

# NURSERY PAPERS

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## Fostering innovation within production nurseries

According to the 2019-20 Nursery Industry Statistics Report, 67% of all growers are currently investing in business infrastructure.

A significant proportion of this investment will be directed to new technology which can improve productivity, profitability and sustainability. In fact, over a third (37%) of respondents said that they were seeking out new technology to invest in.

But where is this innovation coming from and what are the best ways to discover new technology that is fit for purpose for the Australian nursery industry?

This nursery paper explores the importance of innovation and provides advice on avenues to explore for modernising your nursery operations.

### SUMMARY

- Each year, more growers turn to new technology to boost productivity, profitability and sustainability.
- Several levy-funded projects help support growers in their innovation journeys.
- Innovation covers all elements of a nursery production business including automation, biosecurity, business and crop management, resource management and human resources
- This Nursery Paper provides advice on understanding the latest technologies, and what avenues are available for upskilling in the space.

### BACKGROUND

The greenlife industry, like other horticultural and agricultural industries has been on a steady path of modernisation, automation and digitalisation over the last decade.

Technology has the power to transform a nursery production business. Automated potting machines, mixers and conveyors have greatly increased productivity whilst advances in irrigation and Integrated Pest Management have improved the profitability in production nurseries.

Advances in water management, waste and recycling are also boosting the industry's sustainability credentials.

And with 67% of nursery production business investing in infrastructure in the most recent survey, including 37% in brand new technology, it's clear that there is huge momentum in the growth of innovation on-farm.

But it's important to remember that while investing in innovation is crucial for those businesses looking to continue to improve and grow, there are risks involved. Investment decisions should be taken with a pragmatic approach to ensure that there are real business benefits and appropriate returns on any investments made.

A series of levy-funded projects can help support growers looking to invest in their business infrastructure and explore how new technology can improve their business.





## INNOVATION THROUGH EDUCATION

The University of Tasmania's Graduate Diploma in Agribusiness: Masterclass in Horticultural Business offers participants immersive study across a wide range of business disciplines.

Offered through the Tasmanian Institute of Agriculture (TIA) and developed in partnership with some of the world's leading names in horticulture, including New Zealand's Lincoln University, the Wageningen Research Academy in the Netherlands, and Hort Innovation, the course is delivered online, with face-to-face learning and networking opportunities.

One of the most important modules in the course is around innovation and entrepreneurship which equips participants with the skills needed to foster innovation on their own production nursery/farm.

Scholarships to the course are often made available through the levy funded project Hort Frontiers Leadership Fund and is aimed at fostering new innovators and leaders for the Australian horticulture industry.

For more information, or to find out how to apply for the next intake visit: <https://www.utas.edu.au/tia/study/masterclass-in-horticultural-business>

## Nursery Industry Best Management Practice

On-farm innovation is not necessarily about buying the latest robot or automated machinery. It can be as simple as keeping up to date with the latest innovations in Best Management Practice via the Nursery Industry Accreditation Scheme (NIASA). Putting systems in place to manage risks and then monitoring and measuring the results through digital technology can improve business efficiency significantly.

### About NIASA

The Nursery Industry Accreditation Scheme, Australia (NIASA) is the national nursery industry Best Management Practice (BMP) program for production nurseries, growing media manufacturers and greenlife markets and underpins the Australian Plant Production Standard (APPS) – a holistic system designed to ensure a sustainable future for the Australian nursery industry. The program is managed under the levy-funded project, *National biosecurity and sustainable plant production program* (NY20001).

Updated regularly, The NIASA program provides guidelines that describe industry 'Best Management Practices' for production nurseries, growing media suppliers and greenlife markets.

The guidelines have been divided into 5 major sections including crop hygiene, crop management practices, general site management, water management and appendices.

As well as general BMP, there are also a suite of horticulture specific sub-programs that bolt onto the main NIASA criteria which include industry specific guidelines for the Avocado Nursery Stock Specification, Banana Nursery Stock Specification, Landscape Tree Stock Specification, Ethical Nursery Stock Specification, and Equivalence: Australian Strawberry Runner Accreditation Scheme (Container grown).

NIASA fosters on-farm innovation in two ways.

## CASE STUDY: Sonja Cameron, Cameron's Nursery



**Adopting new technology requires a certain level of knowledge and skill that to ensure that investments are made with clear direction and purpose and that the outcomes will drive value for the business.**

That's where the Hort Masterclass comes in, according to Sonja Cameron, Director of Cameron's Nursery. In 2017, Sonja received one of three nursery industry scholarships to participate in the University of Tasmania's inaugural Masterclass in Horticultural Business course. Today, she sits on the steering committee to help further engage industry and promote the value of the course.

The course seeks to equip current and future production nursery/farm managers, owners and employers with the agribusiness skills and capabilities required to run profitable and sustainable businesses. One of the key outputs from the course is the development of a five-year business plan which includes a module on innovation.

In the business plan for Cameron's Nursery, developed as part of the Hort Masterclass, a need was

identified for investment in a new automated potting machine.

The nursery has now taken delivery of the \$300,000 potting machine which was funded through a bank loan that also was secured off the back of a deeper understanding of financial management, thanks to the Hort Masterclass.

"I presented my bank manager with a 31-page document on our strategy on why the bank should fund the potting machine and the infrastructure to go around it. When asking a bank for half a million dollars, you will need to give solid financials and the return on investment," said Ms Cameron.

"The Hort Masterclass provided the holistic skills required to discover new technology and to build a plan around the deployment of new technology to get the best outcome," she said.



Firstly, the guidelines include science-backed methods of best practice on the production nursery, the procedures and processes included within are innovations in themselves, but without the speculation and guesswork required to explore entirely new fields of work. Digital templates and a web-based

management platform allow growers to efficiently track their BMP system including data capture and reporting to inform decision making.

Secondly, by ensuring your nursery adheres to proven Best Management Practices, it provides a backbone for your business that allows you to

be more proactive with additional innovations on-site. This is undertaken through access to dedicated technical support officers available to walk through innovations as well as regular independent audits that provide 'Action Plans' to continuously advise on best management practice.

## INNOVATION IN FOCUS: MacQ Nursery

**Innovation and the adoption of best practice plant protection and biosecurity measures on farm is critical to the delivery of high-quality nursery trees and maximising customer confidence for continued business growth, according to Johann Oosthuizen, Farm Manager at MacQ Nursery, a four hectare commercial macadamia production nursery in Bundaberg, Queensland.**

MacQ Nursery delivers over 100,000 macadamia trees each year, operating under the highest standards by being Nursery Industry Accreditation Scheme Australia (NIASA) accredited and NIASA Macadamia Nursery Stock Specification certified, supplying growers primarily in the Bundaberg region.

The nursery received NIASA accreditation and Macadamia Nursery Stock Specification in June 2020 and throughout the process continuously updated business procedures based on the guidelines.

The NIASA guidelines encourage the business to upgrade its internal stock management and traceability procedures, based on the latest recommended protocols, from propagation to despatch.

“By linking the tree ID to monitor development, we now have timeframes and a series of guidelines



that we follow to examine the root systems and check for disease, giving us a full history of the plant right at our fingertips,” Johan said.

“This capability allows us to visually track growth and development and include data around pest and disease monitoring that helps us improve the business on an operating level and allows us to track back to the source of any outbreaks quickly and effectively.

Adherence to NIASA guidelines gives both MacQ and its customers

complete confidence in the product. It's also providing an opportunity to push the envelope by exploring the latest technology available.

“We are currently in the process of evaluating our facilities with plans to upgrade our production capabilities and environmental controls. We're installing a new UV water treatment system that will allow us to disinfect our surface water so it's within required parameters for NIASA accreditation, giving us certainty that we have adequate clean water for our products.”



# CHECKLIST – EXPLORING NEW TECHNOLOGY

## LINKS TO RESOURCES

As the value and popularity of adopting the latest on-farm technology continues to be realised, there are certain questions a grower can ask to ensure their innovation journey is fruitful.

**ARE THERE ANY GRANTS AVAILABLE?**

Digital agriculture is becoming a higher priority at federal and state government levels. Make sure you check to see whether there are any applicable funding or grants available for adopting on-farm innovation.

**WILL THIS TECHNOLOGY ACTUALLY IMPROVE MY BUSINESS?**

Make sure you do your due diligence to understand exactly how new technology will improve your business.

**IS IT FIT FOR PURPOSE?**

Is the technology designed for a production nursery or will it hold up in a production nursery setting? If you are in a remote area, will it be able to operate with patchy reception? Can it get wet?

**IS THERE AFTER-SALES SUPPORT?**

If I am buying expensive technology, will there be after sales-support to help train staff, troubleshoot issues and provide maintenance and repair?

**IS THIS TECHNOLOGY COVERED IN NIASA BEST MANAGEMENT PRACTICES?**

Check to see if the technology or process is covered in NIASA BMP Guidelines.

**DO I OWN MY DATA?**

If you are investing in any form of data collecting technology, ensure you are comfortable with the small print which dictates who owns the data that is collected and where it can be shared.

Case Study: Cameron's Nursery:  
<https://www.greenlifeindustry.com.au/communications-centre/case-study-hort-masterclass-put-more-tools-on-the-toolbox-for-camerons-nursery>

Case Study: MacQ Nursery:  
<https://www.greenlifeindustry.com.au/communications-centre/case-study-macadamia-nursery-stock-specification-enhancing-customer-confidence-a>

NIASA BMP Guidelines:  
<https://nurseryproductionfms.com.au/>

Australian Plant Production Standard – Technical Library:  
<https://nurseryproductionfms.com.au/>

PAST EDITIONS OF NURSERY PAPERS ARE AVAILABLE ONLINE on the GIA website:  
<https://www.greenlifeindustry.com.au/communications-centre>



NIASA accredited, Lowes TC is investing heavily in technology that will make tissue culture techniques more affordable and reliable.