Management System (FMS).

> *The Nursery Production Farm Management System is designed to enable production nurseries, greenlife markets and growing media manufacturers gain some recognition for using industry best management practices (BMP), an environmental management system (EMS) and robust biosecurity measures in their businesses.*

The Nursery Production FMS was noted as *entirely voluntary* and open to all production nurseries/greenlife markets and growing media manufacturers, with the objective being to enable businesses to *critically evaluate each component of their business identifying areas of concern in order to better manage the identified risks. It allows businesses to validate their integrity within the supply chain through an independent auditing process across the disciplines of best practice, environment and biosecurity[15].*

The Nursery Production FMS includes three key programs:

- **NIASA (Nursery Industry Accreditation Scheme, Australia):** based on industry best practice
- **EcoHort:** an EMS that demonstrates businesses have sound environmental stewardship and natural resource management
- **BioSecure *HACCP:*** an on-farm biosecurity program which helps businesses manage biosecurity risks for both imported and exported material

Perception of NIASA Accreditation (June 2010 Stakeholder Survey)

A 2010 Stakeholder survey reported that as of June 2010, there were 270 businesses involved in the NIASA program. Each participating business was audited on an annual basis by Industry Development Officers (IDOs) from State Associations. The scheme was noted to be aimed at enhancing business professionalism and profitability and encouraging continuous improvement in NIASA accredited businesses and those businesses working towards accreditation[16].

Table: Number of NIASA respondents involved with industry accreditation programs

Program	Yes	No	Working towards it

[14] NY12006 Industry Development Network for the Nursery Industry (2012)
[15] Kachenko, A. 2013 Induction Guide for Australian IDO, version 1.0. Nursery And Garden Industry Australia
[16] Kachenko, A. Gibbs, J. and Walker, N. 2010, FMS Stakeholder Survey. NGIA

NIASA	149	-	-
EcoHort	68	65	16
BioSecure HACCP	0	117	32

Source: Kanchenko, A. Gibbs, J. and Walker, N. 2010, FMS Stakeholder Survey. NGIA

Results from the 2010 NIASA Stakeholder Survey indicated that businesses become NIASA accredited in order to: enhance the reputation of their businesses; gain a marketing advantage; manage their business risk; access the IDO network and manage their environmental ethos.

Key inhibitors to becoming NIASA accredited were identified as there being little recognition of the program by the public or plant buyers; the time required to manage the process (in terms of record keeping) and the costs incurred to implement the changes/updates required to be become accredited.

The survey also highlighted that:

- While over 60% of accredited and 50% of non-accredited businesses were aware that NIASA accreditation satisfied inter-state quarantine requirements, there was still a large percentage in both categories who were unaware of this benefit.
- A greater percentage of NIASA accredited nurseries were aware that NIASA entitled nurseries to a further discount on insurance with OAMPS and assisted with interstate quarantine arrangements.
- Quality product and quality business are important to both non-accredited and accredited businesses.
- For non-accredited businesses 'businesses risk management' and 'environmental responsibility' were seen as very important[17].

Nursery IDN Outputs

Key **outputs** of the Nursery IDN as outlined in initial project documentation (2012) were noted to include:

1. Farm management system audits
2. Workshops and training in water management, pest and disease management and biosecurity
3. Information about R&D project outcomes on industry website
4. Communication materials and articles in newsletters and magazines (Nursery Papers, Hort Journal, Nursery & Garden, e-newsletters, State magazines).

NGIA are noted to be managing the Industry Development program via quarterly reporting of activities and business engagement with programs directly linked to the following:

1. All audits recorded in the NGIA web portal for FMS to enable regular monitoring on both a State and National basis that activities are showing improvements.
1. The process of weekly planning and reporting into a Gains table to be implemented. This was noted to *enable industry to monitor what is giving the biggest gain as far as activities undertaken.*
2. Tracking of business improvement by regular follow up surveys with industry regarding benefits of workshops, training and communication of project outcomes to assist with prioritising future project development[18].

The NY12006 Project Documentation identified one of the key issues facing the industry as the lack of *quantifiable economic improvement data as a result of investments made*. While it was noted there is

[17] Kachenko, A. Gibbs, J. and Walker, N. 2010, FMS Stakeholder Survey. NGIA
[18] NY12006 Industry Development Network for the Nursery Industry (2012)

anecdotal evidence provided by industry, that there have been *"major gains from the IDO projects"* no firm economic data linked to time and activities has been collected. This project was set to achieve this through *linkages with measurements of water savings, cost reductions and productivity gains*.

Outcomes

Key **outcomes** of the Nursery IDN as outlined in initial project documentation (2012) were noted to include (a table of achievement against these targets is included in the appendices):

1. Levy payer awareness of, and engagement with industry business improvement projects to increase by 25 percent by 2016 over 2011 levels.
2. 1500 nursery levy payers to have had regular engagement with programs managed by the Industry Development Network.
3. Improved product quality through industry accreditation programs and standards.
4. Efficient use of water and management of runoff.
5. Improved industry profitability.
6. Improved chemical residue management and OH&S risk management.
7. Pest incursion preparedness and market and environment protection through biosecurity training and compliance with biosecurity legislation.

It was noted that IDN programs require investment from businesses to achieve accreditation/ certification necessitating a commercial driver as well as recognition. Targets for various components of the Nursery Production FMS program are detailed in Table 3.

Table: Targets for various components of the Nursery Production Farm Management System program (National)

Engagement	NIASA	EcoHort	Biosecure HACCP	Technical Workshops
Current	273	104	3	30
2013	287	114	30	35
2014	301	131	45	40
2015	316	157	65	45
2016	331	189	100	50

Source: Kanchenko, A. Gibbs, J. and Walker, N. 2010, FMS Stakeholder Survey. NGIA

It has been noted that there is a lack of full industry statistics with respect to number of nurseries and their size. Anecdotal data suggests that the industry is consolidating and the average size of nurseries is getting bigger. Targets should therefore be based on percentage of production and not just on numbers of nurseries.

Industry Adoption

The Industry Technical Development Network was discussed in project documentation (NY12006) as being *a critical component of the Industry Strategic Plan as it provides a linkage between business and the adoption of outcomes from levy expenditure*. The challenge was noted to be achieving *whole*

of industry utilising the outcomes. It was suggested that funds be allocated in a manner that is *based on levy payers engaged, rather than regional location*[19].

Program Governance and Administration

In terms of program governance and administration, the following milestone achievements were identified:

1. Develop PRG to oversee all aspects of NY12006 Industry Development Network for the Nursery Industry 2012-2016
2. Develop collaborative links with international associations and licence arrangements regarding Nursery Production FMS
3. Develop a project evaluation strategy based on measuring KPIs
4. Develop IDO Induction Guide and professional development program
5. Invest in professional development including Australia Pacific Extension Network (APEN) Membership

Progress in relation to the above issues during the April 2013 reporting period included:

1. PRG established and met for the first time by teleconference 2 May 2013.
2. Discussion continued between NGIA and the New Zealand Nursery & Garden Industry regarding licencing of the program. A draft licence agreement was before legal for review.
3. NGIA discussion with Michael Clarke (AgEcon Plus) to determine a suitable vehicle for this to progress further. Dr Kachenko met with Mr John McDonald (NGIA) to discuss a Gains Table approach on April 23 in Brisbane.
4. An IDO Induction Guide developed.
5. All members of the Nursery Industry Development Officer Network APEN members[20].

Progress in relation to the above issues during the October 2013 reporting period included:

1. The second PRG were to meet 5 November 2013.
2. NGIA and the New Zealand Nursery & Garden Industry New Zealand signed a nonexclusive licence agreement to licence NIASA and EcoHort.
3. NGIA continued to determine a suitable vehicle to progress evaluation. It was anticipated that this would occur mid-way through the life of the project.
4. In 2014, the IDO network was set to undergo Auditing Training in Sydney to ensure they were competent in delivering on ground audits in a timely and professional fashion.
5. IDOs who requested to maintain APEN membership were to be granted 12 months membership for 2013-2014[21].

Benefit Cost Analysis

Nursery Production FMS Benefit Cost Analysis 2011/2012

A benefit cost analysis of the Nursery Production FMS was prepared for NGIA by AgEconPlus between December 2011 and September 2012. These Farm Management Systems were noted as representing a framework *endorsed by industry and government to ensure a sustainable future for primary producers* and include the three key on farm programs: the Nursery Industry Accreditation Scheme Australia (NIASA); EcoHort Certification and BioSecure *HACCP* Certification[22].

[19] NY12006 Industry Development Network for the Nursery Industry (2012)
[20] Kanchenko, A. NY12006 Milestone Report. April 2013
[21] Kanchenko, A. NY12006 Milestone Report. October 2013
[22] Clarke, M and Moore, C. 2012. Nursery Industry Farm Management System-Benefit Cost Analysis. AgEconPlus.

Authors of the Benefit Cost Analysis document, Clarke and Moore (2012) note that at the time of the review Nursery Production FMS had been adopted by 274 mainly production nursery businesses (Table 1.1), with approximately 3,500 nursery production businesses in Australia (AgEconPlus and Agtrans Research 2009).

Table: Number of accredited/certified nursery industry businesses

Program	Number of Businesses	Cost per annum NGIA Member ($)	Cost per annum NGIA Non Member ($)
NIASA	274	400 – 530	730 – 880
EcoHort	100	0 – 195	0 – 390
BioSecure HACCP	2	0 – 195	0 – 390

Source: Clarke, M and Moore, C. 2012. Nursery Industry Farm Management System-Benefit Cost Analysis. AGEconPlus

The benefit cost analysis was completed at three levels:

1. The first analysis addressed the value of Nursery Production FMS to an individual business that had implemented the system.
2. The second analysis quantified the farm management system's value to the whole nursery industry since inception.
3. The third analysis assessed benefits to the broader Australian community across the economic, social and environmental 'triple bottom line'.

Summary findings from BCA

A summary of the findings from the AgEconPlus, Benefit Cost Analysis included:

- Not all nursery businesses that invest in a FMS receive a financial return and many adopt the FMS for reasons that are not purely financial. Amongst those who did receive a financial gain from adoption, the return is substantial and reflected in new markets accessed, reduced stock wastage, management efficiencies, labour and chemical savings. Less easily quantified benefits include improved access to technology, risk reduction, brand building, staff culture, continuous improvement and ease of compliance with environmental regulations. Business costs included both capital expenses (up to $150,000 to retrofit an older nursery) and annual operating outlays of as much as $50,000 per annum. The formal benefit cost analysis showed a positive return on business investment with a five year payback period.
- To deliver these benefits to individual businesses, NGIA and Horticulture Australia Limited (HAL) have supported twenty two levy funded projects totalling almost $1.3 million. Contributions have also been made by various state governments. Ongoing costs include annual administration and the Industry Development Officer (IDO) network.
- Quantification of industry benefits from total investment is dependent on the number of adopting businesses and the number of businesses that receive a financial benefit. The analysis has been completed using the assumption that around half of those who adopt the FMS receive a financial benefit. On this basis the FMS has delivered a strong return for industry – net present value of $71.22 million with a benefit cost ratio of 8.01 and a return on investment of 40.5%.

Table: Sensitivity analysis results – industry impact (AgEcon July 2012)

Criterion	Pessimistic	Core Assumptions	Optimistic Scenario

	Scenario (25%)		(75%)
Present value of industry benefits ($'m)	40.69	81.37	122.06
Present value of industry costs ($'m)	10.15	10.15	10.15
Net present value ($'m)	30.54	71.22	111.91
Benefit cost ratio	4.01	8.01	12.02
Internal rate of return (%)	28.1	40.5	48.3

Source: Clarke, M and Moore, C. 2012. Nursery Industry Farm Management System-Benefit Cost Analysis. AGEconPlu

- Sensitivity analysis completed on industry returns demonstrated that even with only 25% of adopters receiving a financial benefit from FMS implementation, additional industry revenue more than covered industry investment costs.
- Benefits to the Australian community from the nursery industry's investment in the Nursery Production FMS were identified and analysed across the environmental, social and economic 'triple bottom line'. The most important environmental benefits realised by the Australian community were improved biosecurity (less chance of invasive weeds, pests and diseases) and improved chemical management. Community social benefits included increased demand for gardening with associated positive spin offs for health, social and visual amenity. Community economic benefits included employment and regional development[23].
- The Business Case Analysis done on the IDO network project in 2008 showed a ROI of 26% and BC ration of 5.1/1. This analysis was conducted over a range of projects that could be considered part of Technical development.

According to project documentation, these analyses show that *investment made in a well-managed Industry Development Network focussed on Technology transfer is extremely positive in the returns to industry.* At the time of reporting (2012) it was anticipated that this return on investment could be substantially improved due to:

1. Tighter data capture as part of electronic recording of audits
2. Use of "Gains Table" to quantify impacts of engagement and training undertaken by stakeholders.
3. Conversions of businesses utilising programs to full accreditation/ certification
4. Development of commercial drivers - retail requirement and push from industry for legislative recognition of the programs[24].

[23] Clarke, M and Moore, C. 2012. Nursery Industry Farm Management System-Benefit Cost Analysis. AgEconPlus
[24] NY12006 Industry Development Network for the Nursery Industry (2012)

FINDINGS

This section is structured to capture the Terms of Reference of the Review:

1. Review activities undertaken during the first two years and benefits to industry.
2. Assess progress against the Annual Operating Plan and industry needs as identified in the Industry Strategic Investment Plan.
3. Assess the quality of outputs and overall adoption by the Australian nursery industry.
4. Assess the productivity gains arising from the adoption of outcomes.
5. Comment on the level of engagement of the Australian nursery industry with the NY12006 Industry Development Network for the Nursery Industry and how engagement could be enhanced.
6. Evaluate the structure and resources for supporting performance and propose changes that may be required to support improved performance.
7. Undertake a Strategic SWOT Analysis (to be completed with the input of the project Management Committee and Horticulture Australia Limited [HAL]).
8. Make clear recommendations for the remainder of the project, and propose three models/techniques which may also be utilised in the development of future extension/industry capacity project following completion of NY12006 Industry Development Network for the Nursery Industry on 31/7/2016.

The following headings are used:

- Activities Outputs and Engagement (TOR 1,3 & 5)
- Engagement (TOR 5)
- Adoption and Impact (TOR 3, and 4)
- Progress against AOP and ISIP (TOR 2)
- Structures and Governance (TOR 6)
- Future (TOR 8)

The SWOT (TOR 7) will pull together strengths, weaknesses, opportunities and threats in a separate follow-on section – prior to making conclusions and recommendations.

Findings are drawn from combining data from the survey of levy payers' interviews with the (C)EOs, IDOs, Steering Group and secondary sources (although the detail in the background section is not repeated – it is referred to where appropriate).

Full details of activities reported and outputs achieved are in the appendices. Progress in each of the activity areas from the milestones is also documented in the appendices.

Activities, Outputs & Engagement (TOR 1, 3 & 5)

Type of activities and engagement activities

- As described in the background, the types of activities undertaken through the IDN Network are intended to *enhance the ability of all levy payers to remain current with industry developments, marketing activities and technical issues.* The activity areas identified are:
    1. Industry Accreditation Programs- Management and Auditing
    2. Improved technology adoption via training workshops
    3. Engagement with industry to facilitate program adoption and issues awareness
    4. Communications of Technical Developments
    5. Engagement on Issues Management

  Findings around these activities are described in the next sections.

Accreditation Programs

Oversight

- As noted in the Background, the accreditation program is overseen by a National Accreditation and Certification Committee (NACC), State Accreditation and Certification Committee (SACC) and a Farm Management System Technical Officers Group (TOG): consisting of Technical Officers appointed by each State Association or the relevant State Managers. IDOs are non-voting members but are able to provide input.
- Milestone reporting records that there were a total of 33 (NIAA SACC/TOG/NACC) meetings held in 2013 and 22 held to date in 2014.

Extent

- As noted in the background, the Benefit Cost undertaken in 2012 reported that at the time of the review Nursery Production FMS had been adopted by 274 mainly production nursery businesses out of an estimated 3,500 nursery production businesses in Australia.
- The reported figures of accredited nurseries now are: 242 with NIASA accreditation, 104 with EcoHort certification and 7 with HACCP accreditation. *If* these are additive (rather than overlapping), than the gain from 2012 to 2014 would be a 29% increase (if the same business can hold more than one level and is counted in these figures, then the figure may have decreased).
- There was virtually no movement in reported accredited/certified businesses between 2012/13 and 2013/14 to date. It was reported that, although new businesses are taking up accreditation, others are dropping off due to nurseries going out of business or not being prepared to pay annual fees. There is some feedback that the aspirational 5% gains per year is not achievable in the current context.

Audits

- Accredited/certified nurseries are required to be audited each year. There is an annual fee to remain accredited. Funding is provided through the project for one audit per calendar year. In Queensland, two audits are made on each business.
- There is an issue of the same IDO being both a facilitator of change and providing support to that of an 'auditor' – or policeman.
- There are also views that the auditing role by IDOs is not a valuable way for them to spend their time. Time constraints and attitudes by some can mean a "tick and flick" as opposed to using them as an opportunity to 'walk around' and build relationships and highlight further opportunities for improvements.

Advantages

- As reported in the background, the 2010 NIASA Stakeholder Survey indicated that businesses become NIASA accredited in order to: enhance the reputation of their businesses; gain a marketing advantage; manage their business risk; access the IDO network and manage their environmental ethos.
- Some levy payer interviewees appreciated the accreditation process, the guidelines and standards set and as one commented the value in having *someone with fresh eyes to walk through [the] business.*
- It has been noted that accreditation assists with inter-state trading, can have insurance benefits and can assist in tender proposals.

Issues/barriers

- The survey of levy payers for this review indicated that the key inhibitors to becoming NIASA accredited were identified as: there was little recognition of the program by the public or plant buyers; the time required to manage the process (in terms of record keeping); and the costs incurred to implement the changes/updates required to be become accredited.
- The cost of installing water treatment facilities was seen as a major cost by a number of interviewees in this current review for some nurseries *especially if they have 5-6 sites* and if they had experienced no problems with growing or marketing produce.
- The opportunity to have an accreditation at a lower level (not requiring water treatment for example – with maybe water monitoring instead) was raised as a way to make it more accessible. However this is strongly opposed by some states who saw the current requirements as the minimum.
- There remains a lack of market drivers for accreditation – with large retailers not requiring or rewarding accreditation. It was suggested that local government was more likely to care and take it into account with tenders. Meeting work place health and safety criteria was seen to be more important.
- There has been some feedback from IDOs about the amount of time involved in the accreditation and auditing process. There were also comments that those who want to be accredited are already doing it – and that the aspirational increases are not realistic.
- There is a suggestion that accreditation and/or auditing could be undertaken as a separate national initiative apart from the IDN – allowing IDOs to focus on other areas.
- There is some concern that there is a lack of consistency in the way accreditation and auditing is interpreted and undertaken between states – although it is a national scheme, it is administered by individual states. Because of this, some audit training was provided to IDOs and the national coordinator travelled with IDOs as they went about this process to provide some feedback on the process – but this was seen as resource consuming.
- NIASA has licenced the accreditation program to New Zealand. This was seen by some to be working against Australian nursery interests. There was a move to change the name for the scheme to Australasian – but this was defeated.

Training Workshops

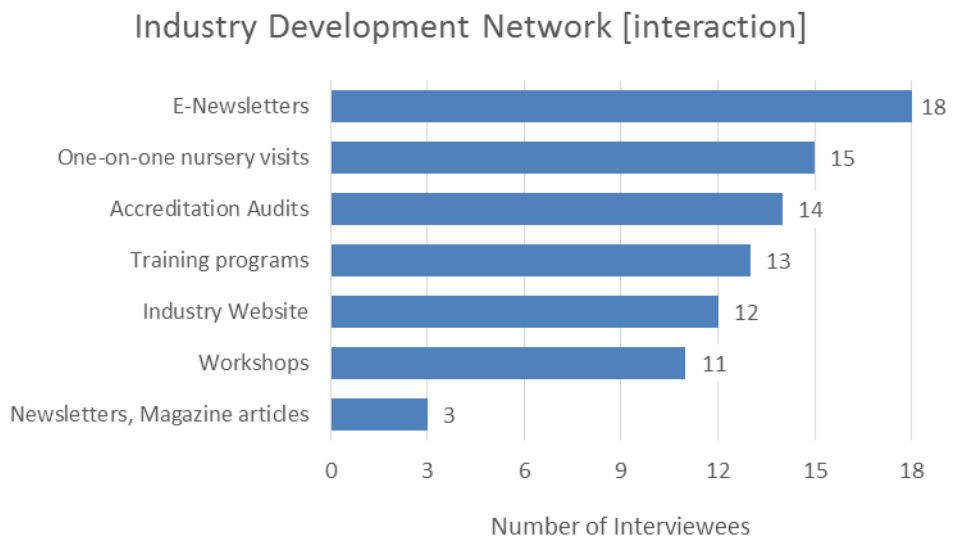
- In order to "improve extension and adoption of industry best practice through comprehensive on-farm based extension strategies", it was reported that 52 State NGI Technical workshops and field days were held in 2012/13 and 45 (to date) in 2013/14. 15 IDO Technical workshops/field days were undertaken in 2012/13 and 11 (to date) in 2013/14.

- It was noted that training activities had “dropped off” (as shown in the figures). Queensland was reported to be strong in training – but also has the advantage of linking these to other leveraged projects – and has national workshops.
- Materials have been developed nationally for about 10 topics. These are not (yet) linked to VET accreditation – little advantage is seen by the industry in linking training to units of competency, and the associated time required. There have been some discussions with Rural Training Corporations about providing training.
- An e-learning platform has just been launched – although there has been little use made of this to date.
- Discussion groups (special interest groups) are used in Victoria which also involve visits to sites. This is seen to require both technical knowledge and facilitation/group skills. A similar approach was tried in Western Australia and failed due to lack of support.
- It was noted that most effort was in the area of technical support rather than business support.

Engagement with industry to facilitate program adoption and issues awareness

- It was noted that most nurseries were small to medium enterprises (less than 15 staff members) with some larger players. These include businesses based around seedlings, potted plants, shrubs and trees. There is some competition between businesses – but it was noted that there was a ‘general willingness’ to work together.
- There are limited statistics (ABARES seen as having limited use – *questions having more an agricultural focus*) on the industry and its practices (such as in the areas of productivity and water use efficiency). It was also noted that there was an attempt by the industry to capture a snapshot of nursery business operation and practice, but there was a lack of businesses willing to provide data.
- Although some research is undertaken in the industry (for example, through government departments like DAFF Queensland and PhD students) there is not a high volume of new research outputs emerging. The emphasis appears to be to bring nurseries up to known ‘best practices’ based on current knowledge. There are some concerns about not doing enough research – but it was noted that there is high cost for the government to do research on the industry’s behalf.
- Milestone reports recorded a total of 40 entrants into the nursery and garden industry awards in 2012/13 with 39 in 2013/14. A total of 192 attendees (seen as declining over time) were reported as attending the national conference where levy research and development programs were showcased to the industry. State-based improvements awards are given at the national conference – as well as at AGMs. It was noted that there has been little growth in participation in these events.
- It was reported that there were a total of 848 workshop/field day participants in 2012/13 and 1016 in 2013/14 – an increase of 20% for the year to date. It is possible that there is overlap where participants attend more than one activity. There are some feedback sheets used at workshops and no follow-up surveys with participants to see what they have acted on.
- A large number (for example, 1500 activities in 2014 with production, greenlife market or growing media businesses) of contacts were reported with industry in other ways – email, phone and visits. These details are included in the appendices and include contact with members and non-members. There were 19 activities with ‘Next Gen’ in NSW and Queensland in 2013/14.
- Over the past two years, most of the levy payer interviewees (18 nurseries) reported receiving regular electronic communication from the IDN, specifically email newsletters and notifications.

Fifteen interviewees noted interaction to have included one-on-one nursery visits and fourteen had completed Accreditation Audits. Two of the NIASA Accredited nurseries had not completed an accreditation audit. One interviewee in Western Australia had pulled out of the accreditation process, noting they had gained no perceived credibility as a result of completing it and the other, a NSW nursery felt that overall they have gained little value for their $4000 membership payments. Thirteen interviewees noted participation in Industry Development training programs and eleven had attended workshops. Twelve interviewees had accessed the industry website.



- Overall, levy-payer interviewees rated the value of the IDN and IDOs to the nursery industry as 'medium' 5.6/10. A commonly mentioned theme was that although the IDOs are available and willing to point nurseries in the right direction for information relevant to their businesses, and could offer some technical knowledge to the industry overall, larger production nurseries did not call on them as much, seeing themselves as 'more advanced' in terms of industry knowledge and skills, with several commenting that the IDN service offering and IDOs do not offer a big impact and *could learn a lot from our business.* One respondent noted that those levy payers contributing the most in pot levies do not seem to receive the same value out of the system as new and smaller businesses do. Another expressed the view that it seems as though larger nurseries are *essentially funding and developing competition by providing all the funding for smaller nurseries.*

Communications of Technical Developments

- There are set targets for articles and papers to be delivered by the IDO/State organisations as part of the funding arrangements. Milestone reports show that there were 6 Nursery Papers written in 2013/14 to date (5 in 2012/13), 119 national technical papers (136 in 2012/14) and 110 state technical articles (110 in 2012/13). Some IDOs contribute to state magazines.
- There is a national web presence which provides comprehensive information about the industry, levy and levy activities, news updates and events. Some information is shared/duplicated on state sites. Training videos have also been added in Queensland. There is some use of e-newsletters.
- There is a belief that many nurseries are not big users of electronic types of communication.

Engagement on Issues Management

- Milestone reports IDOs also reported a number of forums in which they participated and reported. These included Biosecurity/market access meetings and meetings around water issues, Natural Resource Management, Invasive plants, Climate change/Urban Forrest meetings; and State NGI conferences or exhibitions.

Adoption and Impact (TOR 3, and 4)

Reactions

- The levy payers interviewed for this review rated their satisfaction with how well the IDN and IDOs had met expectations at 5.1/10 in terms of addressing expected program outcomes. Interviewees agreed that overall the IDN program had some merit in *achieving a standard within the industry through accreditation* and some commented on benefits achieved as a result of higher quality products and that the infrastructure and support provided through the program was helping them to achieve their own objectives.
- Victorian interviewees suggested that as an industry leader, their region already benefits from a strong *Grower Group* network and regular visits between nurseries in the region.
- NSW interviewees generally noted the program was lacking capacity with one respondent commenting they had to pay external consultants for information they felt the IDOs should be able to assist with.

Benefits, impacts and productivity gains

- Levy-payer interviewees were asked to comment on the success of the NGIA program and what they thought was working particularly well or had assisted and supported them in making changes to their business operations. Responses included the following:
    - The value of the IDOs was mentioned by interviewees in terms of their overall *positive influence in the industry* and the fact that they *provide a public face for the industry*. Some mentioned the value they and the industry overall could gain in terms of access to knowledge, best management practices, general guidance and one-on-one contact but others commented that the although the IDOs had benefits to the industry overall, they offer *no real value to [their] business*.
    - Levy-payer interviewees noted that specific impacts resulting from their involvement in the NGIA program included improvements to watering plants and recycling systems, successful legislation on the movement of plants interstate and the fact that state NGI associations were beneficial in giving the industry a voice in government issues.
    - Several interviewees commented on the NGIA 202020 vision, noting its success and that councils and large organisations are increasing green spaces which would ultimately result in selling more plants and the growth of the whole nursery industry.
    - The view was expressed by a levy payer that the difference between nurseries with and without accreditation is *noticeable*. Another noted that EcoHort certification has helped them make structural changes and that they are *arguably using less pesticides [as a result of] a more integrated pest management approach*. The benefits of certification and accreditation when putting in tenders to government or large public organisations was noted as being a valuable point of difference, however this respondent explained their nursery had not yet won a tender based on these credentials.
    - Examples were given of where improvements to water efficiencies - including irrigation practices and water treatment - had resulted in improved profitability for some. Others

noted improvements to their overall business operations and bottom line in terms of operational and strategic changes including improvements to potting mix, disposal of unsaleable products, management of recyclable containers and the impacts of *reliable and higher quality crops* (4 mentions). Interviewees also discussed the value of the IDOs in *putting programs together* and their contribution to the success of the accreditation process (4 mentions). One respondent noted they f*ully endorse the NIASA accreditation and the technical expertise gained from this.* The importance of improvements to border crossing protocols was mentioned, with particular reference to Myrtle rust issues and the protocols introduced to manage this.

- Impacts reported by IDOs as part of this review process included:
  - **South Australia:** Poplar Grove Nursery worked with IDO for NIASA accreditation – increased stock quality and quantity – moving to biosecurity accreditation. They put in dams capturing 70% water needs with the IDO assisting with noise and spraying issues – saved $14-15k on water bill.
  - **South Australia:** Native Plant Wholesaler, a nursery near the Victorian border with myrtle rust issues – worked with IDO to propagate own stock – cost of $0.5m – with money savings on purchasing and avoiding rust incursions.
  - **New South Wales:** NIASA and EcoHort accreditation was ensured that a nursery more than met EPA standards following complaints from neighbours – has also established good relations with EPA through process of accreditation.
  - **New South Wales:** The accreditation process has been shown to get a lot of management and compliance standards up to date – so benefits even without market advantage
  - **Victoria:** Accredited growers monitoring and improving water efficiency
  - **Queensland/NT:** Trade re-opened between NT and Queensland – and also making progress in gaining access to WA.
  - **Queensland:** In partnership with the Rural Water Use Efficiency Initiative (RWUEI), a seedling production nursery supplying local vegetable growers, located on Queensland's Granite Belt south-west of Brisbane was reported to have made significant productivity and water saving gains. This was documented in a case study analysis. The analysis showed an overall financial gain of $65,000/year from water and energy saving (25%), reduced chemical use, decreased crop cycles and improved germination. A reduction in contamination in run-off was also reported.
  - **Queensland:** In partnership with the Queensland Government and South East Queensland Irrigations Futures (2), 561 production nurseries were engaged to assist businesses water within the framework of enhanced business profitability and sustainability. The program was reported to have delivered substantial water savings, productivity increases and environmental benefits to industry and to Queensland. The Nursery Production Water Saving Gains Table calculated the economic value of the Nursery Production SEQ-IF2 project at more than $24 million (nominal value) over the 4 years at a benefit/cost ratio of 38:1.
- A view by an informed person was that there was very limited uptake of new research ideas (for example irrigation) in the industry.
- Apart from these examples, there is little impact evaluation data on the shifts achieved through the program over the years. This is more about the lack of systems in place to capture and report this rather than a lack of impact – as shown by the examples that were given.

Benefit/Cost

- The total investment in the delivery of the IDN is in the order of $1.5 million over the two years.
- As noted in the background section, a benefit cost analysis was undertaken of the Nursery Production FMS by AgEconPlus between December 2011 and September 2012. Amongst the estimated 50% of accredited farms that received a financial gain from adoption, the return was determined to be substantial and reflected in new markets accessed, reduced stock wastage, management efficiencies, labour and chemical savings. Less easily quantified benefits identified included improved access to technology, risk reduction, brand building, staff culture, continuous improvement and ease of compliance with environmental regulations. Business costs included both capital expenses (up to $150,000 to retrofit an older nursery) and annual operating outlays of as much as $50,000 per annum.
- The formal benefit cost analysis showed a positive return on business investment with a five year payback period. On this basis the FMS was calculated to have delivered a strong return for industry – net present value of $71.22 million with a benefit cost ratio of 8.01 and a return on investment of 40.5%.
- Queensland has a "gains table"/calculator[25]….looking at costs saved on improved water use efficiency. As noted under reported impacts, the calculator has been used to estimate the financial benefits from implementing water saving approaches in the order of $65,000/year. The reported gains in the partnership with the Queensland Government and SEQ Irrigations Futures 2 project worked out to about $24 million (average of $43,000/business) over 4 years – and a benefit cost of the program of 38/1.
- These studies are based on a number of assumptions but do reflect the potential for gains as a result of the program through improved efficiencies – even without a direct market driver for the accreditation certification as such.
- If it is assumed that there are 3,500 nursery production businesses in Australia, and the cost of the IDN network as $750,000 per year, the cost of the IDN program to each business would be around $214 per year. If you worked on the total number accredited of 353 businesses, the figure would be around $2,100 (+ their cost of accreditation fees + their cost of equipment and operation to maintain the accreditation) per business. The earlier Benefit Cost Analysis and the Queensland examples demonstrate that there are significant gains to be made from such programs at both business and industry level.
- More gains would be realised if market access increased sales and a premium price (or preference) was paid for products from accredited businesses.
- Only one of the 18 levy paying nurseries surveyed questioned the value of the IDO/IDN program in relation to levy payer dollars paid.

[25] There is value seen by some in having these calculators adapted and used in other states. [A proposal was put in to do this at some stage but was not acted on].

Structures and Governance (TOR 6)

IDO role

IDO perspectives

- When asked to describe their understanding of their roles (and the role of the IDN), IDOs highlighted the following elements:
    - Providing RD&E to nurseries through visits, training and the accreditation schemes – to increase productivity and profitability
    - Accreditation and auditing – improve biosecurity and hygiene
    - Keeping the local industry up to date with what is happening nationally
    - Developing grower networks and capacity building
    - Assisting with linking and funding for R&D projects
    - Training, workshops and field days – workforce development
    - Providing information products and tools
    - Developing market access – interstate movement
    - Providing feedback on RD&E needs
    - Leveraging funds for the industry

- In practice, most effort was reported by IDOs and (C)EOs as going into the following areas:

    - SA/TAS: extension of the FMS program; chemical and pest issues, workshops
    - NSW & ACT: species propagation; irrigation efficiencies; costings; plant identification; water management; pest management; market access and interstate movement of plants.
    - NT: technical support – pests, disease and irrigation
    - Vic: Running the accreditation scheme; workshops; committees; articles; state advocacy.
    - WA: facilitating information; assisting businesses to make changes – and negotiating with contractors re needs/interpreting contractual documents and requirements for systems development; interpreting guidelines, regulations and legislation; advocacy
    - Qld: Best practice gains through accreditation system; audits (twice/year); Water use efficiency; market access

- There was an overall view by the IDOs that their work was closely aligned to the priorities of the program – as reflected in their reporting. IDOs saw their role as very effective, were enthusiastic – but saw limitations on what they could do given the numbers and demands.
- When asked to comment on their understanding of the program aims, levy payer interviewees pointed to the roles in assisting nurseries' ability to deliver a *better quality product* and communicating information, best practices, technologies and government policy to nurseries. One respondent commented on the function of the IDN to gather technical information from businesses and the association, specifically *a two way flow of information for them to deliver information as well as gather details about biosecurity, economics and improved processes*. Interviewees also commented on the role the IDN and IDOs played with regards to implementing and monitoring the NGIA accreditation process and their function in terms of monitoring the *status of nursery standards* through one-on-one visits audits.
- Other stakeholders saw the IDO role as *ensuring nurseries are aware of research and options – and spotting problems occurring that need to be addressed*. It was noted that some IDOs wear 'multiple' hats – this was up to the state arrangements. Some IDOs have a national role.
- Specific IDO/(C)EO feedback on alternative sources of similar industry support – and where the IDN/IDO added value to the industry in each state was given as below:

- SA – no other organisations is doing it as well – way ahead of other horticulture in terms of quality.
- NSW – DPI does not provide nursery support in NSW – not on the radar despite the size of industry. Independent consultants have not taken up private consultancy in Nurseries.
- Victoria – nothing similar to accreditation scheme.
- WA – The IDO works with local businesses. It is complementary to support provided through: Irrigation Australia; Landscaping industry Association; Agriculture Deportments; Propagations Association (good technical knowledge); and the Australian Bush Regeneration Association.
- Queensland: DAFF has just cut funding to a 0.5 position. The IDN program works in partnership with other programs addressing water use efficiency.

- In the absence of the network project and the IDOs, interviewees were asked which organisations and resources they would rely on for industry specific updates and technical information. Some noted that there are not many alternative resources available providing applicable information at the level of the NGIA program and that the Industry Development Network is their primary source of industry information. A number indicated the use of the internet (Google, YouTube and online publications) and conducting their *own research*. Industry suppliers were noted by some as a source of information about genetics and other plant related issues (pests and chemical management). Several commented on the value of overseas journals/publications and research, monitoring overseas trends, interaction with overseas universities and personal overseas travel. One respondent explained they bring in new plant varieties from overseas and conduct their own trials to *gauge their sustainability and how they will benefit [their] business.*
- Interviewees also noted the value of government bodies as a source of information (*particularly for border crossing issues*), however would prefer a local association to avoid direct contact with *bureaucratic systems.* Industry consultants and associations were also noted by some as useful sources of information.

Reporting

- As noted in the Background, comprehensive reporting is undertaken against project priorities and targeted activities. This provides accountability and good statistics on the work undertaken. It was suggested that energy savings could be added to the current priorities/reporting options because of its importance.
- There was some 'kick back' from some states on the reporting burden as it was seen to be taking IDOs (particularly the part-timers) away from the ability to engage with nurseries – *2000 word report with technical information*. It was noted by some that quarterly expectations were not always aligned to what is happening seasonally. The logging of e-mails, phone calls and meetings, for example, was seen as onerous by some and not resourced. Others are quite happy with the reporting and have systems in place to reduce the time commitment. Tasmania has had no report for two years with South Australia taking some oversight of the project there.
- It was pointed out that there is a lack of reporting about impact – measuring what has been achieved…*just a pile of numbers*. There is a gap in capturing changes and financial gains.

Funding

- As described in the Background, funding is through the normal "pot" levy paid to HAL by nursery suppliers. States also provide extra funding to HAL from either their own membership funds and/or through funds received from accreditation (they can charge more than NIASA recommendations). These extra funds are also able to be matched dollar for dollar by the Federal Government and so increase the pool of money available for RD&E in the sector – and the IDN in

particular. Loss of this funding would have a significant impact on the ability to deliver RD&E to the industry.

- The funding paid to States to deliver on the network objectives is based around the different activity areas and the priorities given to each. They decide how many IDOs they will fund to undertake this role within the resource provided. In some cases, contractors are also used. It was noted that there has been some flexibility where different IDO contexts have required different time allocations (e.g. limits to accreditation opportunities). States were asked to provide a "profit and loss" accounting for the way the money was used – to look at the differences in the way funds were used – for example the percentage of office costs versus money spent on IDOs. This percentage varied, with some quite high percentages in office costs.
- The intention is that funding is directly linked to reporting and demonstrating milestone targets have been met in the different activity areas. There is a cap on funding for different activities. There is a suggestion that the interpretation differs between states on some reporting areas – so there are some issues around the rigour and figures reported.
- Some states also leverage the funding received to increase the resources available to provide the accreditation and technical support to their industries. Queensland, for example, does this through such programs as the Rural Water Use Efficiency project. They employ FMS officers not paid for by the NGIA project.

Governance

- NGIA is currently a non-voting member on the Industry Advisory Committee that reports to HAL and makes recommendations on the best use of the levy. This is set to change with a restructure within HAL, where individual Horticulture levy payers will provide this function rather than the IAS.
- A Project Reference Group (PRG) was established and comprises of: NGIA CEO and NGIA Technical Manager; HAL Program Manager responsible for Industry Development; and 3-4 key industry stakeholders. This group provides oversight to the national project. Until recently there was a national coordinator who managed the program for a national perspective and provided support to the IDOs.
- There have been some problems described with the current management structure. The IDOs are appointed and directly managed by the State bodies. There have been concerns that there is inconsistency in the expertise of the IDOs appointed, the way the project and IDOs are managed and differences in interpretation (e.g. of accreditation and audit requirements, fees charged and in reporting of activities). There was some concern that in some cases IDOs were undertaking state organisational commitments rather than focusing on the IDN priorities. In other cases, state managers saw national direction to IDOs as interfering with state level responsibilities and direction.
- Several levy payer interviewees commented on a *disconnect* between the national NGIA body and the state associations. Criticism of the existing structure included the fact that IDOs are supposed to implement national strategies (including accreditation), however they are *not reporting to the national body*; the NGIA do not know what is happening on the ground and *take funds and spend it where they think it should be going* and IDOs seem to be implementing what *state CEOs want instead of what is important to the industry.* One respondent felt that the further away from the association, *the more difficult it becomes to manage and coordinate issues*. Interviewees also commented that as national and state bodies are not coordinated, this is resulting in a lack of understanding (of the national association), of what it *takes to run a modern nursery.*
- IDO feedback on the structures and governance were that the current arrangements appeared to be working reasonably well – although many saw the need for greater collaboration and cooperation between states. National coordination combined with an active state committee was

seen to add rigour. There was very strong positive feedback on the input and assistance from the national coordinator (National Coordinator met with IDOs twice per year, with a teleconference in the interim quarter – also visited IDOs). A key point was that the FMS should be seen to be operating consistently at a national level.

Issues

- There is a view that the IDN network would be more effective if it was managed nationally. There is some frustration with the current system at the national level as States have their own state/organisational interests which, in some cases, can draw effort away from the prime roles of the IDOs. The logic behind linking funding to set activities/performance indicators was to ensure that this did not happen.
- This could have some difficulty with line management – but could ensure greater consistency of effort and interpretation. This could also allow an IDO to service across borders where this was appropriate. Alternatively, States could keep their funding and provide RD&E services directly from their own resources (losing the $/$).
- This direction contained in a recent report was recently rejected from the States who feel that they are better placed to manage the IDO/IDN.
- The loss of the national coordinator will put pressure on maintaining this function of support, collaboration and oversight of the program.

Future (TOR 8)

- When asked about future needs to make the program more effective, IDOs and state managers identified a need for: more funding for IDOs; upskilling of IDOs in business monitoring/ management programs; continued national coordination; maintaining the FMS program; and effective governance.
- A number of IDOs noted that there was a need for increased salaries for IDOS – to attract and maintain skilled staff.
- In terms of the future of the NGIA Industry Development Network program or similar programs, several levy payer interviewees commented on the value of the role of the IDOs. It was suggested by some interviewees that although the existing network of IDOs are important to the industry in terms of providing training, updates and one-on-one site visits, a higher level of *training and access to technical expertise* is needed and the IDOs are not fulfilling this *skills gap*. One respondent suggested employing IDOs who are agronomists with experience in plants. Alternatively, some interviewees commented that more IDOs of the *same calibre* are needed, noting the current IDO network is *run off their feet.* Several expressed the view that IDOs should be working to *enhance the overall vision of the industry* and to sustain the viability of the industry by working as facilitators and *building a better network between growers.*
- In terms of change interviewees suggested: a review of nurseries actual needs and where the industry is currently; a review of the pot levy and the return on investment to larger nurseries; dissemination of industry research findings, particularly industry statistics relevant to each region and business and financial training to ensure all are up to the same standards.

SWOT (TOR 7)

This section draws together the information presented in the findings plus extra insights from the project Steering Committee to summarise the strengths, weaknesses, threats and opportunities for the program going forward.

Strengths: What worked well

- Development and extension activities are happening within the industry – there is good presence across the industries.
- There is very good data about the activities being undertaken and outputs produced by the project.
- Leveraging is occurring off other projects (for example with the RWUE project in Queensland; water recycling initiatives in SA) where there is an overlap in goals and provides an entry point into accreditation programs; opportunity to work with.
- Mentoring role with nursery owners – providing access to broad knowledge – and using the audit process as a way of ongoing contact and continuous improvement. One-one contact was seen as critical.
- Twice-yearly meetings – information sharing between states - was seen as valuable by IDOs and helped in networking, and common approaches. The national coordinator was seen as providing excellent support by IDOs.
- Some training programs - exposing growers to professionals during workshops.
- The networking grower group in Victoria appears to be working very well (although an attempt to establish similar groups elsewhere were not successful).
- Accreditation has been shown to be an effective holistic approach, validating and encouraging improvements for those who have taken this up. It has encouraged growers to identify their own priorities and targets to improve efficiency.
- The Nursery Production Farm Management System program has assisted in improving interstate trading.

Weakness – what did not work well

- The goal of increasing the percentage of nurseries accredited was seen as challenging. Barriers to accreditation were raised through a number of sources. These included:
    - Lack of market signals/benefits to encourage accreditation and changes to current practice. Eco-Hort is seen as most potential for market gain – but government and business policies need to see benefits and implement standards.
    - The cost of accreditation – including annual fees and establishment of water treatment plants.
    - Need to train and engage more growers to reach technical level needed for efficiency gains – audits have limited time opportunity for in-depth assistance
    - IDO is encourager and also the policeman.
    - Nursery growers reacting negatively to the on-going message about biosecurity.

- Staffing
    - The size of the area to be covered and the number of small operators makes it difficult for the IDOs to effectively cover all nurseries. Time is seen to be a major barrier – difficult to find time for those not in accreditation sphere.
    - Part-time IDOs – also contacted on days off – are particularly unable to meet the demands/opportunities
    - Staff remuneration was seen as "horrendous" by more than one IDO – a barrier to attracting staff with higher levels of skill and experience.
    - Isolation of some IDOs – and some unique problems (WA) – was seen to be a problem in gaining the support needed.
    - There appeared to be an under resourcing for the demands for biosecurity and quarantine permits.
    - Approaches that have been used to date may not be the best approaches to go into the future.
- Benchmarking and evaluation
    - It has been difficult to see where changes have occurred over time (big picture) and hence measure and document the improvements resulting from the program. Nurseries were reported as reluctant to provide benchmarking data on performance.
    - Reporting does not include impacts arising from the activities – beyond accreditation being taken up. There is some data (e.g. from Queensland) that includes impact assessment in some activities.
- Funding
    - Project funding was seen to be lacking to deal with emerging issues/issue arising.
- Scope
    - IDO activities and the accreditation system is lacking in the area of business management.

Threats – what could impinge on the program

- The program is currently largely funded by HAL through a combination of pot levies and Commonwealth funding. HAL is currently going through a restructure and changes in their approach to RD&E funding which could have implications for continuing the program in its current form beyond this project phase.
- The State organisations also put funding towards the program which is matched dollar for dollar through the Government funding model. Should the program be changed to a national model (bypassing the states) then some states could withhold the extra funds and use it directly for their own use. [It was suggested that this was not as issue as fees charged for NIASA would continue to go to the national funding and still be available for matching funds.]
- If the larger nurseries do not feel that they are getting sufficient benefits from the program, they could influence the pot levy and funding of the program.
- Should purchasers (large retailers and government) not take accreditation into account in their purchasing policy, then nurseries could withdraw from accreditation and the system could collapse.

- Staff conditions in terms of low salaries and high demands/expectations could mean quick turnover/loss of staff and failure to attract the staff with the expertise needed for the job.
- The increasing demands from some nurseries treating the network as “the Ag department” can add pressures on staff and take them away from proactive priority activities.

Opportunities – what could maximize benefits

- The biggest opportunity is to establish a market advantage for accredited nurseries. This would require national negotiations with major retail outlets and government departments.
- Promoting existing benefits for the individual nurseries and the industry of going through the accreditation process and being certified could be increased – including using case studies and testimonials. This includes highlighted the advantages for inter-state trading.
- Stronger national coordination/management of IDO activities would ensure a more consistent approach and a stronger collaborative national network.
- Having a consistent approach to IDO qualifications, induction, training and support would strengthen the national network and impact of the IDOs.
- Increased use of newer electronic communication (twitter; whats app) would increase communication between IDOs and assist in communication with the larger growers.
- There is an opportunity to embed impact evaluation (effect on awareness, knowledge and skill gain, practice change/adoption and economic benefits) reporting as part of the project with supporting training and systems. This includes building on the economic models used in Queensland for other states.

CONCLUSIONS AND SCENARIOS

Performance at mid-term

Progress

This review has shown that the IDN project has overall directed its efforts at the required priorities and activities as per the project's AOP and contracts. The reporting system is a strength of the project which does provide evidence of these activities and the associated outputs. There are some concerns about the interpretation of the activities and the basis for reporting – but overall, effort is being put into those areas that relate to the investment intention.

The project has demonstrated that it is effectively meeting its contractual requirements and should be continued for this phase. Notwithstanding this, the review presents a need for structural change – including a stronger national role - to address shortcomings in the project.

Accreditation

There are problems with meeting some aspirational targets – particularly in relation to accredited businesses. It appears as if they have largely hit a ceiling based on the type and number of businesses who see value in this and are prepared to invest in changes needed and on-going auditing. It was clear that the barriers to significant increases in the adoption of accreditation are a problem that is beyond the capacity of individual IDOs to address. These largely relate to lack of commercial advantage – and some of the initial costs associated with meeting the standard.

The time and IDO resource taken with annual (and in Queensland case biennial) audits have a mixed response. Some see this as an ideal way to keep up engagement with interested businesses and facilitate on-going improvements, while, because of time limitations others have a "tick and flick" approach and see it taking away from other activities. There are also some concerns that different standards are being applied.

Most of the feedback from levy payers (most of whom were accredited) received in this review was positive about the accreditation process and system despite the lack of commercial drivers and were supportive of this as an IDN/IDO role.

Despite the lack of gains in accreditation and the barriers, it provides an excellent framework for a holistic approach to efficient nursery management, with the associated environmental and biosecurity benefits – and would appear to be a justified continued priority for the IDN network.

As noted in the body of the report, there is a lack of full industry statistics with respect to number of nurseries and their size with anecdotal data suggesting that the industry is consolidating and the average size of nurseries is getting bigger. It would be useful to look at the percentage of the industry accredited based on estimated size rather than just numbers of nurseries.

There would appear to be scope for a national audit approach – where IDOs are not required to be both the encourager and 'policeman' – and for their time to be freed up to promote wider participation in the program by other nurseries. This approach should be separated from the IDO project but run in parallel to ensure consistency in outcomes. This needs to be supported and complemented by a national approach to promoting the certification and its benefits to the major retailers and government users of nursery products – as well as to the nursery industry more broadly.

Boundaries

The biggest challenge from IDO based programs is the competing demands from the industry. Many IDO programs have only one or two IDOs nationally and must make choices about how their time and expertise will be used most effectively.

A 2013 mid-term review of the Mango Industry Capacity Building program, for example, concluded that:

> *There is a strong message that the position is "over-stretched" and there is a wide range of expectations of what is expected from the position. The low level of grower levies – and the loss of the vote to increase these – means that there are fewer financial and staffing resources than is optimal to service the national industry.*

A recommendation was that:

> *Priorities should focus on coordinating industry initiatives, strategic communication approaches, crop and market forecasting and industry benchmarking.*

This mid-term review of the Nursery Industry IDN, also reflects the increasing demand on IDO positions – even though there are a number of IDOs situated in the different states – and putting stress on the people resource. The annual demands of auditing takes significant time out of IDO programs in many states and there is an increasing expectation and demand on reactive services to solve problems. This was reflected in some of the "mixed" messages from the Levy payers who were interviewed (most of these were accredited – and hence more closely engaged with the network) who provided positive feedback on the need and role of the IDOs, but only average levels of satisfaction.

The Nursery IDN project does have clear areas of activities with priorities identified with associated funding – and directly linked to reporting. This is a great framework for organising IDO effort – but even within this, the demands can outstrip the resources. While recognising that there are different contexts and needs in different states – and these should be accounted for – the most value of the IDOs emerging in this review were in the areas of:

- **Accreditation**: as per the previous section, the focus on encouraging and supporting accreditation provides many individual and industry benefits and is an excellent focus for proactive development and extension activities.
- **Training (and facilitating grower groups)**: providing opportunity for exposure to new ideas, proven approaches and networking with other nursery owners – to stimulate thinking, adoption of improved practices and innovation. This can be done face to face and through the development of the e-platforms.
- **Information dissemination**: using a range of communication media to provide and maximise access to general and timely information relevant to nursery businesses. This should include channels such as twitter, SMS alerts and emails.

There has also been some excellent work in being involved in industry issues and negotiating inter-state trade – but it may be that this is best undertaken by a national representative with expertise in these areas.

It would appear that what should be avoided is the role of the IDO as a problem solver or doing reactive extension – that should remain a role for the private sector. The focus of an IDO, given the time and resource limitations, should be on proactive activities. These areas need to be scoped for future extension projects.

Governance

There are a number of issues that were raised around the issue of governance. The main tensions were around: National versus state appointment and management of IDOs; and the differences in state approaches to certification and auditing.

As indicated earlier, the tight contract delivery and reporting requirements provided a framework to ensure that IDN funds were largely spent on national priorities – despite some of the concerns. Most IDOs and State EOs appeared to be reasonably happy with this arrangement. The IDOs, however, very much appreciated the national coordination, opportunities for meeting and collaboration between states and the support from the national coordinator. There were some frustrations at the national level of the fragmentation and lack of consistency between states.

Options are to maintain the current system and strengthen the national coordination function or replace the State management approach with full national management of IDOs. Given the temporary loss of the national coordinator, the momentum gained under the current situation and the limited time left in the current phase, then it would seem that it is best to leave the current structural arrangements with efforts made to continue to provide a strong national coordination role.

In a subsequent phase, further changes could be made. This will be explored with the scenarios presented.

Reporting and Evaluation

Although the comprehensive reporting has provided some strong evidence that the program is focusing on industry priorities and fulfilling the AOP, it was also recognised that it lacked reporting on impact. This review did include some examples and Queensland case studies of where the activities of the program had measurable benefits to nurseries.

There is scope to reduce the level of activity reporting and increase the level of impact reporting. The latter, in the remaining time in the current phase, could focus on the use of narratives (structured examples of practice change and impact from individual businesses as a result of IDO intervention) and case studies (more detailed analysis of economic, environmental and/or social benefits). In future phases, a more comprehensive monitoring and evaluation strategy should be built in activities and their reporting.

Scenarios

Based on the findings in this review, the SWOT analysis and the discussion above, scenarios will be proposed for the next phase of the program. Suggestions for the final period of the current phase are outlined in the first instance.

Current phase

f. Maintain the current structural arrangements and reporting system. Provide examples of narratives and case studies, a proforma and encourage IDOs to provide these with their quarterly reports. [Provide examples in time for reporting for October-December quarter 2014].

g. Replace the national coordinator (the previous Research and Market Development Manager) position as soon as practical and maintain the regular national direct interaction with IDOs and provide opportunities for them to meet, network and learn from each other. [Minimum of 6 network sessions per year]

h. Emphasise the need to focus on being proactive – rather than reactive - in the areas of accreditation, training/groups and information provision. Promote the cost-benefit

of practices under the accreditation systems in relation to improved efficiencies and interstate marketing advantages. Take steps to adapt the Queensland calculators to other state contexts.

i. Undertake a training needs analysis for new staff and ensure that training support is provided to fill gaps and needs. [Complete by March 2015 – use a web survey directed at IDOs and state (C)EOs].

j. Review position descriptions, employment terms and salaries and take steps to have them consistent across states and commensurate with the required duties. [Complete by May 2015].

Subsequent phase

These scenarios are predicated by the recognition that the changes in HAL and possible changes in funding RD&E may impact on the model being able to be funded and put into place in the future.

Underpinning elements going forward

Key recommendations/principles for future phases **underpinning all scenarios** are:

- Having IDO positions on the ground to proactively work with nurseries to ensure that they are fully benefiting from relevant research, innovations and known best practices – and that the community benefits from healthy plants.
- Having a consistent approach to qualifications, appropriate salary and expectations – with a built in training/upskilling strategy/plan for IDOs.
- Maintaining the focus on the national *Nursery Production Farm Management System* program and using this as a holistic framework for improvement and change as well as supporting this by advocating at a national level for recognition of this by major customers of nurseries.
- Instituting a national audit approach – where audits are managed/undertaken from a national base – particularly for those with EcoHort and BioSecure HACCP accreditation. This could include a randomised approach to auditing NIASA accreditation and/or auditing based on risk profile.
- Having a monitoring, evaluation and reporting framework that includes capturing impact of IDO/IDN activities on practice changes and resulting impact on enterprises and the industry – and less on details on day-to-day activities.

Scenario 1 – National Management of IDOs with State Advisory Committees

Under this scenario:

- The national body – NGIA - directly appoints and manages the IDOs with the State Managers chairing a State Advisory Committee (providing advice on needs and feedback on effectiveness) and sitting on a National Liaison Group (regular phone conferences).
- IDO locations would be rationalised based on regional needs which could go across state borders – meaning that a single IDO would interact with more than one State Advisory Committee.
- IDOs would be responsible to the national manager for their work programs, outputs and reporting. State/regional variations would be based on the advice from the State Advisory Committees.
- The auditing would be managed centrally – with rationalisation where needed.
- The national management or a national technical officer would be responsible for dealing with national issues, interstate trading and export/import issues.

If the current funding arrangements continued into the next phase, then this would appear to be the preferred scenario in best building on the strengths of the current program and dealing with some of the issues raised.

Scenario 2 – States fully responsible for IDOs/RD&E – national complements state IDO delivery and delivers a national focused extension/information delivery program.

Under this scenario:

- State organisations continue to appoint and manage IDOs and direct their work plans in the light of state contexts and needs. They would report on their meeting of project milestones and contributions to national strategic plans to NGIA, but would not report on details of individual activities as such.
- States would focus on using the accreditation framework to work with existing and potential accredited nurseries to systematically assist the continuous improvement of nursery production.
- An industry communication and extension delivery program would be managed nationally to provide support and collaborate with state IDOs to build capacity and knowledge in priority areas.
- NGIA would liaise between the states and provide opportunities for collaboration and networking and provide training opportunities.
- The national body would be responsible for dealing with national issues (such as inter-state trading and quarantine requirements), overseeing the integrity of the *Nursery Production Farm Management System* and promoting the value of the accreditation to major retailers.

If changes to HAL funding means that the current type of IDO project does not attract funding, then states may elect to keep the extra funds (from membership fees and certification income) they currently contribute to the national program and fund IDOs as part of the State program.

Scenario 3 – Current structure continues

Under this scenario, the situation would remain under the current structure *with the inclusion of the underpinning elements recommended for going forward.*

Given the changes in funding and approach to R&D in the future, and some of the issues raised in this review, then it is unlikely that the current structure would be viable going into a new phase.

Implications of changes

If the matched funding in the future will be on a more focused strategic investment, then IDOs will need to be seen as a means to achieving the strategic objectives of the industry and providing a return on the investment to the industry. Impact monitoring and evaluation will become an even greater imperative.

It will be important to review these recommendations and scenarios when the future funding model is made clear.

RECOMMENDATIONS

4. The project has demonstrated that it is delivering on the contracted activities and should continue under the same structures and priorities for the remainder of this phase. It is suggested that this includes:
    a. An emphasis on systematically gathering narratives and case studies from nurseries impacted on by the IDN activities to complement current reporting requirements.
    b. Continuing to provide a national support role for the IDOs including providing opportunities for them to network and learn from each other at least six times per year.
    c. Emphasise the need to focus on being proactive – and to use the accreditation framework as a basis for a holistic approach to finding efficiencies and improving performance.
    d. Review the training needs for IDOs and provide identified training opportunities for staff.
    e. Review salaries and take steps to improve future consistency across states and commensurate with the required duties going forward.
5. Include the following underpinning elements for future phases of development and extension support for the industry:
    a. Having IDO positions on the ground to proactively work with nurseries to achieve industry priorities and investment objectives.
    b. Having a consistent approach to qualifications, appropriate salary and expectations – with a built in training/upskilling strategy for IDOs.
    c. Maintaining the focus on the national *Nursery Production Farm Management System* program and using this as a holistic framework for improvement and change as well as supporting this by advocating at a national level for recognition of this by major customers of nurseries.
    d. Instituting a national audit approach - particularly for those with EcoHort and BioSecure HACCP accreditation.
    e. Having a monitoring, evaluation and reporting framework that includes capturing impact of IDO/IDN activities on practice changes and resulting impact on enterprises and the industry.

6. Consider the scenarios presented in the light of any implications of the restructure and de-focusing within HAL. Should funding remain the same, then Scenario 1 should be implemented:
    a. Scenario 1: National IDO management with supporting State Committees
    b. Scenario 2: States responsible for IDOs/RD&E – national complements state IDO delivery and delivers a supporting national focused extension/information delivery program
    c. Scenario 3: Current structure and approach continuing – with incorporation of recommended underpinning elements.

APPENDICES

- **Full Summary of Levy Payer Interviews**
- **Nursery IDO – Reporting DATA**
- **Tables of Milestone data**
- **Progress against Annual Operating Plan**

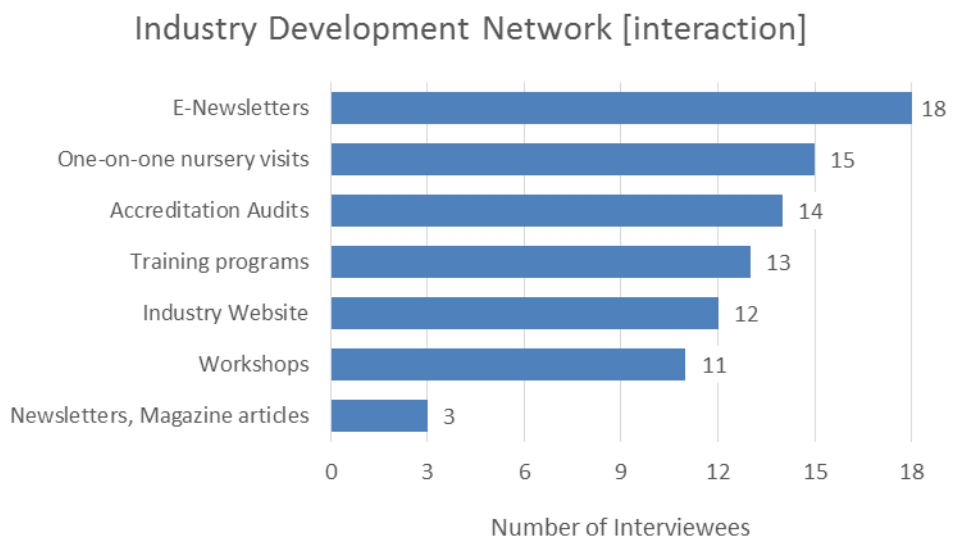
Full Summary of Levy Payer Interviews

Note: this summary is based on a relatively small sample of nurseries – most of whom were accredited - and as such is not a representative sample of the industry. In particular, links to state views are only on the basis that respondent(s) was/were located in that state – they are not to be seen as representative of all nurseries in that state.

Interaction with Industry Development Network and IDOs

Over the past two years, most interviewees (18 nurseries) acknowledged receiving regular electronic communication from the IDN, specifically email newsletters and notifications. Fifteen interviewees noted interaction to have included one-on-one nursery visits and fourteen had completed Accreditation Audits. Two of the NIASA Accredited nurseries had not complete an accreditation audit. One interviewees in Western Australia had pulled out of the accreditation process, noting they had gained no perceived credibility as a result of completing it and the other, a NSW nursery felt that overall they have gained little value for their $4000 membership payments. Thirteen interviewees noted participation in Industry Development training programs and eleven had attended workshops. Twelve interviewees had accessed the industry website.

Figure 3: Interaction with Industry Development Network



Understanding of Industry Development Network and IDOs role

In an effort to understand the overall perception of the role of the IDN and the IDOs, interviewees were asked to comment on their understanding of the program aims. Interviewees were generally aware of the IDN and IDO objectives to provide assistance and support, in the development of their nurseries. Eight interviewees commented on the value of this type of support and its impact on nurseries ability to deliver a *better quality product.* Six interviewees discussed the function of the IDN and IDOs in communicating information, best practices, technologies and government policy to nurseries. One respondent commented on the function of the IDN to gather technical information from businesses and the association, specifically *a two way flow of information for them to deliver information as well as gather details about biosecurity, economics and improved processes*. Interviewees also commented on the role the IDN and IDOs played with regards implementing and

monitoring the NGIA accreditation process¸ their function in terms of monitoring the *status of nursery standards* through one-on-one visits audits.

Table 1 [comment summary: understanding of IDN and IDO role]

Comment Theme	No. of Mentions
Business Development advice/ assistance/support	**8**
Management tool/ assistance in making businesses productive/ identifying improvements	
Improving quality/ helping businesses to improve practices	
Helping where there is a market failure that cannot be met by a commercial company	
Disseminating Research Information to Nursery businesses	**6**
Undertaking research projects to benefit the industry	
Facilitate uptake of knowledge and industry best practices and technologies/ training and organizing industry functions	
Communication of issues pertinent to the industry (government policy and changes regarding weeds and diseases)`	
Technical support between businesses and the association (two way flow of information)	
Accreditation Process	**6**
Put into effect strategies developed by the NGIA to monitor the accreditation process/ audits to check up on the status of nursery standards	
Helping to maintain certain standards	
Improvement of the Industry	**4**
Risk management - to standardise the level of professionalism in the industry	
Improving industry perceptions from an environmental perspective/ increase awareness of plants and green life in general	
Unsure about value	**4**
Question our $4000 membership and do not see the value/ not in line with our current objectives	
Accreditation gave our business zero credibility/ pulled out of the accreditation	
Bigger levy payers should be receiving greater benefit	
Collecting Pot Levy	**1**

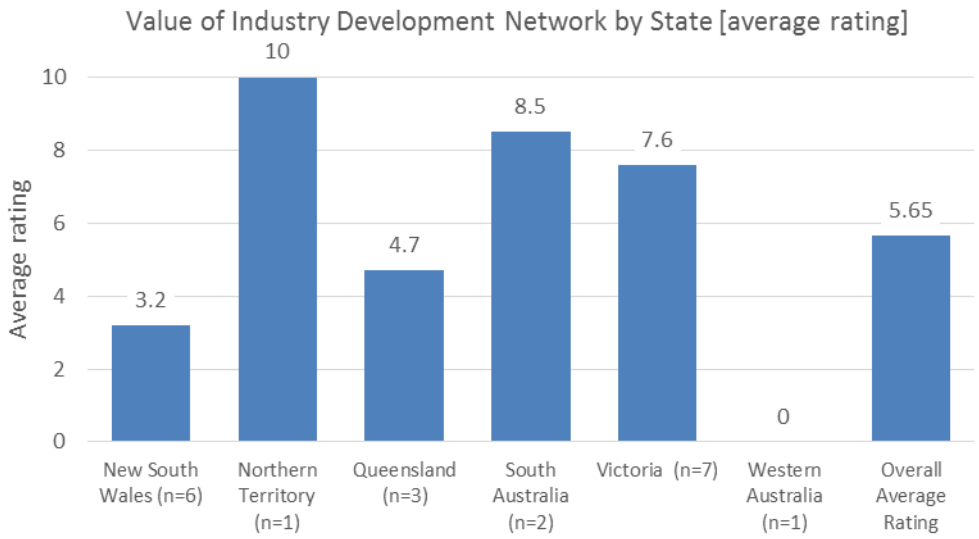
Industry Development Network

Value of Industry Development Network

Overall, interviewees assigned an average rating of 5.65 (n=20) with regards the value of the IDN and IDOs to the nursery industry [where 0 is not at all important and 10 is very important]. Figure 4 below shows the average rating of the value of the IDN and IDOs according to state. A commonly

mentioned theme with regards the value of the IDN and IDOs was that although the IDOs are available and willing to point nurseries in the right direction for information relevant to their businesses, and could offer some technical knowledge to the industry overall, larger production nurseries did not call on them as much. Interviewees commented they were more advanced in terms of industry knowledge and skills, with several commenting that the IDN service offering and IDOs do not offer a big impact and *could learn a lot from our business.* One respondent noted that those levy payers contributing the most in pot levies do not seem to receive the same value out of the system as new and smaller businesses do. Another expressed the view that it seems as though larger nurseries are *essentially funding and developing competition by providing all the funding for smaller nurseries.*

Figure 4: Value of IDN [average ratings]



The following respondent comments regarding the value of their interactions with the IDN and state IDOs are grouped according to state:

Northern Territory: only one respondent from NT participated and rated the value of the IDN and IDOs very highly (rating 10), noting that without the IDO they *would not be in business.*

South Australia: the two SA interviewees rated the IDN and IDOs as being important (average rating 8.5) with both commenting on the availability of the IDOs to help in pointing them in the right direction for information as well as maintaining a good level of communication. One respondent noted that although the IDO was upfront in terms of providing information, they felt that as a larger nursery in the area, the IDO may have used them *a model and source of information.*

Victoria: interviewees rated the value of the IDN and IDO as being somewhat important (average rating 7.6). Interviewees note that the IDOs are *available*, *positive*, they have gained *value from the training aspects and* receive support on different topics *across a range of business activities.* However five of the seven Victorian nurseries commented that although IDOs may be valuable to the nursery industry overall, their businesses had *limited interaction* with IDOs; *never contacted them* or *rarely need to call them*. Interviewees explained that as larger nurseries, operating in the industry for many years, they had *not benefited from the knowledge of IDOs,* felt they [IDOs] were *not useful in problem solving* and in some cases the nurseries felt they were *far more advanced* in terms of technical knowledge and skills. One respondent noted that as a larger production nursery they already have their own policies in place and *do not need outside assistance.*

Queensland: with an average rating of 4.7, two interviewees from Queensland agreed that the position of the IDO has important value to the nursery industry, with one commenting that they have

helped to bring attention to issues which may have otherwise been neglected *resulting in an impact on profitability*. However the skill set of the current IDOs was noted by another respondent as not matching nursery requirements and questioned the options of *retaining existing staff and retraining them or hiring new expertise*. One respondent commented they had been *ostracized from the industry* because of a disagreement with NGIQ and therefore had no interaction with the IDOs.

New South Wales: all NSW interviewees commented that they had received little value from the IDN and IDOs, assigning an average rating of 3.2 in terms of their value to the nursery industry. Three noted they had no contact with their IDOs. Others commented that although they may be valuable to industry overall, the IDN and IDOs offered little value to larger businesses and the view was expressed by one respondent that they seemed to be *targeting small to medium sized production nurseries*. One respondent commented that: *Their [IDOs] value is diminishing. The industry has evolved and the information and expertise needed is different to what it was 5 years ago. NIASA is ok but most businesses are already meeting these best practice standards.*

Western Australia: the one WA respondent contacted had pulled out of NIASA Accreditation noting they had gained no perceived credibility as a result of completing the program and during the period they were accredited had never had any contact with the IDOs and therefore rated their value to the industry as 0.

Program outcomes

With an average overall rating of 5.1 (n=20) [where 0 is not at all satisfied and 10 is very satisfied], interviewees were satisfied that the IDN and IDOs had met average expectations in terms of addressing expected program outcomes. Interviewees agreed that overall the IDN program had some merit in *achieving a standard within the industry through accreditation* and some commented on benefits achieved as a result of higher quality products and that the infrastructure and support provided through the program was helping them to achieve their own objectives. Victorian interviewees suggested that as an industry leader, their region already benefits from a strong *Grower Group* network and regular visits between nurseries in the region. NSW interviewees generally noted the program was lacking with one respondent commenting they had to pay external consultants for information they felt the IDOs should be able to assist with.

The following respondent comments regarding the success of the program in delivering outcomes and benefits to stakeholders are grouped according to state:

Northern Territory: the NT respondent rated the program success as being very satisfactory (rating 10), noting the program had helped their business to achieve *substantial benefits*, *increased profits by reducing losses* as a result of more reliable and higher quality products.

Victoria: interviewees agreed that overall the IDN and IDOs are valuable to the industry (average rating 6.3) and that without the IDOs there would be *a definite gap in learning*. They are noted to be contributing valuable information about pests and diseases, running workshops educating growers and keeping the industry up to date on new technologies. One respondent commented that by getting as many nurseries involved is important because then all growers can be confident they are *buying from businesses that are up to standard.* Interviewees went on to note that Victoria is *a leader in the industry* with a continuous focus on improvements. The industry Grower Group is noted to be *strong* in the region. One respondent suggested that for more impact to be achieved, the NGIA should target their communications more effectively to different businesses in their member database. Some noted they are well ahead of the industry and that information delivered had little value.

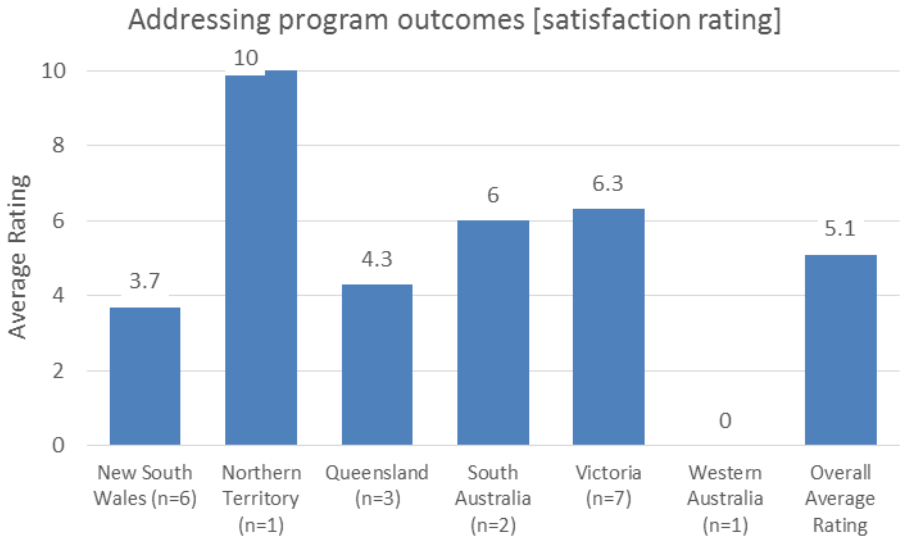
South Australia: with an average rating of 6, SA interviewees were somewhat satisfied the program was addressing expected outcomes. One commented that they are *a bit isolated* and not in a position to interact with the program as much as they would like to.

Queensland: respondent comments differed on the success of the program (average rating 4.3) with one respondent commenting that the promotion of the industry is *not working well.* Another felt the network was valuable and was providing the infrastructure for them moving forwards in the industry. Another commented that with programs such as NGIA, nurseries have to *get in and do the work … to get the results.*

New South Wales: with an average rating of 3.7, NSW interviewees generally felt the program had been unsuccessful in addressing expected outcomes. Interviewees suggested the process of accreditation should be reviewed because it has no market benefit and they have been unsuccessful in resolving export quarantine issues. Another commented that their business had little confidence in the IDN and would rather pay for advice from other consultants to gain information and feedback on issues which IDOs should be equipped to handle.

Western Australia: the WA respondent contacted had pulled out of the NIASA Accreditation noting they had gained no perceived credibility as a result of completing it and during the period they were accredited had never had any contact with the IDOs and therefore rated the program success as 0.

Figure 5: Satisfaction with IDN/IDO program outcomes [average ratings]



Examples of program benefits

Interviewees provided examples of how their involvement in the IDN had provided benefits to their business. Improvements to water efficiencies including irrigation practices and water treatment had resulted in improved profitability for some (4 mentions). Others noted improvements to their overall business operations and bottom line in terms of operational and strategic changes including improvements to potting mix, disposal of unsaleable products, management of recyclable containers and the impacts of *reliable and higher quality crops* (4 mentions). Interviewees also discussed the value of the IDOs in *putting programs together* and their contribution to the success of the

accreditation process (4 mentions). One respondent noted they f*ully endorse the NIASA accreditation and the technical expertise gained from this.* The importance of improvements to border crossing protocols was mentioned, with particular reference to Myrtle rust issues and the protocols introduced to manage this.

Table 2 [comment summary: program benefits]

Comment Theme	No. of Mentions
Improved Water Efficiencies	**4**
Water savings/ water treatments / irrigation efficiencies (type and pressure) / better use and adoption of water use to suit requirements	
Training for junior staff in terms of water management	
Improvements to business operations	**4**
Improvements in potting mix	
Disposal of unsaleable products	
Hygiene practices and recycling plastic containers instead of sending them to landfill	
Increased profits by reducing losses through more reliable and higher quality crops	
No Benefits/ No extra support or credibility	**4**
NIASA Accreditation	**4**
Overall learning and knowledge/ technical expertise gained	
Improved Border Crossing Protocols	**3**
Myrtle rust affected the whole industry and NGIA brought in specific protocols to benefit all	
Policies on interstate movement of plants	

NGIA Project

Impact of NGIA project on business operations

Interviewees were asked to comment on the success of the NGIA program, what they thought was working particularly well or had assisted and supported them in making changes to their business operations. The value of the IDOs was mentioned by interviewees in terms of their overall *positive influence in the industry* (5 mentions) and the fact they *provide a public face for the industry*. Some mentioned the value they and the industry overall could gain in terms of access to knowledge, best management practices, general guidance and one-on-one contact but others commented that the although the IDOs had benefits to the industry overall, they offer *no real value to [their] business*.

Some interviewees (3 mentions) appreciated the accreditation process, the guidelines and standards set and as one commented the value in having *someone with fresh eyes to walk through [the] business.* The view was expressed by one respondent that the difference between nurseries with and without accreditation is *noticeable*. One respondent discussed the impact of EcoHort certification on their business, noting it has helped them make structural changes and that they are *arguably using less pesticides [as a result of] a more integrated pest management approach*. The benefits of

certification and accreditation when putting in tenders to government or large public organisations was noted as being a valuable point of difference, however this respondent explained their nursery had not yet won a tender based on these credentials.

Other areas where interviewees noted specific impacts resulting from their involvement in the NGIA program included improvements to water plants and recycling systems, successful legislation on the movement of plants interstate and the fact that state NGI associations were beneficial in giving the industry a voice in government issues.

Several interviewees commented on the NGIA 202020 vision, noting its success and that councils and large organisations are increasing green spaces which would ultimately result in selling more plants and the growth of the whole nursery industry.

Table 3 [comment summary: program success]

Comment Theme	No. of Mentions
IDOs	**5**
IDOs have a positive influence in the industry and provide a public face for the industry	
Constant access to industry Best Practices/ providing problem solving assistance/ one-on-one contact/ support network for advice/ guidance and support appreciated	
Accreditation Process	**3**
Self-assurance and guidelines to work towards/ setting standards	
EcoHort: structural changes/less pesticides/ integrated pest management approach	
Promote NIASA and EcoHort credentials when submitting tenders	
202020 Vision	**2**
Supporting businesses direction	
Councils and people are increasing green spaces and this will result in selling more plants	
Water Improvements	**1**
Water improvement plants and water recycling	
Legislation	
Legislation regarding plant movement interstate	
State Contact	**1**
NGIV is first point of contact pushing the politics and talking to government	

Limitations and suggested areas of change

In terms of the future of the NGIA Industry Development Network program or similar programs, several interviewees commented on the value of the role of the IDOs (9 mentions). It was suggested by some interviewees that although the existing network of IDOs are important to the industry in terms of providing training, updates and one-on-one site visits, a higher level of *training and access to technical expertise* is needed and the IDOs are not fulfilling this *skills gap*. One respondent suggested employing IDOs who are agronomists with experience in plants. Alternatively, some interviewees commented that more IDOs of the *same caliber* are needed, noting the current IDO network is *run off*

their feet. Several expressed the view that IDOs should be working to *enhance the overall vision of the industry* and to sustain the viability of the industry by working as facilitators and *building a better network between growers.*

Several interviewees commented on a *disconnect* between the national NGIA body and the state associations (7 mentions). Criticism of the existing structure included the fact that IDOs are supposed to implement national strategies (including accreditation), however they are *not reporting to the national body*; the NGIA do not know what is happening on the ground and *take funds and spend it where they think it should be going* and IDOs seem to be implementing what *state CEOs want instead of what is important to the industry.* One respondent felt that the further away from the association, *the more difficult it becomes to manage and coordination issues*. Interviewees also commented that as national and state bodies are not coordinated, this is resulting in a lack of understanding (of the national association), of what it *takes to run a modern nursery.*

In terms of change interviewees suggested: a review of nurseries actual needs and where the industry is currently; a review of the pot levy and the return on investment to larger nurseries (4 mentions); dissemination of industry research findings, particularly industry statistics relevant to each region (3 mentions) and business and financial training to ensure all are up to the same standards (2 mentions).

Table 4 [comment summary: program limitations and suggestions for improvement]

Comment Theme	No. of Mentions
IDOs	**8**
Need more technical expertise (e.g. pest and diseases or nutrition and potting management)/ Employ agronomists as IDOs/ They need to enhance the vision of the industry/ Skills gap in terms of what the IDOs can help with/ Need a higher level of training and access to technical expertise	4
IDOs run off their feet and we need more of them/ Benefit from more one-on-one visits and onsite training/ more IDOs of the same calibre	3
Should rather be viewed as facilitators and building a better network between growers/ need to focus on developing the industry and not individual nurseries	1
National versus State Structure	**7**
No benefit from a national body other than gaining dollar for dollar funding	
NGIA do not know what is happening on the ground/ National and Victorian bodies seem to run on different planets/ Industry association is not in line with the day to day running of a production nursery	
Accountabilities need to be clear in terms of the IDOs reporting to state government	
Very well managed program at the state level/ National body is not in line with the state bodies	
Review Levy Structure	**4**
Need to take away the pot levy to ensure profitability	
Paying a lot of money and they are collected large amounts of funding, however little to no return/ Authorize larger payers more say in how funds are spent	
Dissemination of R&D findings	**3**
Findings never make their way to the nursery level/ more access to research outcomes	
More efficient and reducing duplication between states and national bodies/ Share more resources between the states and federally.	

Business Operations	2
Business education on financial setups and pitfalls	

Industry Resources

In the absence of the network project and the IDOs, interviewees noted those organisations and resources they would rely on for industry specific updates and technical information. Some noted that there are not many resources available providing applicable information at the level of the NGIA program and that the Industry Development Network is their primary source of industry information (4 mentions). Seven interviewees indicated the use of the internet (Google, YouTube and online publications), conducting their *own research* and using their *own initiative*. Industry suppliers (4 mentions) were noted by some as a source of information about genetics and other plant related issues (pests and chemical management). Several commented on the value of overseas journals/publications and research, monitoring overseas trends, interaction with overseas universities and personal overseas travel. One respondent explained they bring in new plant varieties from overseas and conduct their own trials to *gauge their sustainability and how they will benefit [their] business.*

Interviewees also noted the value of government bodies (3 mentions) as a source of information (*particularly for border crossing issues*), however would prefer a local association to avoid direct contact with *bureaucratic systems.* Industry consultants and associations were also noted (3 mentions) as useful sources of information.

Table 5 [comment summary: industry resources]

Comment Theme	No. of Mentions
Own Research via Internet	**7**
Google/ YouTube/ accessing publications and resource directly	
Industry Suppliers	**4**
Pest and chemical suppliers	
Overseas Resources	**4**
Information and interaction with the US and US universities	
European businesses (trade journals)	
Overseas Travel	
NGIA/ IDOs/ NIASA	**4**
NGIQ is our main point of contact/ IDOs are best conduit for the flow of information/ No one available in region except Grant Dalwood	
NIASA - appreciate their support and technical input	
Industry: Associations, Commercial & Consultants	**3**
Landscape Architects & Designers Association/ Australian Wetlands Consulting water specialists	
Direct to the market (e.g. software requirements or marketing)	
Government Bodies	**3**

State based resources/ Government bodies, particularly for border crossing issues	
Limited help from DPIF (NT)	
Competitors	**2**
Other members of the industry to get / Local industry and counterparts	

Other comments

Asked to provide any additional comments about the NGIA program, some interviewees took the opportunity to praise its overall achievements. One respondent (Northern Territory) commented that without this project, *production and profitability would inevitably slip for most businesses and we would lose the industries intellectual property and knowledge [IDOs].* It was noted that the overall objective was to grow the *nursery industry pie* and several felt the NGIA program was working towards this, particularly with the 202020 vision. Interviewees commented they are overall satisfied with the direction of the program and are *happy to continue* their support. One respondent (Northern Territory) commented that they would even *pay more to ensure the network is continued and maintained*.

One respondent (Victoria) made further comment on the future role of IDOs in the program, expressing the view that the *idea of the IDO network was valuable in the past* but suggested that moving forward a marketing/PR role would be more valuable to the industry, commenting that IDOs should be *encouraging professionalism and attendance rather than trying to address technical information requirements.*

Several (Victoria) discussed the industry *pot levy* with one commenting on the need to *show the relevant of [NGIA] activities and tie this back to the levy payers.* Another suggested a nursery industry fund versus a horticulture fund, where the nursery industry would have more *access and control* over development and use of their levies instead of the majority of funds going towards other larger industries (e.g. plums and avocados).

One respondent (New South Wales) noted the need to review the accreditation process suggesting: there is *nothing about the process which provides us with any market benefit to our customers*. *The logic is lost if it is not manifesting in what customers believe or see as beneficial to them. They need to look at the competencies of the business in a larger context and market this to customers.*

Nursery IDO – Reporting DATA

1. Accreditation & Certification

Chart 1:

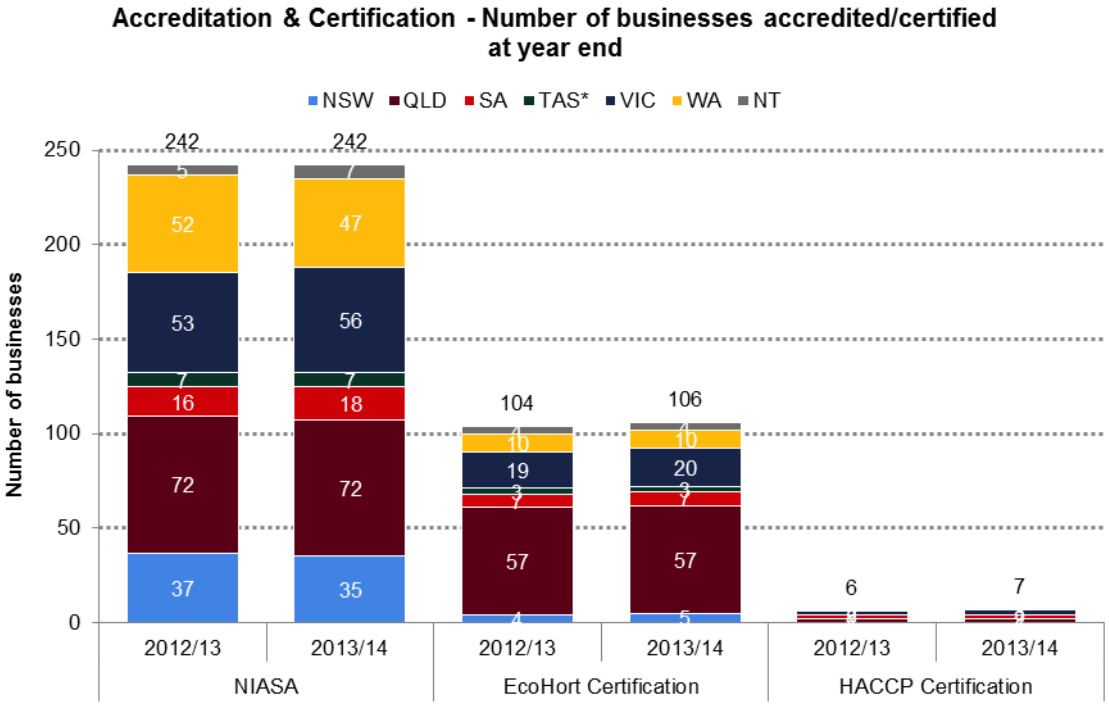
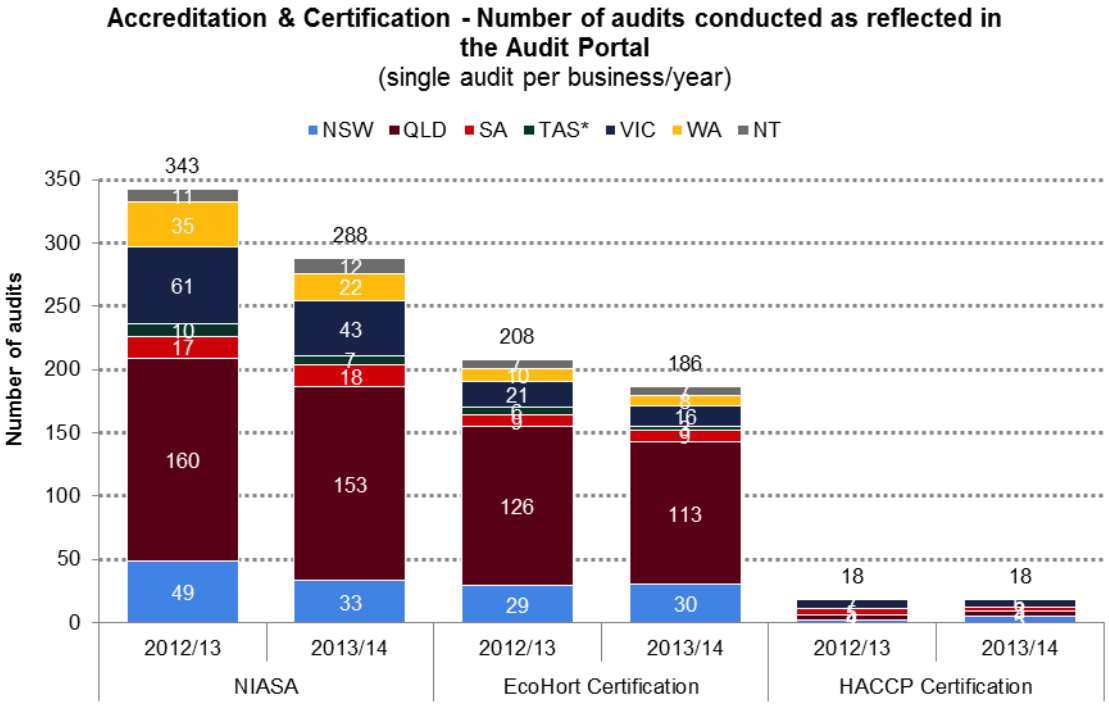


Chart 2:



2. Training & Recognition

Chart 3:

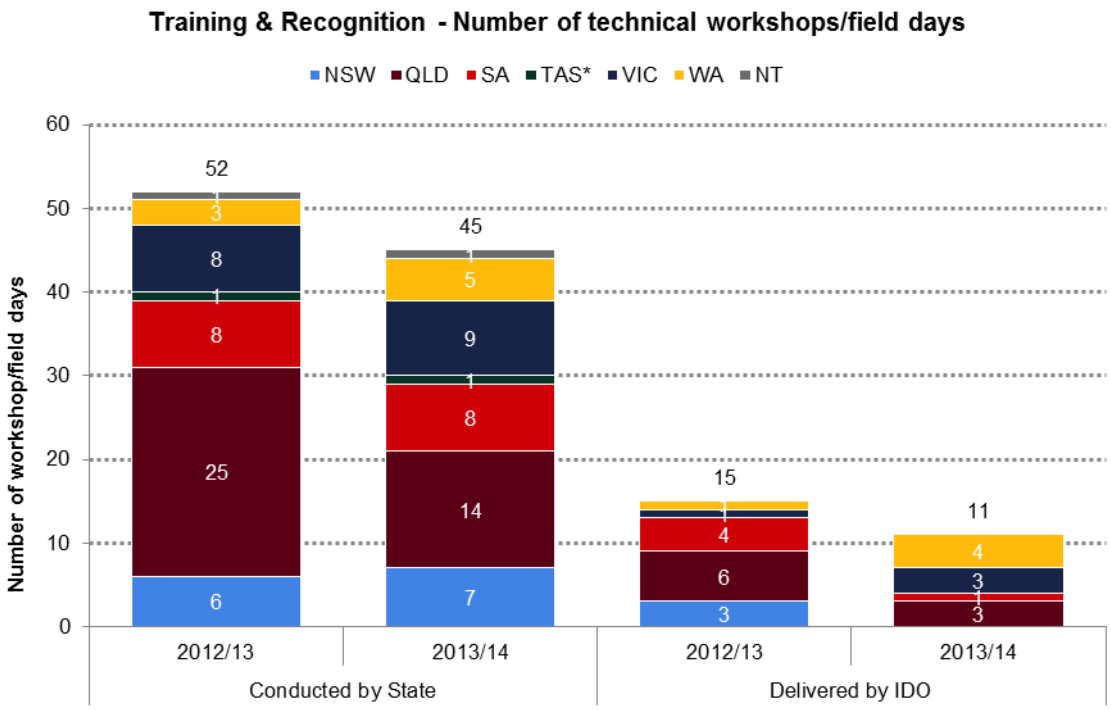
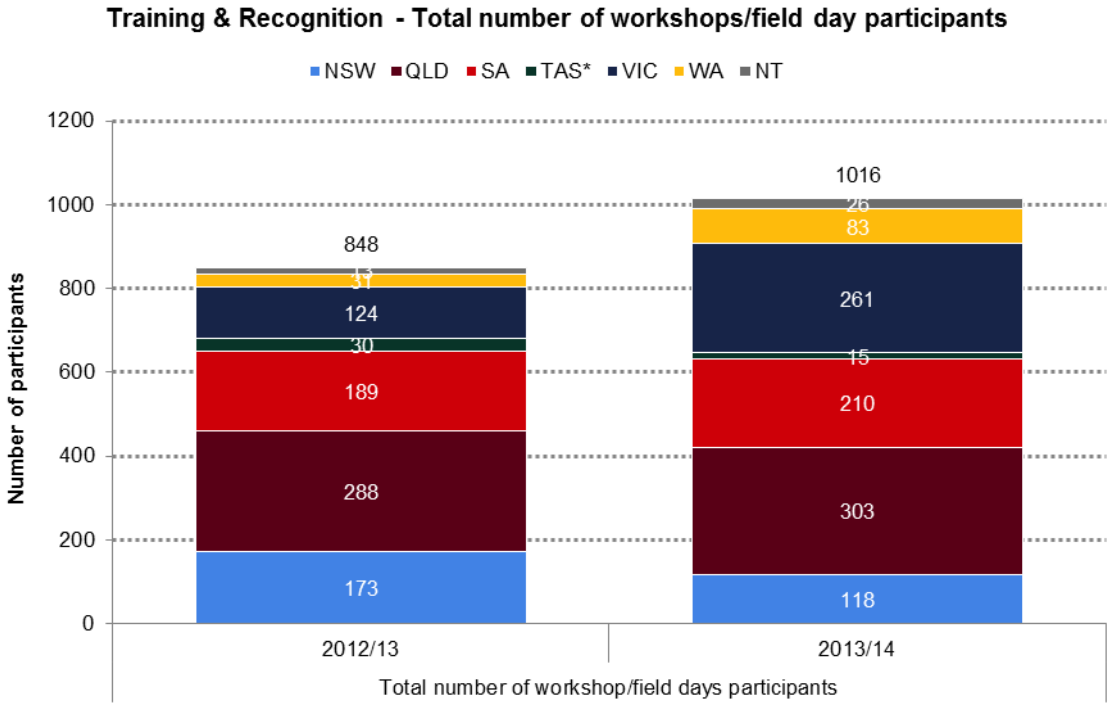
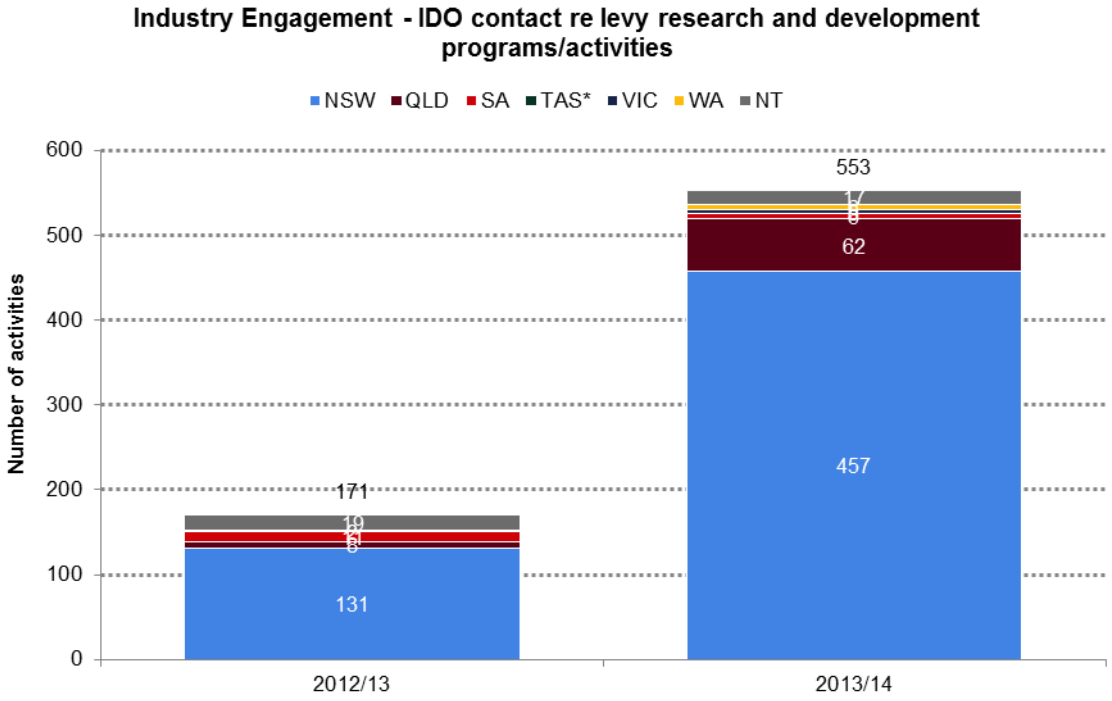


Chart 4:



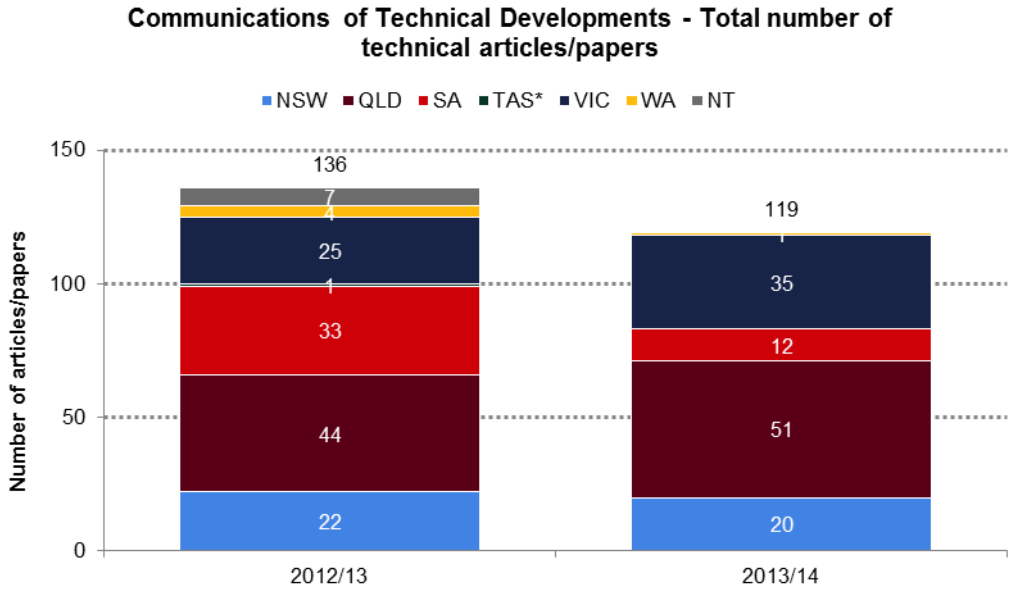
3. Industry Engagement

Chart 5:



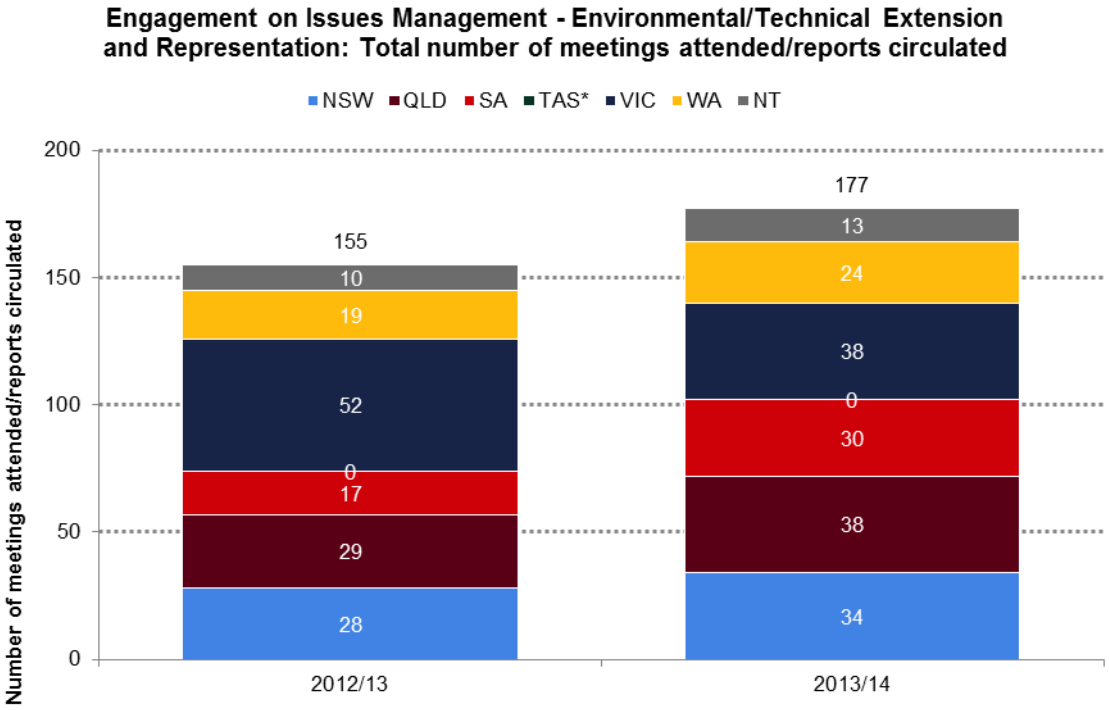
4. Communications of Technical Developments

Chart 6:



5. Engagement on Issues Management

Chart 7:



Tables of Milestone Data

Appendix Table 1: Accreditation and certification

	NSW		QLD		SA		TAS*		VIC		WA		NT		NATIONAL	
	13	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**
NIASA Accreditation																
Number of NIASA Businesses (start)	39	37	79	72	16	16	5	7	59	53	53	52	6	6	**257**	**243**
Number of NIASA Businesses (end)	37	35	72	72	16	18	7	7	53	56	52	47	5	7	**242**	**242**
Net increase/decrease	-2	-2	-7	0	0	2	2	0	-6	3	-1	-5	-1	1	**-15**	**-1**
Businesses engaged with NIASA not yet accredited	13	12	150	150	12	12	10	9	12	7	5	6	4	4	**206**	**200**
Number of audits conducted (single audit per business/year) as reflected in the Audit Portal	49	33	160	153	17	18	10	7	61	43	35	22	11	12	**343**	**288**
Number of NIASA promotional activities	20	39	8	16	18	8		0	75	68	10	25	2	4	**133**	**160**
Number of SACC/TOG/NACC Meetings - maximum 6 per annum	5	6	6	5	7	6	2	0	6	3	3	1	4	1	**33**	**22**
EcoHort Certification																
Number of NIASA Businesses EcoHort Certified (start)	4	4	61	57	6	7	3	3	19	19	7	10	4	4	**104**	**104**
Number of NIASA Businesses EcoHort Certified (end)	4	5	57	57	7	7	3	3	19	20	10	10	4	4	**104**	**106**
Net increase/decrease	0	1	-4	0	1	0	0	0	0	1	3	0	0	0	**0**	**2**
Businesses engaged with EcoHort not yet certified but are NIASA	10	10	14	16	4	5	2	2	2	3	7	6	1	2	**40**	**44**
Businesses engaged with EcoHort not certifiable (i.e. not NIASA)	2	2	150	150	9	9	0	0	0	0	1	1	1	0	**163**	**162**

Number of audits conducted (based on single audit per business/year) as reflected in the Audit Portal	29	30	126	113	9	9	6	3	21	16	10	8	7	7	**208**	**186**
Number of EcoHort promotional activities	15	11	6	15	4	1	0	0	47	23	9	25	1	0	**82**	**75**
BioSecure HACCP Certification																
Number of NIASA Businesses BioSecure *HACCP* Certified (start)	0	0	2	2	2	2	0	0	0	2	0	0	0	0	**4**	**6**
Number of NIASA Businesses BioSecure *HACCP* Certified (end)	0	0	2	2	2	2	0	0	2	3	0	0	0	0	**6**	**7**
Net increase/decrease	0	0	0	0	0	0	0	0	2	1	0	0	0	0	**2**	**1**
Businesses engaged with BioSecure *HACCP* not yet certified but are NIASA	2	6	70	70	6	6	2	2	3	3	3	4	4	4	**90**	**95**
Businesses engaged with BioSecure *HACCP* not certifiable (i.e. not NIASA)	2	1	150	150	0	0	0	0	0	1	0	0	0	0	**152**	**152**
Number of audits conducted (based on single audit per business/year) as reflected in the Audit Portal	2	5	4	4	5	3	0	0	7	6	0	0	0	0	**18**	**18**
Number of BioSecure *HACCP* promotional activities	10	11	9	15	6	1	0	0	12	61	6	20	0	1	**43**	**109**

Appendix Table 2: Training and recognition

	NSW		QLD		SA		TAS*		VIC		WA		NT		NATIONAL	
	13	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**
Number of technical workshops/field days conducted by State	6	7	25	14	8	8	1	1	8	9	3	5	1	1	**52**	**45**
Number of technical workshops/field days delivered by IDO	3	0	6	3	4	1	0	0	1	3	1	4	0	0	**15**	**11**
Total number of workshop/field days participants	173	118	288	303	189	210	30	15	124	261	31	83	13	26	**848**	**1016**
Number of technical workshops/field days planned for next reporting period	19	16	20	18	13	9	0	0	9	26	4	7	1	0	**66**	**76**
Number of technical workshops/field days planned where funding will be requested	14	12	20	18	12	2	0	0	0	3	4	7	1	0	**51**	**42**

Appendix Table 3: Industry engagement

	NSW		QLD		SA		TAS*		VIC		WA		NT		NATIONAL	
	13	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**
Program Adoption and Extension																
IDO contact with engaged (member) retailer	137	114	12	11	89	93	14	9	60	94	64	28	74	73	**450**	**422**
IDO contact with non-engaged (non-member) retailer	28	69	2	1	36	32	1	0	81	4	42	48	5	1	**195**	**155**
IDO contact with engaged (member) production, greenlife	385	593	527	391	19	78	16	13	601	249	41	91	116	74	**1705**	**1489**

market or growing media business																
IDO contact with non-engaged (non-member) production, greenlife market or growing media business	30	125	321	171	10	9	1	0	105	37	14	40	134	52	**615**	**434**
IDO contact re supply chain improvements	71	26	2	6	6	6	3	0	2	7	12	16	5	3	**101**	**64**
IDO contact re levy research and development programs/activities	131	457	8	62	11	6	0	0	2	5	0	6	19	17	**171**	**553**
IDO contact re Urban Forest/Plant Life Balance positioning	16	31	6	12	4	16	0	0	8	15	5	45	23	25	**62**	**144**
NGI National Conference & Exhibition																
Number of promotional activities conducted - 70% pre & 30% post event	1	11	0	5	0	26	0	0	1	10	2	57	0	6	**4**	**115**
IDO presentation re levy research and development programs/activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Number of delegates from State attending	0	107	0	23	0	6	0	0	0	40	0	12	0	4	**0**	**192**
Nursery & Garden Industry Awards																
Number of promotional activities conducted - 70% pre & 30% post entries closing	13	11	3	2	2	21	0	0	2	14	3	61	3	12	**26**	**121**
Number of production nursery/allied entrants	40	7	0	2	0	2	0	4	0	13	0	6	0	5	**40**	**39**
Special Interest Group Involvement/Facilitation																
Production/Growing Media	9	16	1	2	2	2	0	0	13	21	2	3	0	0	**27**	**44**
NextGen	3	1	0	1	0	0	0	0	8	14	2	3	0	0	**13**	**19**
Other events and national levy initiatives organised:	4	7	0	2	1	1	0	0	0	5	5	2	15	3	**25**	**20**

Appendix Table 4: Communication of technical developments

	NSW		QLD		SA		TAS*		VIC		WA		NT		NATIONAL	
	13	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**
Number of technical articles written and published for state publications	19	15	42	47	28	9	0	0	12	27	2	0	7	0	**110**	**98**
Number of technical articles written and published for horticultural media	2	2	1	3	4	2	1	0	11	7	2	1	0	0	**21**	**15**
Number of technical Nursery Papers written and published as per the Nursery Paper Schedule	1	3	1	1	1	1	0	0	2	1	0	0	0	0	**5**	**6**
NGI State Conference & Exhibition																
State NGI Conference or Exhibition (Yes or No)	No	Yes	Yes	Yes	No	No	No	No	Yes	No	Yes	No	No	Yes	**3**	**3**
IDO presentation re levy research and development programs/activities	0	1	3	1	0	0	0	0	0	0	0	0	0	0	**3**	**2**
Number of delegates attending	0	70	31	0	0	0	0	0	220	0	72	0	0	0	**323**	**70**

Appendix Table 5: Engagement on issues management

	NSW		QLD		SA		TAS*		VIC		WA		NT		NATIONAL	
	13	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**	**13**	**14**
Environmental/Technical Extension and Representation - State and Local Govt																
Water issues meeting attendance and reports circulated	5	11	4	10	5	12	0	0	0	3	8	10	3	2	**25**	**48**
Natural Resource Management meeting attendance and reports circulated	6	6	8	8	1	6	0	0	8	11	2	4	0	0	**25**	**35**
Invasive Plants meeting attendance and reports circulated	4	8	1	1	3	7	0	0	1	0	0	0	3	2	**12**	**18**
Biosecurity/Quarantine/Market Access meeting attendance and reports circulated	13	8	11	17	5	5	0	0	43	18	3	5	2	6	**77**	**59**
Climate Change/Urban Forest meeting attendance and reports circulated	0	1	5	2	3	0	*0*	0	0	6	6	5	2	3	**16**	**17**
Environmental/Technical Extension and Representation - Federal Govt/National																
Number of meetings/events attended where NGI is represented (max 12 per annum)	0	0	10	26	1	2	0	0	4	7	0	0	0	2	**15**	**37**
Number of conferences/event attended (delegate/speaker) where NGI is represented - prior approval required	0	0	3	0	1	0	0	0	0	2	0	0	0	0	**4**	**2**

Full

Progress against Annual Operating Plan

All figures included in tables below are national totals against AOP 1 September 2013- 1 September 2014 (**Note:** figures may not include activities post July 2014)

1. Industry Accreditation Programs- Management and Auditing

Action	KPI	Who	Timing	Progress
Undertake NIASA audits annually	Audits conducted with 5% growth in NIASA Accredited Businesses from June 30 2013	IDO Network	September 2014	343 audits completed 2012/13 288 audits completed 2013/14 16% decline from 2013 - 2014
Undertake EcoHort audits annually	Audits conducted with 10% growth in EcoHort Certified Businesses from June 30 2013	IDO Network	September 2014	208 audits completed 2012/13 186 audits completed 2013/14 10.6% decline from 2013 - 2014
Undertake BioSecure HACCP Audits	Audits conducted with 10% growth in BioSecure HACCP Certified Businesses from June 30 2013	IDO Network	September 2014	18 audits completed 2012/13 18 audits completed 2013/14 0% growth from 2013 - 2014
Develop and Promote benefits of NIASA, EcoHort and BioSecure HACCP programs under Nursery Production Farm Management System (FMS) to industry	NIASA, EcoHort and BioSecure HACCP Audits conducted with 10% growth in engaged businesses involved in the program	IDO Network	September 2014	**NIASA Accredited** 242 businesses accredited 2012/13 242 businesses accredited 2013/14 0% growth from 2013 - 2014 **EcoHort Certification** 104 businesses accredited 2012/13 106 businesses accredited 2013/14 2% growth from 2013 - 2014 **BioSecure HACCAP Certification** 6 businesses accredited 2012/13 7 businesses accredited 2013/14 16.6% growth from 2013 - 2014
Document and Promote benefits of NIASA, EcoHort and BioSecure HACCP programs under Nursery Production Farm Management System (FMS) to stakeholders	Develop market drivers for Nursery Production FMS in terms of market access and preferred suppliers	IDO Network, NGIs and NGIA	Ongoing	**NIASA** 133 NIASA Promotional activities 2013 160 NIASA Promotional activities 2014 **EcoHort** 82 EcoHort Promotional activities 2013 75 EcoHort Promotional activities 2014 **BioSecure HICAPPS**

				43 BioSecure Promotional activities 2013 109 BioSecure Promotional activities 2014
Implement and constantly improve industry accreditation schemes recognising the evolving customer base	Undertake annual National Accreditation and Certification Committee (NACC) meetings	IDO Network, NACC and NGIA	Ongoing	**NIASA SACC/TOG/NACC meetings** Total 33 meetings during 2013 Total 22 meetings during 2013
Document and implement best management practices for Nursery Production FMS	Undertake annual State Accreditation and Certification Committee (SACC) meetings	IDO Network, SAAC and NGIA	Ongoing	
Strengthen current industry on-farm programs to underpin rapid response to issues including biosecurity	Undertake review of the Nursery Production FMS through SACC and NACC annually	IDO Network, SACC and NGIA	Ongoing	

2. Improved technology adoption via training workshops

Action	KPI	Who	Timing	Progress
Develop training program incorporating national technical training packages and industry tools and resources	State or Territory training plans developed	NGIs	January 2014	66 technical workshops/field days planned for next reporting period (2013) 76 technical workshops/field days planned for next reporting period (2014)
Inform industry participants on technical issues including risk management, biosecurity and supply chain logistics	5% growth in national workshop/field day participants from June 30 2013	IDO Network and NGIs	Ongoing	848 workshop/field day participants 2012/13 1016 workshop/field day participants 2013/14 19.8% growth from 2013 - 2014
Enhance adoption of best industry practice across the production sector	5 % increase in businesses engaged with NIASA, EcoHort and BioSecure HACCP from June 30 2013	IDO Network and NGIs	Ongoing	**IDO contact with engaged (member) retailer** 450 members engaged nationally 2013 422 members engaged nationally 2014 6.2% decline from 2013 - 2014 **IDO contact with non-engaged (non-member) retailer** 195 non-members engaged nationally 2013 155 non-members engaged nationally 2014 20.5% decline from 2013 - 2014
Improve extension and adoption of industry best practice through comprehensive on-farm based extension strategies	5% increase in number of field day held nationally from June 30 2013	IDO Network and NGIs	Ongoing	**State NGI Technical workshops/field days** 52 workshops/field days conducted 2012/13 45 workshops/field days conducted 2013/14 13.5% decline from 2013 - 2014

				IDO Technical workshops/field days 15 workshops/field days conducted 2012/13 11 workshops/field days conducted 2013/14 26.7% decline from 2013 - 2014
Regularly update extension material to reflect current best industry practice	Review all extension programs annually for relevance through NAAC and Environment Committee	IDO Network, NAAC, Environment Committee and NGIA	November 2014	
Enable easy access of information about best management practice to those unable to participate in formal extension activities	Identify opportunities for e-learning and digital training programs/resources	IDO Network and NGIA	Ongoing	

3. Engagement with industry to facilitate program adoption and issues awareness

Action	KPI	Who	Timing	Progress
Encourage participation in nursery and garden industry awards and communicate benefits to stakeholders	5% increase in number of production/allied entrants nationally from 2013 numbers	IDO Network, NGIs and NGIA	February 2014	**Number of production nursery/allied entrants** 40 entrants during 2013 39 entrants during 2014 2.5% decline from 2013 - 2014 **Number of promotional activities conducted (70% pre & 30% post entries closing)** 26 activities during 2013 121 activities during 2014
Encourage participation in national conference and communicate levy research and development programs/activities to stakeholders	5% increase in number of production/allied conference delegates nationally from 2013 numbers	IDO Network, NGIs and NGIA	Ongoing	**Number of delegates from State attending** 0 attendees during 2013 192 attendees during 2014 Increase from 2013 - 2014 **Number of promotional activities conducted (70% pre & 30% post event)** 4 activities during 2013 115 activities during 2014

Develop strong and effective partnerships with industry in activities that exemplify and strengthen unity	Year-on-year increase in relationship satisfaction among industry participants	IDO Network, NGIs and NGIA	Ongoing	**IDO contact with production, greenlife market or growing media business** ***Engaged (member) contact*** 1705 activities during 2013 1489 activities during 2014 ***Non-engaged (non-member) contact*** 615 activities during 2013 434 activities during 2014
Position the industry as a leader in establishing climate change solutions through vegetation, urban forests and plant life balance positioning	Year on year increase in stakeholder support for the industry and its benefits manifested in increased sales	IDO Network, NGIs and NGIA	Ongoing	
Annually participate in identifying priorities for research investment for the following year	Provide NGIA with a research priorities and rankings annually	IDO Network	August 2014	
Promote the benefits of levy research and development programs/activities	Year-on-year increase in relationship satisfaction among industry participants	IDO Network and NGIs	Ongoing	**IDO Contact regarding levy R&D programs and activities** 174 activities during 2012/13 553 activities during 2013/14
Work together with research and other service providers to foster greater recognition of the industry	Identify stakeholders and seek external funding opportunities	IDO Network, NGIs and NGIA	Ongoing	
Strengthen the benefits derived in value chain interactions	Strengthen each stage of the value chain to maximises profit to all sectors	IDO Network and NGIs	Ongoing	**IDO contact re: supply chain improvements** 101 activities during 2013 64 activities during 2014 **IDO contact re: Urban Forest/Plant Life Balance positioning** 62 activities during 2013 144 activities during 2014
Provide regular forums/conferences for cross industry interaction to ensure effective relationships between sectors	Minimum of one forum/conference held in each jurisdiction annually	IDO Network and NGIs	Ongoing	**Production/Growing Media involvement/activities** 27 activities 2013 44 activities 2014 **Next Gen Involvement/activities** 13 activities 2013 19 activities 2014

				Other events and national levy initiatives 25 organised events/initiatives 2013 20 organised events/initiatives 2014

4. Communications of Technical Developments

Action	KPI	Who	Timing	Progress
Communicate the benefits of levy research and development programs/activities via the Nursery Paper program	One Nursery Paper written per IDO annually	IDO Network	Ongoing	**Number of technical Nursery Papers written and published as per the Nursery Paper Schedule** Total of 5 written during 2013 Total of 6 written during 2014
Collect and communicate to industry, information on production and market trends	Communications developed in all jurisdictions on production and market trends	IDO Network and NGI's	Ongoing	**National** 136 technical articles/papers written 2012/13 119 technical articles/papers written 2013/14 **State Publications** 110 technical articles written and published for state publications 2013 98 technical articles written and published for state publications 2014
Participate in the extension of industry policy positions on issues that impact the industry and its surrounding Communities including biosecurity and urban forests	Communicate the outcomes of industry policy positions	IDO Network and NGIs	Ongoing	**Biosecurity/Quarantine/Market Access meeting attendance and reports circulated** Total 77 during 2013 Total 59 during 2014 **Climate Change/Urban Forest meeting attendance and reports circulated** Total 16 during 2013 Total 17 during 2014
Provide forums/conferences for regular cross industry interaction to ensure effective relationships between sectors	Minimum of one forum/conference held in each jurisdiction annually	IDO Network and NGIs	Ongoing	**Number of State NGI Conferences or Exhibitions** Total of 3 during 2013 Total of 3 during 2014
Encourage participation in State or Territory conference and communicate levy research and development programs/activities to stakeholders	5% increase in number of production/allied conference delegates from previous conference	IDO Network and NGIs	Ongoing	**Number of delegated attending** Total of 323 attendees during 2013 Total of 70 attendees during 2014 78% decline from 2013 - 2014

				Number of IDO presentation re levy research and development programs/activities Total of 3 during 2013 Total of 2 during 2014
Communicate industry contributions to regional economies and the environment	Develop and communicate industry contributions to regional economies	IDO Network and NGIs	Ongoing	**Number of technical nursery papers written and published for horticulture media** Total of 5 papers written during 2013 Total of 6 papers written during 2013

5. Engagement on Issues Management

Action	KPI	Who	Timing	Progress
Enhance industry resilience to biosecurity risks and market access by working closely with state government agencies	Develop partnerships with government agencies to biosecurity risks and demonstrate engagement through provision of meeting report summaries	IDO Network and NGIs	Ongoing	**Biosecurity/Quarantine/Market Access meeting attendance and reports circulated** Total 77 during 2013 Total 59 during 2014
Work with state government, NGOs and other industries to identify and facilitate support for nursery and garden solutions to a range of social and environmental issues	Develop partnerships with government, NGOs and other industries and demonstrate engagement through provision of meeting report summaries	IDO Network and NGIs	Ongoing	**Water issues meeting attendance and reports circulated** Total 25 during 2013 Total 48 during 2014 **Natural Resource Management meeting attendance and reports circulated** Total 25 during 2013 Total 35 during 2014 **Invasive Plants meeting attendance and reports circulated** Total 12 during 2013 Total 18 during 2014 **Climate Change/Urban Forest meeting attendance and reports circulated** Total 16 during 2013 Total 17 during 2014

Identify and negotiate partnerships that can investigate new opportunities for industry in research, development and extension activities	Develop partnerships with third parties	IDO Network and NGIs	Ongoing	
Encourage the uptake of green infrastructure strategies particularly in commercial projects	Advocate the benefits of green infrastructure to key stakeholders	IDO Network and NGIs	Ongoing	
Promote the benefits of industry R&D investment as a means of increasing voluntary and other contributions towards future R&D activities	Develop and communicate industry R&D investment to key influencers and stakeholders	IDO Network and NGIs	Ongoing	**Number of technical workshops/field days planned where funding will be requested** 51 activities planned during 2013 42 activities planned during 2014
Publicise the defence mechanisms of the Nursery Production FMS to stakeholders and key influencers	Develop and communicate the benefits of the Nursery Production FMS to stakeholders and key influencers	IDO Network and NGIs	Ongoing	**Environmental/Technical extension and representation** 155 meetings attended/reports circulated 2012/13 177 meetings attended/reports circulated 2013/14 **Environmental/Technical extension and representation (where NGI is represented)** ***Meetings and events*** 15 meetings attended during 2013 37 meetings attended during 2013 ***Conferences and events (delegate/speaker)*** 4 events during 2013 2 events during 2013

6. Program Governance and Administration

Action	KPI	Who	Timing	Progress
Develop Program Reference Group to oversee all aspects of NY12006 Industry Development Network for the Nursery Industry 2013-2016	Members selected and terms of Reference developed. Meetings held.	NGIA and IAC	September 2013	A Project Reference Group (PRG) established and comprised: • NGIA CEO and NGIA Technical Manager • HAL Program Manager responsible for Industry Development • 3-4 key industry stakeholders. Met for the first time via teleconference May 2013
IDO Lead Auditing Training (non EMS)	Undertake Lead Auditor Training	NGIA and IDO	November 2013	Professional development (ICA Auditor Training) achieved (October 2013)
Update IDO Induction Guide and professional development program	IDO Induction Guide Developed	NGIA, IDO Network and NACC	February 2013	Comprehensive Induction Guide for Australian IDOs, prepared by Dr Anthony Kachenko January 2013.
Invest in professional development including Australia Pacific Extension Network (APEN) Membership	Membership for IDO network	NGIA and IDO Network	September 2013	APEN membership renewed for 12 months (2012-2013).

Appendix 3

Workshop examples conducted by the Nursery Industry Development Network

DETAILS

DATE	Thursday 15 October, 2015	TIME	8.30am – 5.00pm
VENUE	Brothers Leagues Club 99 Anderson St, Manunda QLD 4870		

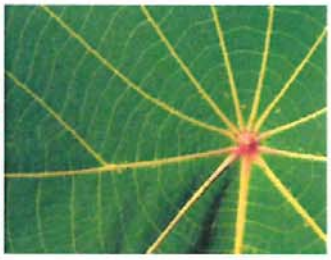
Nursery & Garden Industry Queensland

An Invitation to all members of the nursery industry

AusChem Certificate

Location: Cairns





Become certified or renew your certificate in the application and storage of agricultural chemicals (formerly known as ChemCert).

Employers and employees who apply agrochemicals require certification. The AusChem Certificate is valid for 5 years and requires updating upon expiry.

- Fulfil your duty of care under Workplace Health & Safety
- Learn the legal requirements in regard to chemicals
- Learn about chemical labels and SDS
- Learn the most efficient means of chemical application
- Learn to calibrate & maintain spray equipment

Please return form ASAP. Upon registration NGIQ will mail to each participant a Learning Guide and Assessment booklet. Compulsory pre-course assessments need to be completed by you.

Bookings are taken on a first come first served basis. Please fax/email this form to Nursery & Garden Industry Queensland office on fax 07 3277 7109 or info@ngiq.asn.au Immediate payment is required to reserve your booking.

Training delivered by John McDonald – Nursery Industry Development Manager.

Registered Training Organisation – Horticultural Training P/L #5370

Contact NGIQ if course materials have not been received one week prior to course date

DETAILS

DATE	Thursday 29 October, 2015	TIME	9:30am - 4:00pm
VENUE	Colmslie Hotel – Wynuum Rd, Morningside. Brisbane Qld		

Nursery & Garden Industry Queensland

Nursery Production Crop Nutrition Seminar

29 October 2015

In collaboration with Horticulture Innovation Australia (HIA) NGIQ, with support from Garden City Plastics, will deliver a seminar aimed at providing growers with information and knowledge on effective crop nutrition.

Two of the most experienced and recognised Australian experts in this field will deliver various components over the course of the day. **Mr Geoff Cresswell** will cover the vital aspects of growing media and nutrient relationships plus fertiliser formulations, trace elements and product longevity. **Mr Keith Bodman** will address plant nutrient requirements, water quality, fertiliser application including CRF and liquid formulations in production systems.

Major emphasis will be placed on improving skills for optimal crop nutrition in container production.

A number of aspects will be covered in this seminar including:

- Water quality and crop nutrition
- Growing media components and their influence on crop nutrition
- Crop nutrition through liquid formulations:
  - Fertigation types
  - Foliar fertiliser systems
  - Effects on growing media
  - Feeding rates and recipes
  - Leaching & NPK ratios
- Controlled Release Fertilisers (CRFs):
  - Important considerations when using CRFs
  - Using CRFs when staging crops (re-potting)
  - Growing media considerations and interaction with specific ingredients
  - Additives to the growing media enhancing nutrient availability
  - Environmental impacts

The seminar will be delivered by NGIQ and is co-funded by Horticulture Innovation Australia using national Nursery Industry levy and matched funds from the Australian Government.

Note: An information pack containing technical notes relating to crop nutrition in production nurseries will be provided to all seminar participants.

Horticulture Innovation Australia

Appendix 4

Example articles written by the Nursery Industry Development Network

Chemical record keeping

By David Reid

Chemical use records can be useful in your approach to manage pest and disease including tracking use patterns in your nursery and also assist with resistance management, by noting chemical Modes of Action. Records can also be used to monitor the effectiveness of particular chemicals against particular nursery problems, and protecting yourself against claims of spray drift.

As well as being an opportunity to record your chemical usage for later monitoring and preparedness activities, in Victoria it is a legal requirement to keep them. Within 48 hours of their use you are legally required to make specific records for agricultural chemicals and keep these records for two years.

When you do record chemical usage it can be in the format that most suits you; hand written or digital. As long as it is legible and accurate and stored onsite, you are fulfilling the recording requirements. It's useful to keep this record close to your chemical storage. Accurate record keeping demonstrates to compliance officers that you have exhibited a duty of care during chemical application when noting wind speeds and application rates. If you are accredited with a government QA program that involves chemical usage, it's useful to mark these records to differentiate them from general nursery spray records with a highlighter or different pen, to make auditing quick and painless.

When recording the usage of chemical in your nursery you must include:

- the product trade name: due to variations and similarities of products, be specific when recording its full name.
- the date the product was used.
- the application rate of the product: this should be written as it is on the label e.g. amount used per unit area.
- the crop/commodity that was treated or the situation in which the product was applied: it is useful to record the host you are treating for future reference to aid in pest preparedness.
- the extent of use (the area of land treated, or the volume of water treated, or the volume of stored commodity treated, or the weight of the commodity treated): e.g. 1ha or spot spraying over 1ha or 200kg of media.
- the location where the product was used: this should be recorded in such a way as to be sufficient for someone not familiar with the location. Splitting your nursery into numbered areas and linking this to a corresponding map attached to your spray diary is useful.
- the name and address of the applicator/supervisor
- the name and address of the person for whom the application was carried out: generally used when a licensed spray contractor for a fee.

- If you are using chemicals outside **(excludes manually operated, hand-held devices)**, the following record must be made:
  - » the wind speed and direction at the time of application: this is to be recorded at the time and place of application i.e. your nursery and should be in the format of 5km/h SW.

If you intend on using poison baits for pest animal control such as Pindone then two additional records required are:

- » the date the baiting period began; and
- » the date the baiting period ended.

Further information

Record keeping templates are available from the NGIV.

David Reid,
Nursery Industry Development Officer
T: 03 9576 0599 | **E:** davidl@ngiv.com.au

Agricultural Chemical User Permits

ACUPs restrict the use of specific chemicals to those people that have been suitably trained in their safe use. Users of 'restricted use' or 'restricted supply' chemicals must hold one of these 10 year permits if they intend on using it or must be supervised by someone holding an ACUP.

Use of these chemicals must be in accordance with the label. Off label use of these chemicals is not permitted unless the user holds a specific permit issued by DEDJTR (prev. DEPI). These chemicals include:

- » Schedule 7 Poisons (Dangerous Poisons) or contain atrazine, metham sodium or ester formulations of MCPA, 2,4-D, 2,4-DB or triclopyr)
- » 1080 (sodium fluoroacetate)
- » gaseous methyl bromide, chloropicrin or phosphine for fumigation
- » contain pindone concentrate (greater than 2.5%) for the preparation of poison baits.

Contact NGIV for more information on AgVet users courses or course information.

Once you have completed a training course download an ACUP application from the DEDJTR.

A number of Victorian nursery businesses are already reaping the rewards of gaining NIASA accreditation and EcoHort certification. A few of these businesses are well on their way to becoming BioSecure.

NIASA-Accredited, EcoHort certified & BioSecure *HACCP* nurseries

Dream-time Wholesale Nursery
Mansfield's Propagation Nursery
Proteaflora Nursery

NIASA-Accredited media suppliers

Debco Pty Ltd
Spotswood Holdings Pty Ltd
Van Schaik's Bio-Gro Pty Ltd

NIASA-Accredited Greenlife Market

Din San Nursery & Trade Market

NIASA-Accredited nurseries

All-Grow Wholesale Nursery Pty Ltd
Bangalay Tubestock
Binz Nursery
Boomaroo Nurseries
Brite Plants
Chislett Developments Pty Ltd
City of Greater Bendigo
Combined Nursery Sales
Coolwyn Nurseries Pty Ltd
Department of Agriculture, Fisheries and Forestry
Eucacia Nursery
Grandiflora Nurseries Pty Ltd
Haar's Nursery
Hortwide Services
Karinga Nursery Pty Ltd
Larkman Nurseries Pty Ltd
Majestic Selections/Young Plants
Oasis Horticulture Pty Ltd – Cranbourne
Orth's Nursery
Plant Growers Australia
Post Office Farm Nursery
Purtill's Nursery Pty Ltd
Royal Botanic Gardens – Melbourne
Smith and Gordon Nursery
Southern Advanced Plants
Sunshine Nurseries
Swinburne University of Technology
Tavistock Nursery
Victorian Citrus Farms Pty Ltd
Yalkuri Trees

NIASA-Accredited & EcoHort certified nurseries

Ball Australia
Biemond Nurseries Pty Ltd
Carawah Nursery
Clyde Plant Nursery
Conifer Gardens Nursery
The Diggers Club
Evergreen Nursery
Faceys Nursery Pty Ltd
Greenhills Propagation Nursery
Humphris Nursery Pty Ltd
ParksWide – City of Whitehorse
Royal Botanic Gardens – Cranbourne
Scotsburn Nurseries
Speciality Trees
TGA Australia
Van Schaik's Bio-Gro Pty Ltd
Wardales Nurseries
Warner's Nurseries Pty Ltd

Weed Management in Container Nurseries

By Michael Danelon, B. App. Sc. (Hort.) CNP,
Nursery Industry Development Officer, NGINA

Weed management is not only about weed control but providing a clean framework for efficient pest and disease management in nurseries and ensuring profits are not eroded!

Of all the common issues within a production nursery and commercial growing media manufacturing facilities, weed control would have to be one of the most important elements in maintaining plant quality and minimizing the long term management strategies required to prevent and address production efficiencies.

The presence of weeds, and by the definition in this article *"a weed is a plant out of place"* can detract from both the appearance and profitability of a nursery.

The old saying of prevention is better than the cure seems to be aptly relevant to container nurseries. Stopping weeds entering a site is your best defence followed by stopping weeds from flowering and setting seeds.

Have you stopped to consider how much weeds (present in containers, roadways, blowing in from neighbours) are actually costing your business?

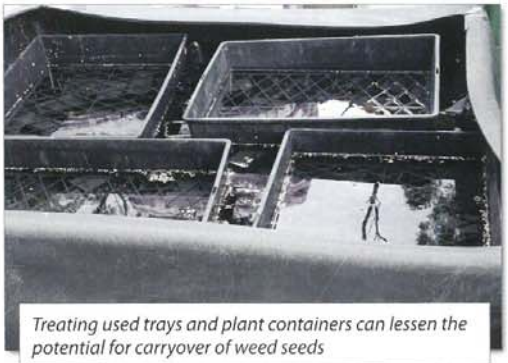
When considering how to treat a weed problem you should consider the following:

- Type of weed – annual or perennial
- Cool or warm season - Is the weed seasonal
- Grass or broadleaf weed
- Easy to physically remove
- Is the problem isolated or throughout the nursery
- Seed viability
- Time to produce a seed/reproductivity maturity
- Best control methods and timing
  - Physical, cultural, chemical.

In many instances chemical control can be the cheapest, fastest and most effective method to manage weeds – IT SHOULD NOT BE THE ONLY ONE. Application can be complicated due to the variety and type of plants grown and the application equipment used when endeavouring

Empty production areas like this allow "aggressive" knockdown and preemergent herbicide to be used with low risk to subsequent crops.

Mulching on top of pots may cost in labour and materials but can offer a barrier to germination of weed seeds



Treating used trays and plant containers can lessen the potential for carryover of weed seeds

to control weeds in the numerous nursery situations as permitted according to the chemical label. An example of this is restrictions of certain herbicides to outdoor areas and/or phytotoxicity associated with certain herbicides to certain plants.

The reliance on chemicals within a containerized nursery may have immediate and long term impacts which could be devastating for a nursery. Herbicides do have a significant place when used strategically – pick the right product/s and apply optimally is the take home message. READ THE LABEL AND SAFETY DATA SHEET and use this as the guide to application success.

Herbicides come in a range of different formulations (eg, liquids, granules, powders) whilst the mode of action of herbicides will govern how the product will work when used according to the intention of the user. Not all products control all weeds – grasses versus broadleaf.

In some instances pre-emergent and post emergent (knockdown) herbicides can be used in combination and this is often a sensible approach (subject to plant tolerance and application uniformity) – provided there are no issues associated with residual or herbicide persistence which can be transferred across to the nursery crops.

The pre-emergents provide a barrier for susceptible germinating seeds – once the barrier is broken (physical) or active residual herbicide concentrate is diluted the weed pressure can return.

Research has shown the intensive reliance on a particular herbicide/group/mode of action may lead to resistance of weeds. Essentially this is similar to the issue of pest and/or disease resistance developing as a small number of individuals can be naturally resistant to pesticides. With repeated use of a pesticide from within a same mode of action group, these populations develop and become dominant types resisting the action of the pesticide.

According to Grains Research and Development Corporation (GRDC) and CropLife Australia, nationally there is evidence of confirmed resistance to 34 grass and broadleaf weed species. More worrying is that there is resistance to 11 different herbicides groups – after all there are only 19 herbicide chemical groups! Fortunately from a literature review there seems to be no evidence of the main pre-emergent herbicides used in a potted situation. According to CropLife Australia there is evidence of resistance to glyphosate across a range of grasses – in particular rye grass in broad acre farming situations.

Rotating herbicide groups should be considered and there are certainly plenty of herbicide options for growers to utilize in an integrated weed management strategy.

In summary some of the things you should consider are:

- Reference to specific guidelines for each herbicide mode of action group.
- Rotate herbicide mode of action groups within and across years.
- Keep accurate records of your herbicide applications on a block basis.
- Read the herbicide product label and literature carefully and follow the instructions.
- Identify and monitor your surviving weed populations and check for resistant weeds on your farm.
- Use additional cultural weed control techniques to reduce seed banks, e.g. steaming, cultivation, delayed sowing, mulching pots, hygiene (manual weeding, removing top of potting mix on plugs and discarding appropriately) and collection of weed seed at harvest.
- Start at the beginning and go through the whole production system – propagation/bought, growing media, pots (if reuse or storage), production areas, neighbours, older stock, drains, stock plant areas.

Ideally - do not introduce or spread weeds as 1 bad year can require many more to address and importantly do not spread your weeds to your customers.

Happy weed managing!

Tree Stock for Landscape Use AS2303 2015

Des Boorman, B. App. Sc.(Hort. Tech.)
Nursery Industry Development Officer – Tweed-Brunswick & Northern Rivers

"The objective of this Standard is to provide those who grow, specify or purchase tree stock for landscape use with criteria enabling quality tree stock to be identified for landscape use, regardless of the production method used to grow them."

In October 2013 I reported on the development of the Draft National Standard *'Tree Stock for landscape Use'*. On the2nd April 2015, the Standard was released to Industry, key stakeholders and end users as the guiding document for quality tree stock.

All tree growers are strongly encouraged to obtain a copy of the standard from SAI Global and familiarise themselves with its contents.

It is likely that the current document will be reviewed at some time so all tree growers should purchase a copy and review it for themselves to allow feedback for future editions. Once growers start to use the Standard in the production process it will be much easier to undertake adjustments to accurately deliver the intent of the Standard. As Standards are active documents, amendments are possible at any time to account for evolutionary changes in knowledge and technology. This and regular reviews are an important process in any Standards' existence as it ensures currency and progress.

Keeping Standards up-to-date

"Australian Standards® are living documents that reflect progress in science, technology and systems.

To maintain their currency, all Standards are periodically reviewed, and new editions are published.

Between editions, amendments may be issued."

How do I get a copy of the Standard?

In an ever increasing trend with websites the steps to find the Standard are non-intuitive and almost impossible to follow, unless you know its name or code number for a specific search, but the Standard can be found under: SAI Global – Search publications – Search for Standards – Browse subject - Wood Technology – Wood Technology Processes – Tree Standard for Landscape Use;

Or you can use this link to find it more easily: http://infostore.saiglobal.com/store/results2.aspx?searchType=subject&publisher=AS&doctype=All&status=Current&sfld1=ICS%20Code&sval1=79.020

What Impact will the Standard have on Growers?

Some Local and State Government agencies have already started using the draft guidelines of the Standard prior to its acceptance so I expect that this use will increase dramatically now that the Standard has been officially released. Government agencies are increasingly trying to mitigate risk in all aspects of their operation so this is a great opportunity for them so expect to see an enthusiastic uptake of this Standard across the sector.

While you may not agree with all the contents/directives of the Standard, it is important that you familiarise yourself with it as you may need to comply with it in the near future and some of the specifications require growing trees from an early stage to achieve compliance.

While the Standard may not be seen as perfect by some, it is a great attempt to standardise tree production criteria in Australia and offer genuine direction to growers regarding quality expectations. Being an Australian Standard will give the document more rigor than existing guidelines and will also allow formal recognition of conformance.

As a Standard, the users of this Standard will be audited by a 3rd party (independent auditing) and this will ensure consistent interpretation of the Standard. The use of standardised test documentation methods should assist growers in the production of quality trees.

Important Points regarding interpretation of Standard Conditions

The important thing to remember when reading any Standard is that; **Shall** statements are mandatory (must) and **Should** statements are optional or advisory.

There is strong focus on root and trunk quality as these two factors are critical in long term performance of landscape trees.

Roots

While it may seem like old news, the increasing reliance on potting machines to drive efficiency gains has resulted in a less than ideal trend in root quality over recent years. This Standard should hopefully change focus for some tree growers at least back to what matters most in the production process, a quality root system.

To continue the theme, roots are the most important aspect of any plant and yet due to the *'out of sight out of mind'* ideology few growers actually focus on them and truly understand just how important they are to a quality plant.

Roots are the *'intestines'* of a plant gathering essential

water and nutrients for photosynthesis and growth and development, plus interacting with soil/media biota that may either improve plant performance or be detrimental i.e. pathogenic.

At the last NGIA conference in Sydney, delegates were treated to a great presentation on the Blue Sky Thinking tour at the University of Western Sydney, Richmond. Research is being undertaken on the role of mycorrhizae for drought proofing cotton crops. The cotton industry has realised the importance of mycorrhizae for water uptake in plants but also acknowledge that mycorrhizae and a few other beneficial fungi are responsible for the fortification of the cotton plants immunity to pest and disease attack. That's right the mycorrhizae produce compounds that enable the cotton plant to better fight off pest and diseases.

How does this link back to the Standard you ask? Healthy roots are critical to plant performance plain and simple! If we produce inferior quality root systems plants are even more likely to be susceptible to pest and disease attack as the plant isn't able to access the ideal nourishment.

Poor root development in a small container has resulted in this root system with poor tree stability

Radial horizontal but not uniformly spaced surface roots on this grafted tree appear to be an issue, however roots beneath the media are creating a solid tree with great stability.

Trunks

The other focus for the standard is to try and quantify requirements for secondary thickening or taper. This is critical as secondary thickening is what gives trees the ability to support themselves and produce healthy trunk characteristics.

Over-staking has also become prevalent in the industry where incorrect and excessive staking leads to poor plant stability and a lack of secondary thickening. This also has a flow on effect to the root system where the same secondary thickening processes contribute to root thickening, tree stability and longevity.

Over-staked tree with limited secondary thickening and root stability issues

Tree balance is also a factor in tree performance in the landscape and many trees will show major divergence from a balanced canopy and this can often lead to major issues. The picture below is of a planting less than 3 months old and yet this white cedar tree is completely unbalanced and already encroaching into the carpark area. This tree will create more issues as it matures with branches possibly breaking car windows and creating hazards for pedestrians.

A free standing advanced tree showing secondary thickening and a well developed canopy.

Poorly grown tree with numerous faults that will surely result in reduced performance and early failure

The Standard

So where does this leave us with the Australian Standard *"Tree Stock for Landscape Use AS 2303 2015"*? This Standard tries to broadly encompass the issues discussed above as well as set out some easy to follow tests and measurements that will allow rapid assessment of trees to be undertaken to ensure that they are to *'Standard'*.

The Standard will allow growers to consistently assess and provide a guarantee of a certain quality that will ensure the best possible quality of tree is provided that will give maximum opportunity of establishment. Obviously there are still other factors *"ex-growers gate"* that are out of the growers' control that also often lead to transplant failure, some of which need addressing too!

As an industry we need to embrace the Standard, participate in the ongoing review to ensure the Standard is technically proficient and maintains currency with industry best practice!

Industry needs to embrace this Standard to guarantee certain levels of quality and strive to set additional standards within other greenlife types too as have many other countries.

Why you ask...to give purchasers of greenlife stock the confidence that it is to a certain standard and allow growers to differentiate themselves in the marketplace from backyard style growers. It is only through broadly increased confidence that the perception of quality will improve and growers will be able to start to realise acceptable returns for their product.

Northern Rivers Nursery & Garden Industry Golf Day

Come out & enjoy a wonderful morning of golf in the picturesque Teven Valley.

Why not treat your staff to:

- 18 holes of golf
- A delicious BBQ lunch
- Lots of prizes

NGINA
Northern Rivers Regional Group

TEVEN VALLEY 9 HOLE GOLF COURSE

WHEN Friday 26th June, 2015

WHERE Teven Valley Golf Course

TIME 7.30am for 8am

PRICE $40.00 per person

Please bring along a gift for prizes.
If you would like to sponsor drinks or lunch, please contact Warwick Fletcher

Book Now...

Please contact Warwick on **T.** 6686 7321 **M.** 0414 867321 with your number of players or **E.** wf@coastguardnetting.com

Golf in paradise at Teven Valley Golf Course

Minor Use Permits for Nursery Stock (non-food) as at March 2015

The following table identifies the Minor Use Permits (MUP's) that are currently in place for nursery stock (non-food). The industry is advised to make sure you download the appropriate MUP from the Technical Information Library (NGIQ Website) or the APVMA website at www.apvma.gov.au click onto Permits and then Search Permits and type in the permit number at the PER window. It is a legal requirement to have a copy of the current Minor Use Permit on hand if using the product under the authority of each relevant permit.

Minor Use Permits are available on the NGIQ website at:
http://www.ngiq.asn.au/technical-information/?category=9

Table 1: List of Minor Use Permits issued since 2008 for Nursery Stock (non-food):

Permit #	Product Trade Name	Pest(s) / Disease(s)
PER11546	Acrobat + Mancozeb Fungicide	Downy mildew, Alternaria, Anthracnose, & Phytophthora
PER11517	Amistar Fungicide	Downy & Powdery mildew, Grey mould, Rusts and Leaf spots
PER13942	SuSCon Maxi Insecticide	Aphids. Lacebugs, Mealybugs, Leafhoppers, Scales, Psyllids, Ants, Silverleaf & Greenhouse whitefly
PER14769	Applaud Insecticide	Mealybugs, Leafhoppers, Scales, Silverleaf & Greenhouse whitefly
PER13953	Confidor 200 SC	Silverleaf whitefly
~~PER11973~~	~~Chess Insecticide~~	~~Aphids & whitefly~~ ***DELETE (See PER80241)***
~~PER11971~~	~~Pegasus Insecticide~~	~~Aphids, Mites & Whitefly~~ ***DELETE (See PER80241)***
~~PER11972~~	~~Acramite Insecticide~~	~~Two spotted mites~~ ***DELETE (See PER80241)***
PER12156	Various Fungicide products	Myrtle rust
PER12659	Admiral Insecticide	Fungus gnats & Whitefly
PER12029	Avatar Insecticide	Heliothis, Earwig, Light brown apple moth & Weevils
PER12027	Coragen Insecticide	Heliothis, Lightbrown apple moth, Apple looper & Soybean lopper.
PER12028	Ridomil Fungicide	Alternaria, Anthracnose, Phytophthora & Septoria leaf spot
PER12662	Nimrod Fungicide	Powdery mildew
PER12660	Switch Fungicide	Rhizoctonia, Sclerotinia, Botrytis, Colletotrichum, Aspergillus
PER12661	Pristine Fungicide	Anthracnose, Botrytis, Leaf spot, Powdery mildew
PER13382	Durivo Insecticide	Lepidoptera including Diamondback Moth, Cabbage White Butterfly, Helicoverpa, Caterpillars, Loopers, Leafhoppers, Aphids, Whitefly, Bugs, Thrips & Leafrollers
PER13459	Aero Fungicide	Alternaria, Phytophthora, Colletotrichum, Powdery mildew & Downy mildew
PER13328	Blue Shield Copper Fungicide	Alternaria, Colletotrichum, Downy mildew & Myrtle rust
PER13330	Ecocarb	Powdery mildew
PER12543	Movento	Aphids, Silverleaf whitefly & Scale
PER12982	Dominex Duo Insecticide	Thrips, Aphids, Grasshoppers, Locust, Cutworms & Rutherglen bug
PER12983	Regent Insecticide	Ants, Cut worms/wireworms, Earwigs, Fungus gnats/Sciarid flies, Root mealybug, Scarab beetles, Sugar cane weevil borer, Symphylids, Termites and Thrips (larvae in soil).
PER13329	Caltex Summer Spray Oil	Thrips*, Mites, Scale, Aphids and Leafhoppers
PER14399	Barricade Turf Herbicide	Pre-emergent for grass and broad leaf weeds
PER14881	PyGanic Organic Insecticide	Greenhouse thrips, Diamondback and Lightbrown apple moth, Cluster caterpillar and Heliothis

PER14880	Mancozeb Fungicide	Alternaria, Anthracnose, Cercospora, Downy mildew, Grey mould, Leaf spot, Phoma, Rhizoctonia, Rust
PER14879	Proclaim Insecticide	Diamondback moth, loopers, green mirid, mites, cluster caterpillar, Heliothis, lightbrown apple moth.
PER80688	Dimethoate Insecticide	Spiraling Whitefly
PER80241	Pegasus, Acramite & Chess Insecticide	Aphids, mites & whiteflies

Table 2: List of Minor Use Permits issued prior to 2008 or under emergency plant pest conditions.

Permit #	Active	Pest(s) / Disease(s)
PER13959	Bifenthrin (Brigade) Insecticide	Red Imported Fire Ant
PER13504	Chlorpyrifos Insecticide	Red Imported Fire Ants
PER14623	Bacillus thuringiensis israelensis (VectoBac WG) Insecticide	Fungus gnats and Sciarids
PER11676	Chlorpyrifos Insecticide	Electric ant (Wasmannia auropunctata)
PER11679	Cyfluthrin Insecticide	Electric ant (Wasmannia auropunctata)
PER14106	Paclobutrazol (Payback Plant Growth Regulator)	Excessive plant growth regulation
PER11940	Dimethomorph, azoxystrobin, fosetyl, mancozeb Fungicides	Impatiens Downy mildew
PER12073	Cyfluthrin Insecticide	Red Imported Fire Ant & Tropical Fire Ant / Emergency Use
PER14256	Chlorpyrifos (suSCon Green Soil Insecticide)	Red Imported Fire Ant

Highlighted text shows changes since last published.

For further information contact Industry Development Manager John McDonald on 07 3277 7900 - Managing the national MUP program.

Hort Journal

Nurseries setting Standards

European production methods enhanced under Australian conditions

By Grant Dalwood, Industry Development Officer - South Australia

Jong's nursery is a relatively new company in Australia, its aim being to supply the local market with good quality pot plants at competitive prices. Nico and Peter Jong (father and son) both moved from The Netherlands in 2008 with their families in order to start a new life. With a great deal of experience in the industry in Europe (both have Cert III) they have faced a number of relocation challenges, but they have embraced wholeheartedly the NIASA Program since 2011 and now are seen as leaders in the production industry in South. Australia.

Their nursery is located at Yundi, near Mt Compass (45 kilometres south of Adelaide) and is one of the few places in South Australia that receives consistent rainfall. It is generally considered to be in a cool location for the region, a factor that helps when assessing plant needs as it is more comparable with The Netherlands' climate.

The site was chosen for its reliable and high quality underground water supply as well as ease of access to the Adelaide market by road. The initial building was finished in March 2009 and is divided into three sections - polyhouse, shade cloth and outside area which, combined, covers an area of 14,000 square metres

Water reuse efficiency

When the decision was made to emigrate to Australia, careful planning was undertaken. Peter trained with a company specialising in growing houses that allows reclamation of all water (and nutrients) not directly used by the plants. With this experience he has been able to lead the construction of the facility (which covers close to 10,000 square metres and includes state of the art technology imported from Europe) and recreate a fully closed watering system.

Diligent record keeping and controls are essential to maintain high health water status at all times. The closed system is linked to the underground source and provides an abundant supply for future expansion. Under the nursery, a drainage floor enables recapture of all water which is not directly used by the plants. This amounts to a large saving in energy (pumping costs) with no output of nutrients into the environment, a major factor for their long term viability in the sensitive water shed area.

The water efficient re-capturing system consists of a layer of plastic on the ground which runs on a slope over 6.4 metres. In the middle of the slope there is a trench with an agricultural drainage pipe, this is all covered with a layer of gravel which makes it possible to work on the floor without damaging the plastic.

On top of the gravel is a ground cloth to keep the gravel in place and to ensure a smooth working surface to put the plants on. In line with NIASA guidelines, the initial preparation of the growing surface not only provides up to 80% recapture, but also a consistent surface to run machinery over and as there is no water retained on the surface, there are no wheel tracks.

Early in the process of establishing a new business, in a new country far removed from the Dutch climatic norms, it was decided they would purchase the best structure that would allow control and flexibility for the product to be grown.

Having the three areas and an internal transport system allows Jong's to place, and efficiently move plants to the best suitable growing conditions any time throughout the year, reducing labour, watering and internal logistics costs.

Automated roof venting based on sensors situated both in and outside the greenhouse; high pressure water lines to control air humidity have a cooling effect in summer and automated retractable screens to keep growing conditions at the optimum have been incorporated.

Controlled injection of fertilisers is given with a carefully composed nutritional

Nico Jong utilising modern production methods

Phalaenopsis orchids ready for sale - these have become a major sales crop

scheme; pH and EC are measured constantly by the computer during watering and later the pH and EC of plants is measured again to make sure values are correct and any adjustment to the nutrition scheme can be made if needed.

No broad chemical spray programs are necessary; instead, regular monitoring and the use of selective pest and disease control (biological if possible) are incorporated.

The most important factor is however personal experience. Technology creates the tools with which to control any problems that may develop, and Peter and Nico have found that working with an open mind in a new country and listening to customers and suppliers alike, that they have been able to assimilate into the far different market place.

As they have embraced working in the Australian market the Jong family has continued to make enhancements to their production systems that conform to the NIASA Best Management Practice Guidelines. These include further water disinfestation procedures to limit algal growth, new and better drained soil bays, hoppers to reduce the risk of transferring pathogens from outside as well as noise and dust created by tractors entering into potting areas.

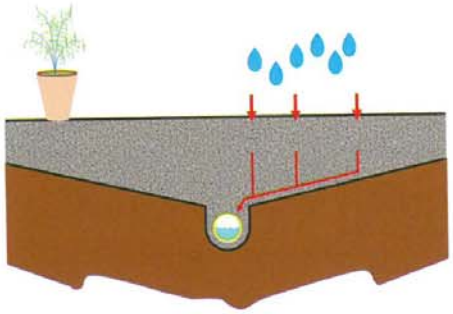
A further enhancement taking shape at present includes the enclosure of the full sun area of the facility to provide shade in order to reduce the climatic impacts on varieties of plants now grown in greater numbers. Aligned to this is creation of more above ground benches to maintain quality growing conditions for the vast array of plant varieties now grown.

Modern nursery production methods are a pathway to cost reductions in labour

Along the journey, with more refinements to their growing facilities, and an increase in their knowledge of local growing conditions, the Jongs have looked at new products that can be viably imported into and grown under Australian conditions. This has meant new and relevant training which has allowed them to become an AQIS (Australian Quarantine and Inspection Service) approved premises and IVCA (Import Verification Compliance Arrangement) and ICA (Interstate Certification Assurance) endorsement through the NGISA (Nursery and Garden Industry South Australia) and PIRSA (Dept. of Primary Industries and Regions South Australia).

Most products are sold on the local South Australian market to a diverse group of customers in the retail sector. They have been working hard to establish core products that don't compete with other growers but rather enhance the assortment available to the consumer.

Their five year plan is to work on cementing relationships with people in the nursery industry Australia-wide and the NIASA program they feel adds to their acceptance within the industry. In The Netherlands they were always a part of the horticultural association of the district, and Peter intends to continue his family's involvement in the industry association in South Australia. The family members are always welcoming and happy to assist with nursery tours for NGISA production and TAFESA students and the whole of the industry in South Australia is the richer for this little piece of The Netherlands in the nursery industry.



Under floor water collection profile

Colourful greenlife on trolleys awaiting dispatch

The monitoring panel for irrigation, fertigation and water quality

The Jongs production facility at Yundi south of Adelaide

Hort Journal

Nurseries setting Standards

A clean energy future- A closed loop system

By Katrina Hill, Industry Development Officer – Nursery & Garden Industry Western Australia

"Our passion for the industry, product quality and environmental preservation are our main driving forces and our key strength lies in our flexibility and the determination of our team to continuously improve".

Geoff Richards, Managing Director- Richgro

Richgro is an Australian-owned, fourth-generation family business that has been manufacturing premium garden products since 1916.

The company's underpinning commitments are to develop and produce best quality products, services and delivery schedules that meet or exceed client satisfaction whilst promoting a strong environmental ethic as part of the company business culture.

By the application of innovative technology and ongoing systems improvements, Richgro can forecast production of cheaper products, while broadening onsite energy and waste streams, resulting in overall integrated improvement of business efficiencies within a closed loop energy and waste system.

Richgro has participated in the NIASA accreditation programs since 2004 and ISO 9001 Quality Management System (QMS) certification since May 2005, and will soon have the business's QMS, EMS and OHS systems and commitment to programs recognised with the final formalisation of Richgro's certification within the NIASA Biosecure HACCP program during 2014.

Richards trades primarily as two main companies – Richgro Garden Products and Amazon Soils. Other subsidiaries include Richgro Laboratory Services and a coordinated funding partnership project with Biogass Renewables.

The retail division manufactures fertilisers, soil conditioners, potting mixes, water savers, and plant protection products sold through leading garden centres and hardware outlets across Australia.

Richgro anaerobic digestion facility

Richgro commercial laboratory services attend to the WA Growers' Market and internal QMS.

Amazon Soils is one of WA's largest manufacturers of bulk mulch, compost, and blended soils. It has a range of products that are produced from organic waste materials, therefore providing a great net benefit to the environment and the community by preventing these materials going to landfill.

Richgro produces natural and organic products and the company is also a signatory to the National Packaging Covenant, implementing policy and procedures of usage of smart packaging, with less waste and accordingly a cleaner environment. This is a further testament to this business's commitment to sustainable business practices.

The company's sound environmental management is promoted by the cutting edge strategies in the production planning, and processing of waste management which will be enhanced by the recent commissioning of an anaerobic digestion facility onsite in WA.

The Richgro anaerobic digestion (AD) project is one of the first key showcases of AD/biogas projects in Australia. Richgro, in partnership with Biogass Renewables, and with Commonwealth Government funds, have built a plant at the Richgro site at Jandakot.

The project has the dual purpose of waste management and diversion from landfill, and sustainable generation of clean energy via anaerobic digestion. It also contributes directly to the Australian government's aim of reducing greenhouse gas (GHGs) emissions.

One of the first showcase biogas projects in Australia

The Richgro AD facility has the capacity to generate 2 megawatts (MW) of power and a fraction more in heat each year. It is geared up to process between 35,000 and 50,000 tonnes of organic waste per annum, using a mix of solid and liquid commercial and industrial food wastes from Perth.

Digestate, after energy split in the solid fraction, can be used as raw material for Richgro compost; the liquid fraction recirculates back into the system or is piped into the composting process.

Energy is extracted from the waste value, creating 2 MW of power of which a quarter will be used internally including operating municipal green waste milling machinery onsite as a diesel replacement and with the balance of surplus energy exported to the grid.

Surplus heat from the system, through the generator, can be used for heating hothouses for Richgro's new side project of blueberry production and the CO_2 fraction can then be used to increase production yields.

The project design broadens waste stream revenue from landfill gate fees and is designed to make borrowings cash flow neutral with a payback in less than five years possible in a closed loop system by generating revenue from waste, creating power and heat, while producing and processing raw materials to commercial product.

The model has the potential to upgrade gas to biomethane (natural gas standard) for use as a diesel replacement and for injection straight into the gas main.

The model is a good fit for nurseries and composters and it is possible to build smaller plants with a capacity of processing 5-10,000 tonnes of waste per annum, taking waste to produce power and heat for use in production systems.

The production sector of the Australian nursery industry is generally considered an energy intensive operation. Energy uses may include heating, cooling, pumping and various machinery operations. With rising energy costs and increasing concern over greenhouse gas (GHG) emissions, on-farm energy efficiency and consideration of renewable technologies is becoming an increasingly important issue for many nursery operators. In many ways, on-farm energy inputs represent a major and one of the fastest, growing cost inputs to a grower.

Energy assessments (audits) are a first step and a crucial part of the energy and environmental management process. Energy audits refer to the systematic examination of an entity, such as a firm, organisation, facility or site, to determine whether, and to what extent, it has used energy efficiently. They may also assess opportunities for potential energy savings through fuel switching, tariff negotiation and demand-side management.

For further information on NIASA FMS programs and improving energy and resource efficiencies contact your state IDO for links and resources available through NGIA.