

Final Report

Global Innovations in Horticulture Seminar

Project leader:

James Whiteside

Delivery partner:

AUSVEG Ltd

Project code:

VG15032

Project:

Global Innovations in Horticulture Seminar – VG15032

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Level 8
1 Chifley Square
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Telephone: (02) 8295 2300

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Summary

VG15032 – Global Innovations in Horticulture Seminar commenced in December 2015 and encompassed three seminars from 2015-2018, all named the Global Innovations in Horticulture Seminar.

The project focused on developing and running outcome-oriented seminars of high value to the vegetable industry. The project involved the coordination and execution of a one-day seminar, designed to increase the understanding of up to 150 levy-paying vegetable growers regarding innovations in agriculture that are research or technology based and currently or soon to be available.

Throughout the project, the feedback from the Australian vegetable growers who attended the seminars was highly positive. This confirmed a need for there to be a consistent knowledge stream regarding vegetable production innovation. This feedback also shows there is an increasing desire for more seminars which provide this information.

Milestone Period – 31 March 2018 – 31 August 2018

The Global Innovations in Horticulture Seminar 2018 was held on Wednesday 20 June at the Brisbane Convention & Exhibition Centre.

The aims of the 2018 seminar were:

1. To support the adoption of technological innovation which promotes enhanced collaboration between industry and researchers.
2. To provide a forum for vegetable growers to identify opportunities for future industry investment, as well as act as an aid in learning of horticultural innovations taking place overseas.
3. To promote a general increase in dialogue between researchers and growers.

The seminar's attendees represented a diverse cross-section of 150 vegetable growers from throughout different parts of Australia, with a number of these growers coming from fairly large operations that have more ability to adopt new technologies compared to smaller operations. These growers were also joined by a number of industry observers, including researchers, government stakeholders, and various supply-chain representatives.

The event was held during the final day of Hort Connections 2018, which ran from 18-20 June at the Brisbane Convention and Exhibition Centre.

Keywords

Technology, Innovation, Australian Vegetables, Hort Connections, Research & Development, Horticulture, Automation, Robotics, Vertical Farming, Traceability.

Introduction

Australian growers have a long history of adopting new technologies and on-farm practices, which has earned the industry a reputation for being one of the cleanest, safest and most efficient in the world. However, achieving profitable results for Australian growing operations continues to be a challenge facing the industry. VG15032 – Global Innovations in Horticulture Seminar was developed to aid in helping Australian vegetable growers discover new technologies and horticultural sciences to combat this challenge.

In Australia, high costs of production have contributed to tighter profit margins for growers. Greater integration and understanding of farming innovations is needed to increase yields and lower operational costs, and in turn increase overall profits for growers. Since its inception, the seminar has allowed growers to be in a better position to develop long-term, forward-thinking business strategies for their own operations. The forum has not only been a great way to discuss ways to increase profitability for growers, but also an opportunity to identify future areas of R&D investment for the industry.

The three seminars that took place for this project (the 2016, 2017 and 2018 Global Innovations in Horticulture Seminars) were designed to bring together experts in their respective fields to provide growers with information on innovative technologies and practices relating to horticulture being developed both here and overseas. Nine speakers are chosen each year, with their candidacy being assessed upon their knowledge of their field and speaking clarity when presenting.

Each seminar catered for a multitude of different vegetable growers throughout Australia, with between 100–150 in attendance each year looking to gain vital information on innovations taking place abroad and in our own backyard.

The objective of the project was to provide Australian vegetable growers with a greater level of understanding and awareness of new horticultural innovations and technologies which, when utilised, could enable Australian vegetable growers to improve the efficiency, productivity and competitiveness of their vegetable growing operations.

Methodology

The 2016 – 2018 Global Innovations in Horticulture Seminars were designed and planned in accordance with the VG15032 project contract. They were also informed by recommendations and feedback from previous successful seminars.

As per the project submission, the methodology used in designing and planning the seminars is outlined below:

<p>Step 1 – Information Gathering and Evaluation</p>
<p>This stage consists of:</p> <ul style="list-style-type: none"> - Conducting an evaluation of previous innovation related seminars and projects. - Creating a project plan. - Beginning ground logistics such as the organization of the seminar venue, as well as accommodation and audio-visual requirements. - Identification of the 150 growers in collaboration with other Hort Connections organisers and project managers. - Internal approval of the list of speakers, topics, Chair and agenda. - Creation of a registration tracking spreadsheet. - External approval of speakers, topics, Chair and agenda.
<p>Step 2 – Promotion and Program Development</p>
<p>This stage consists of:</p> <ul style="list-style-type: none"> - Approaching potential speakers and Chair. - Writing promotional collateral for the seminar to be used via AUSVEG’s various communication channels. - Arranging grower accommodation and flights for the event. - Preparing a report on proposed program.
<p>Step 3 – Ground Logistics</p>
<p>This stage consists of:</p> <ul style="list-style-type: none"> - Arranging food & beverage at venue for correct numbers. - Locking in speakers and Chair. - Designing workshop materials (booklets, pens) and sending off for printing/manufacturing. - Creating event run sheet. - Developing talking points for the Chair to use at the event. - Locking in flights for speakers and Chair. - Confirming delegate attendance list.

<ul style="list-style-type: none">- Arranging minute takers.
Step 4 – Event Management and Moderation
<p>This stage consists of:</p> <ul style="list-style-type: none">- Event management of the seminar.- Coordinating the seminar Chair.- Liaising with keynote speakers and participants as required.- Organising transportation as required.
Step 5 – Outcome Publishing/Next Steps Final Report
<p>This stage consists of:</p> <ul style="list-style-type: none">- Digitally recording proceedings.- Distilling recording into a written report.- Creating an event recap page with digital recordings of presentation slides from the event available to attendees.
Project variation – August 2016
Step 6 – Prospective Topic and Utilisation Survey
<p>This stage consists of:</p> <ul style="list-style-type: none">- The development, design, and production of a post-seminar prospective topic and technology utilization survey, which also provides an opportunity for delegates to network further with speakers.- Assessment of results and formulation into a written report.

Outputs

Global Innovations in Horticulture Seminar 2016

Output	Status
Conduct a seminar to communicate information to vegetable growers.	Completed
Flyers designed to advertise the seminar to levy-paying vegetable growers throughout Australia.	Completed (Appendix 1)
Media releases pre- and post-event sent through AUSVEG's communication channels to promote the seminar.	Completed (Appendix 2)
Speaker list announcements sent out via electronic direct mail pre-event.	Completed (Appendix 3)
Articles promoting the seminar included within AUSVEG's Weekly Update Newsletter	Completed (Appendix 4)
Article promoting the seminar published within <i>Vegetables Australia</i> magazine pre- and post-event.	Completed (Appendix 5)
Seminar booklets with surveys developed, printed and distributed during the seminar.	Completed (Appendix 6)
Seminar minutes disseminated and distributed via a previous Milestone Report.	Completed (Available within Milestone 190 submitted on 30 August 2016).
A video package of the seminar to be uploaded online for those who could not attend.	Completed (Available at https://www.youtube.com/user/AUSVEG/videos)

Global Innovations in Horticulture Seminar 2017

Output	Status
Conduct a seminar to communicate information to vegetable growers.	Completed
Flyers designed to advertise the seminar to levy-paying vegetable growers throughout Australia.	Completed (Appendix 7)
Speaker list announcements sent out via electronic direct mail pre-event.	Completed (Appendix 8)
Article promoting the seminar included within AUSVEG's Weekly Update Newsletter.	Completed (Appendix 9)
Seminar booklets with surveys developed, printed and distributed	Completed

during the seminar.	(Appendix 10)
Seminar minutes disseminated and distributed via a previous Milestone Report.	Completed (Available within Milestone 106 submitted on 30 August 2017).
A video package of the seminar to be uploaded online for those who could not attend.	Completed (Available at https://www.youtube.com/user/AUSVEG/videos)
Media release post-event sent through AUSVEG’s communication channels to promote the seminar.	Completed (Appendix 11)
Article promoting the seminar published within Vegetables Australia magazine post-event.	Completed (Appendix 12)
The development of the Post-seminar Utilisation and Prospective Topic Survey.	Completed (Appendix 13)

Global Innovations in Horticulture Seminar 2018

Output	Status
Conduct a seminar to communicate information to vegetable growers.	Completed
Flyers designed to advertise the seminar to levy-paying vegetable growers throughout Australia.	Completed (Appendix 14)
Article promoting the seminar included within AUSVEG’s Weekly Update Newsletter.	Completed (Appendix 15)
Seminar booklets with surveys developed, printed and distributed during the seminar.	Completed (Appendix 16)
Seminar minutes disseminated and distributed via this Milestone Report.	Completed (Appendix 17)
A video package of the seminar to be uploaded online for those who could not attend.	Completed (Available at https://www.youtube.com/user/AUSVEG/videos)
Media release post-event sent through AUSVEG’s communication channels to promote the seminar.	Completed (Appendix 18)
Article promoting the seminar published within Vegetables Australia magazine post-event.	Completed (Appendix 19)

Outcomes

Over the course of the three seminars run for this project, a combined 412 Australian vegetable growers attended.

To efficiently measure the effectiveness of these seminars, feedback was sought from those in attendance, with the results confirming that there is a strong desire to attend innovation-related events and that the seminars were found to be informative and effective.

As per Graph 1 below, when posed with the question: ‘How worthwhile did you find the 2018 Global Innovations in Horticulture Seminar’, 100% of respondents responded with either ‘Worthwhile’ or ‘Very Worthwhile’. This demonstrates that the content delivered within each of the seminars provided those in attendance with information they would be able to utilise to strengthen their farms’ technological capabilities.

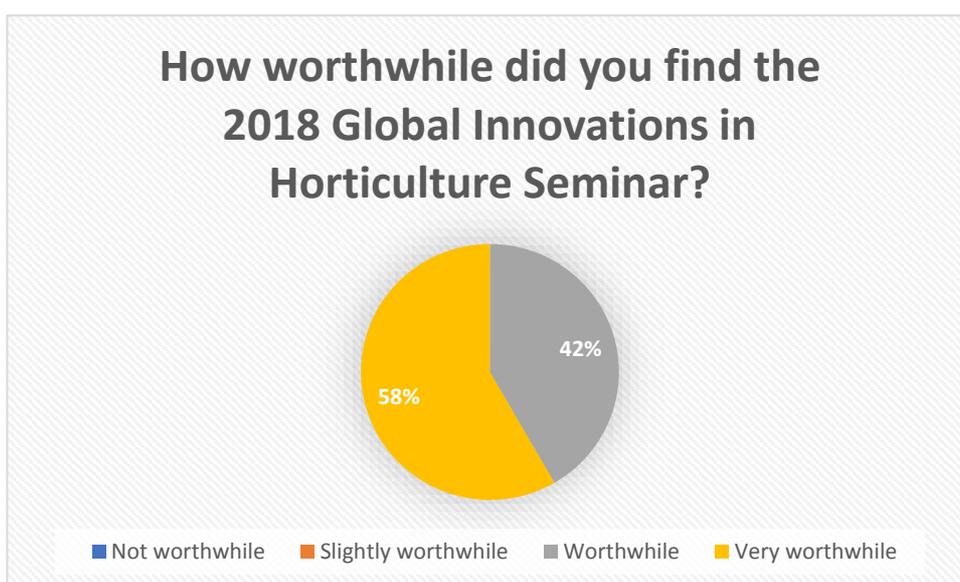


Figure 1: The seminar was considered to be a worthwhile event.

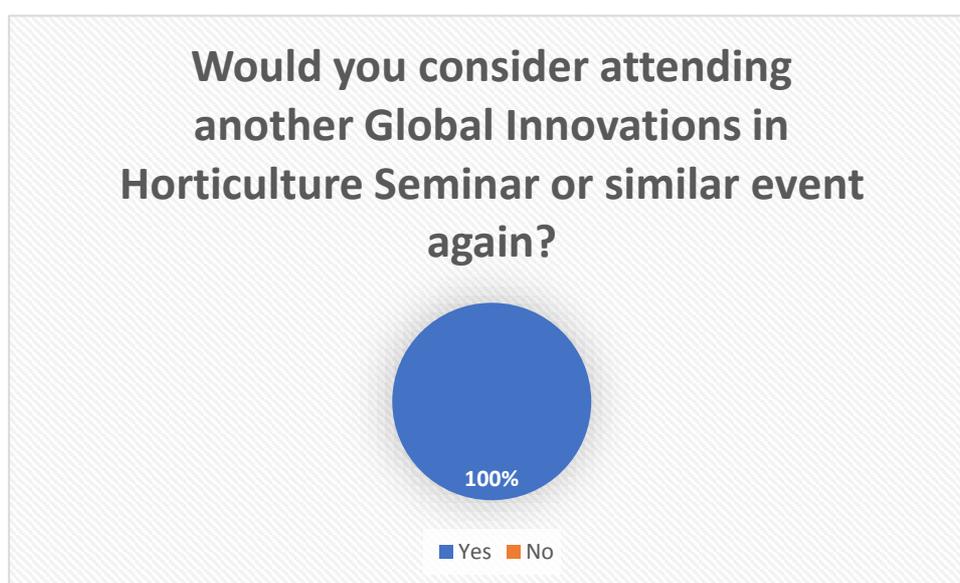


Figure 2: All attendees at the seminar would consider attending again.

When evaluating our communication and promotional methods for the seminar, direct emails and phone calls

from an AUSVEG representative proved to be the most successful way of recruiting growers.

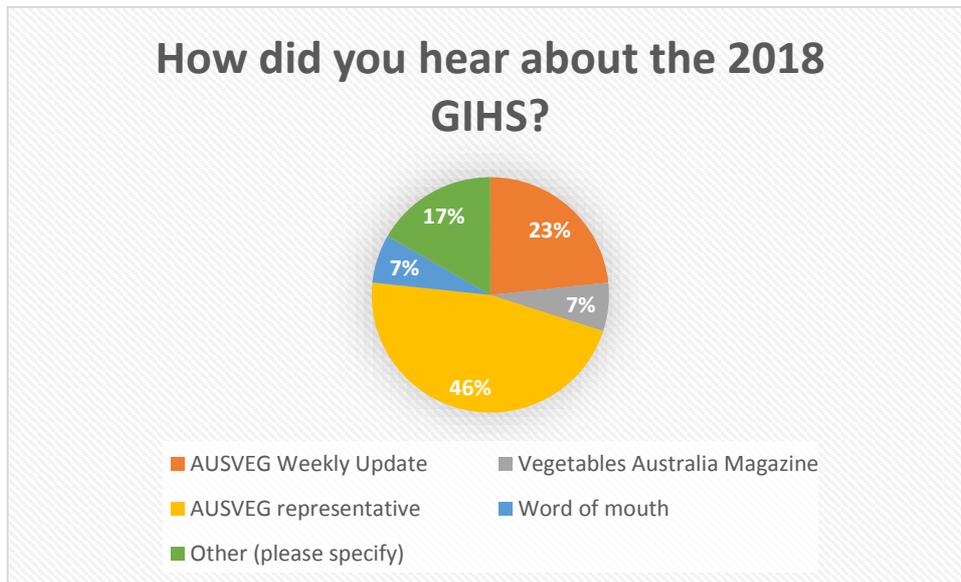


Figure 3: This year, direct contact from an AUSVEG representative was the most successful recruitment method for the seminar.

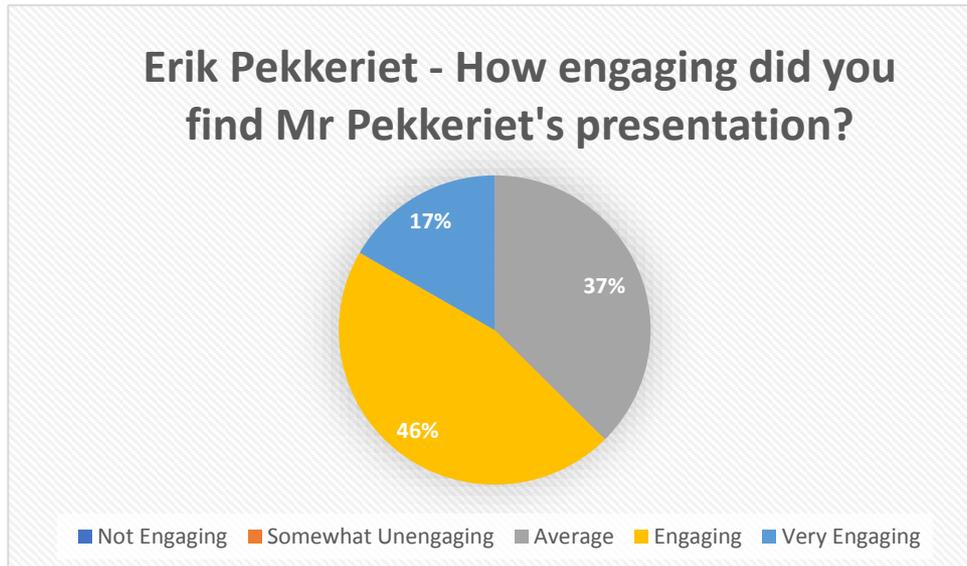


Figure 4: Erik Pekkeriet divided audience members, with 63% labeling him Engaging or Very Engaging.



Figure 5: Similar results were achieved for Erik when audience members considered the relevance of his presentation.

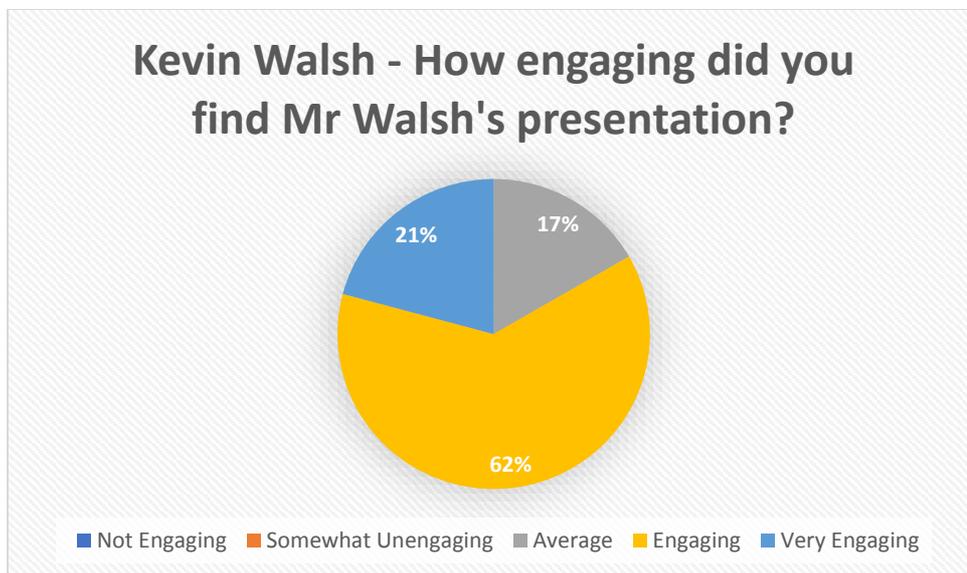


Figure 6: Kevin Walsh succeeded with notably positive overall engagement results for his presentation, with 83% rating his presentation as Engaging or Very Engaging.

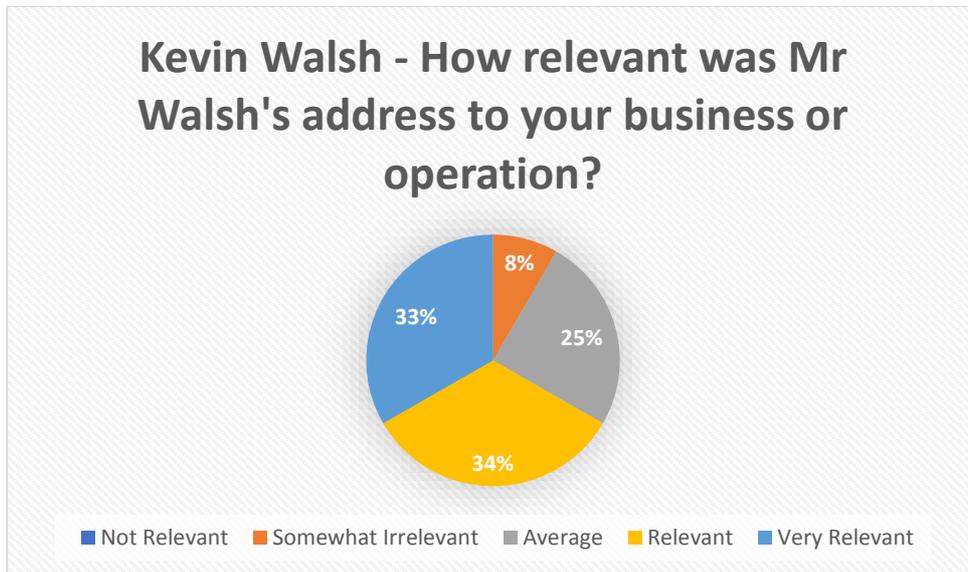


Figure 7: Relevancy results for Kevin were also positive.

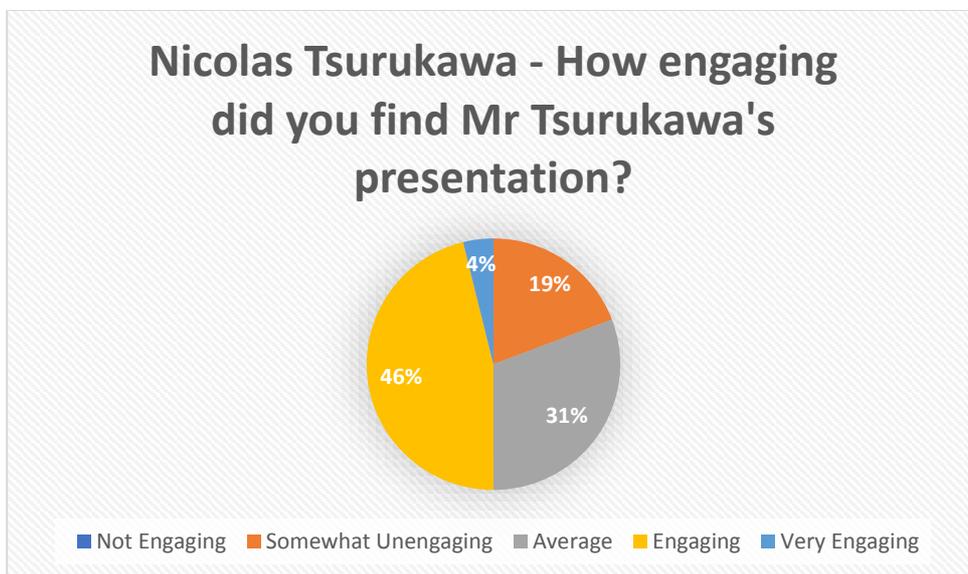


Figure 8: Nicolas divided audience members, with only 50% finding his presentation Engaging or Very Engaging.

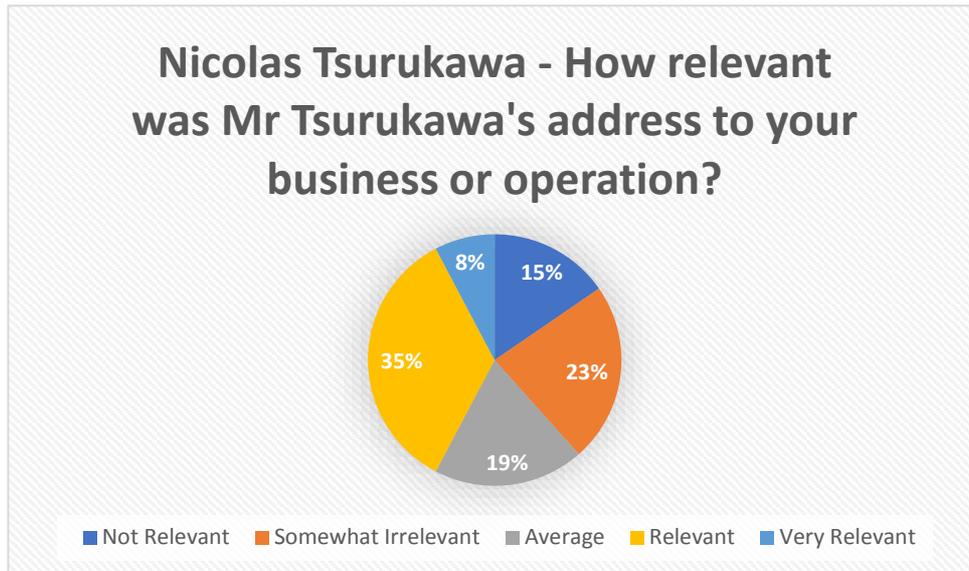


Figure 8: The relevance of Nicolas’s presentation was questioned, with more than 50% rating the relevance of his presentation as Average, Somewhat Irrelevant, or Not Relevant.

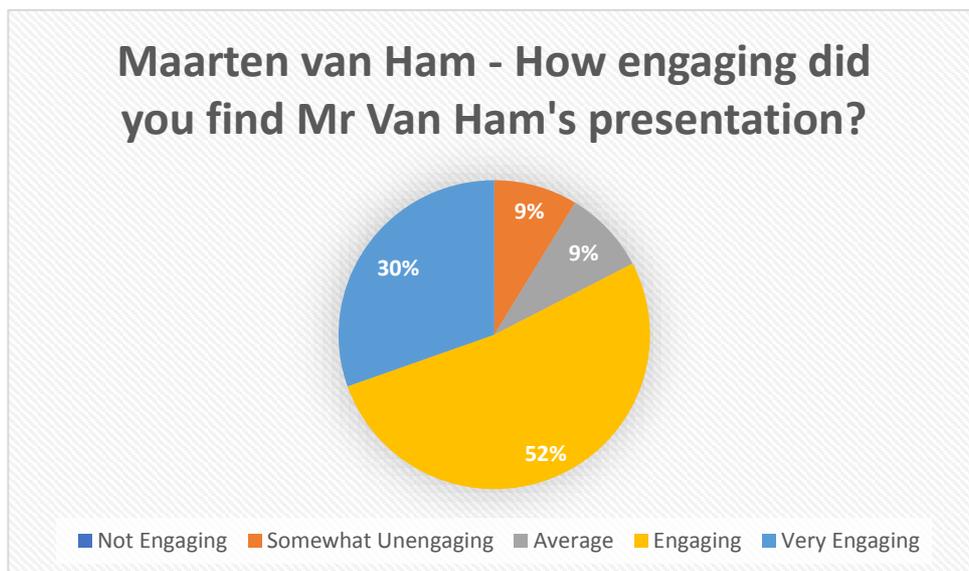


Figure 9: Maarten was rated as a highly engaging speaker, with 82% rating him as either Engaging or Very Engaging.

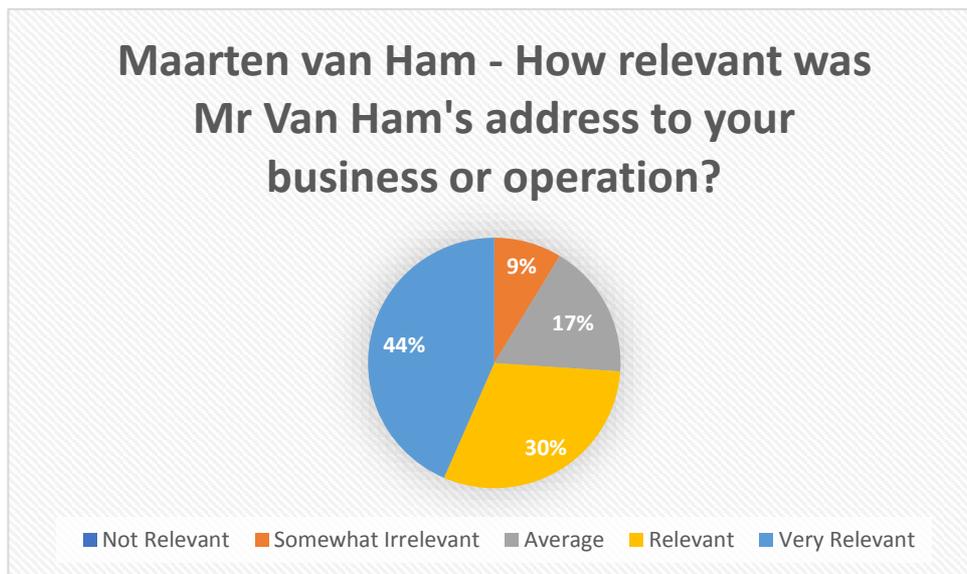


Figure 10: Maarten was also considered quite relevant, with 82% rating him as either Relevant or Very Relevant.

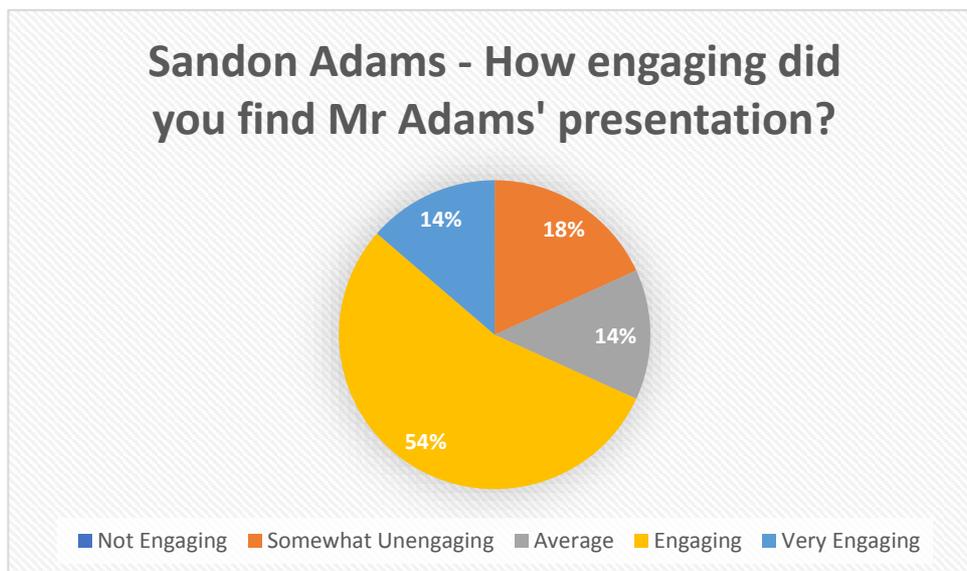


Figure 11: Sandon Adams rated highly, with 68% rating him as Engaging or Very Engaging.

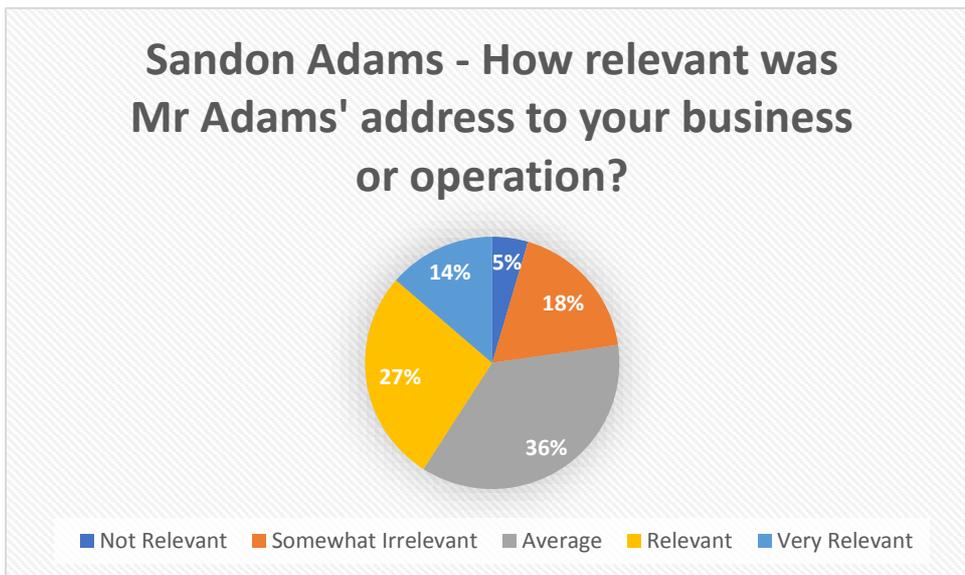


Figure 12: Despite being rated as quite engaging, Mr Adams did struggle with relevance, with only 41% rating his presentation as Relevant or Very Relevant.

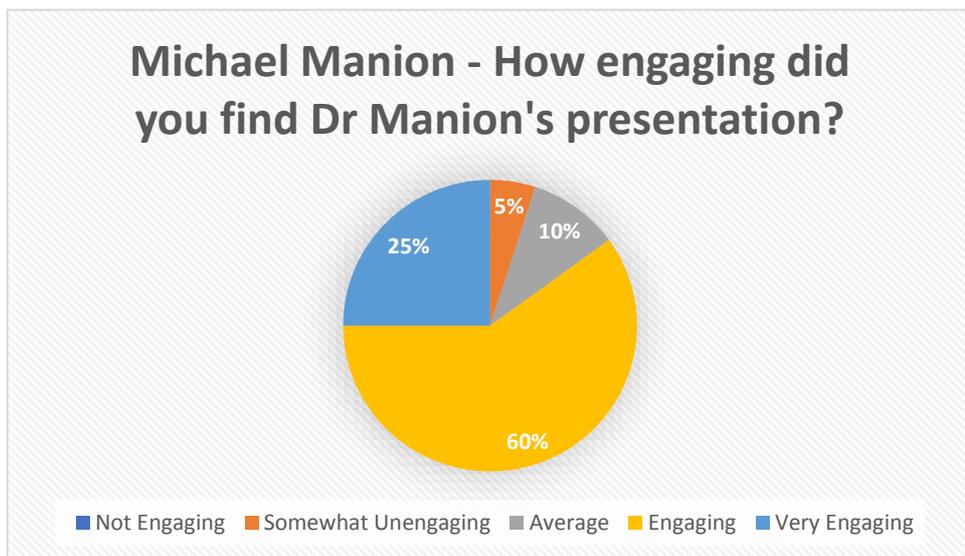


Figure 13: Dr Manion received some of the highest engagement ratings of the seminar, with 85% rating his presentation as Engaging or Very Engaging.

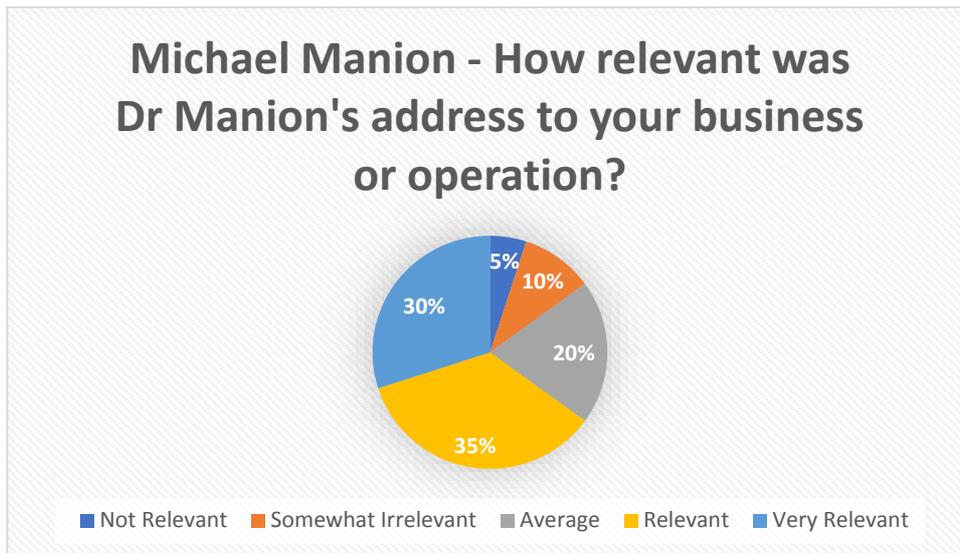


Figure 14: Dr Manion's relevance ratings were also high, with 65% rating his presentation as Relevant or Very Relevant, 30% of which rated him as Very Relevant.

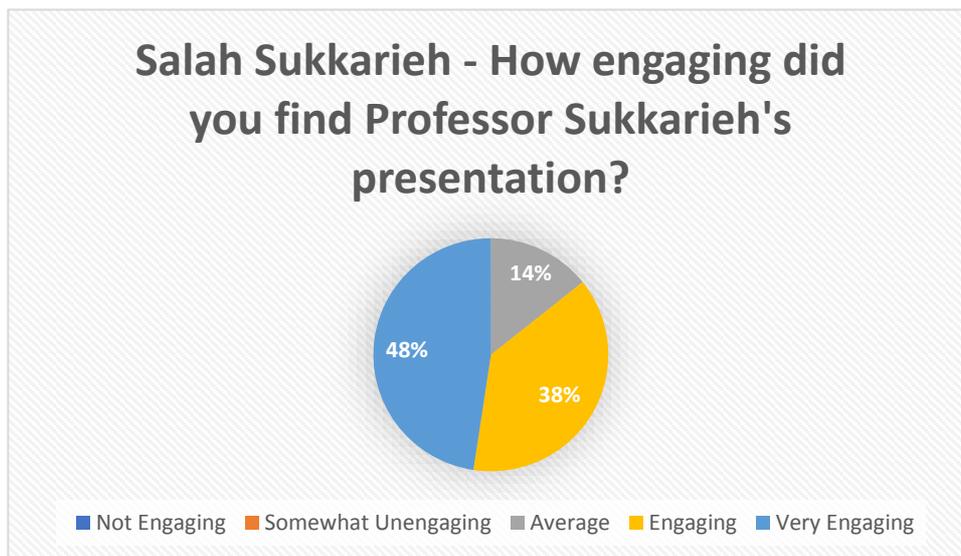


Figure 15: Salah was very well received, with 86% rating him as either Engaging or Very Engaging.

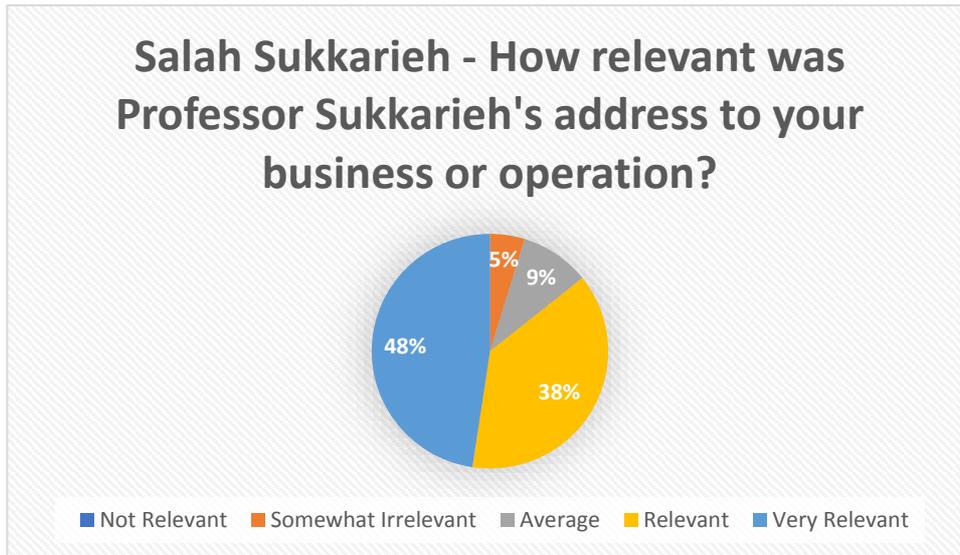


Figure 16: Salah once again rated well here, with 86% rating him as Relevant or Very Relevant.

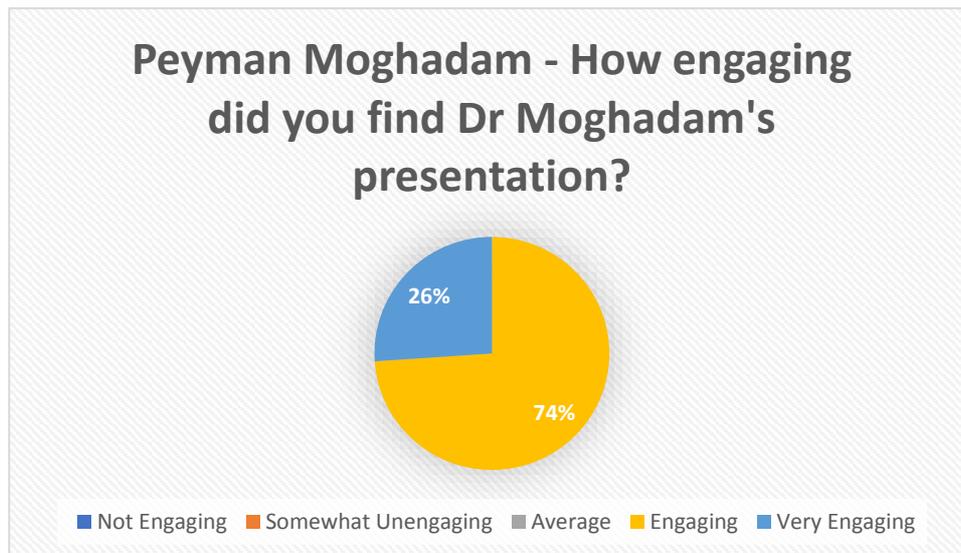


Figure 17: Dr Moghadam was one of the highest rated speakers of the day, with 74% of audience members rating him as Engaging, and 26% rating him as Very Engaging.

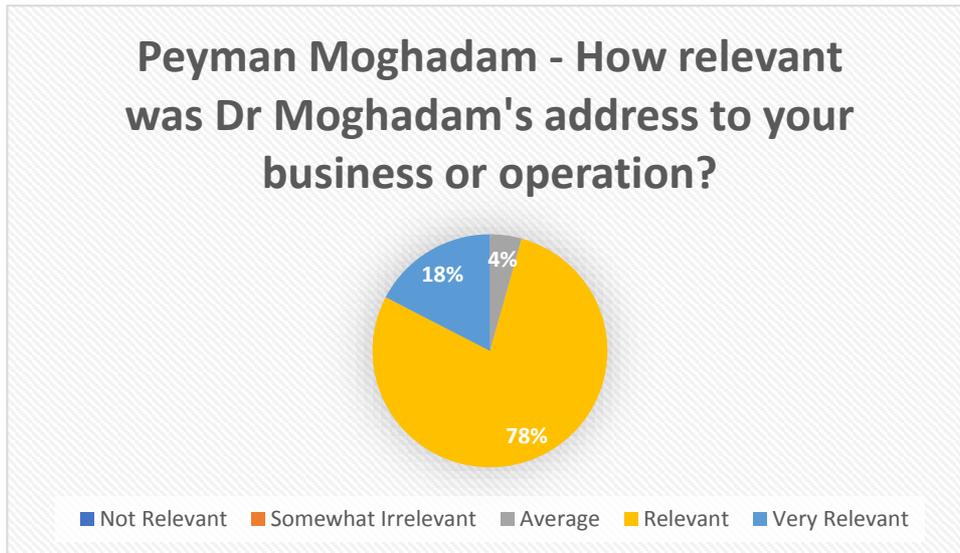


Figure 18: Peyman once again rated well here, with 96% of audience members rating him as Relevant or Very Relevant.

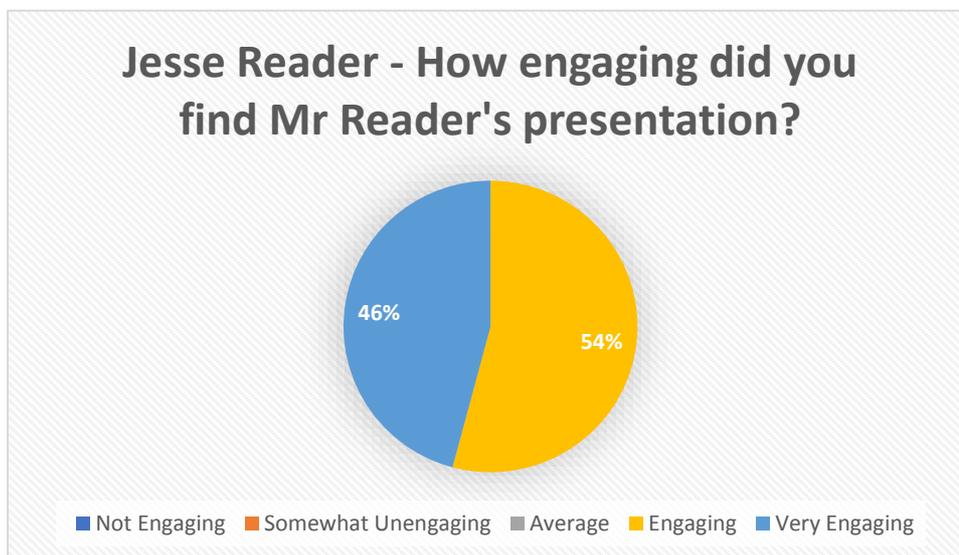


Figure 19: Jesse Reader was the highest rated speaker of the day, with 46% rating him as Very Engaging, and 54% rating him as Engaging.

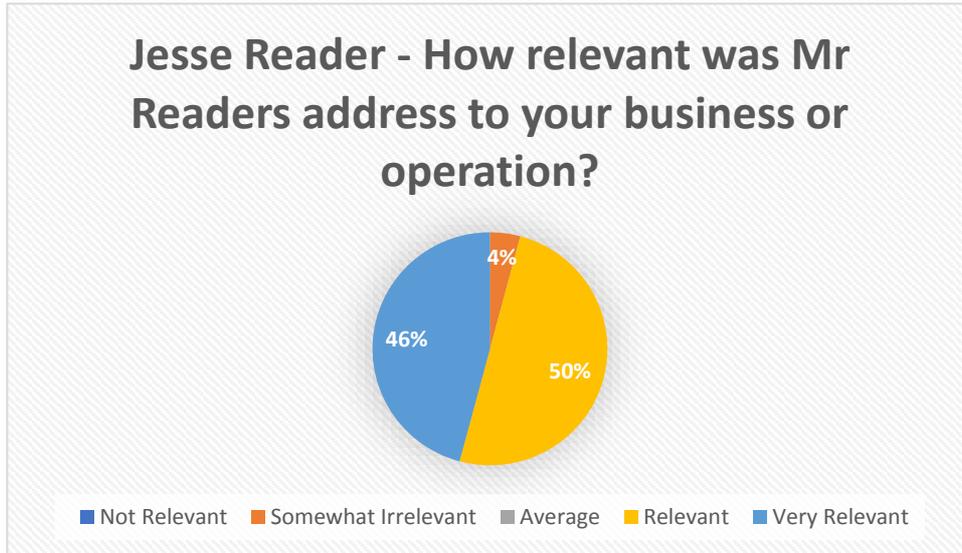


Figure 20: Mr Reader’s presentation was considered relevant to almost all attendees, with 96% rating him as Relevant or Very Relevant.

Monitoring and evaluation

As this project was commissioned in 2016, there was no formal monitoring and evaluation plan established at that time. However, to ensure effective monitoring of the project process against objectives, the following activities were undertaken:

Grower Feedback

At the conclusion of each seminar, the Australian vegetable growers in attendance were asked to complete and return an evaluation form to provide feedback on the seminar. The feedback received within these evaluation forms was used to plan and structure for future seminars. The feedback allowed AUSVEG as organisers to understand what was effective from the event, and what the growers wanted to hear about in future innovation related events.

Effective Governance

Throughout the duration of the project a number of milestone reports have been prepared and submitted with Hort Innovation, providing summaries of each seminar and Q&A activity, as well as seminar planning for each event. This provided Hort Innovation with the opportunity to monitor and evaluate the project at each milestone throughout the project.

Presentation Videos

The presentations from speakers at the seminars have all been filmed and made available on the AUSVEG YouTube Channel. This allows those who were unable to attend the seminar to view the presentations online, broadening its dissemination in the industry and enabling a greater range of industry members to provide feedback.

Post-Seminar Utilisation and Prospective Topic Survey

The Post-Seminar Utilisation and Prospective Topic Survey, which was undertaken post-variation in March 2016, provided a follow up opportunity for the growers in attendance to ask any questions which arose post-seminar. It also queried growers on topics they would like to see the following year, as well as any innovations they had adopted on-farm that were linked to concepts presented at the seminar. The questions from this were also used to determine how effective the presentations were in providing information and achieving the aims of the seminar.

Key Evaluation Questions

To what extent have the industry funds achieved their objectives in delivering benefits to growers?

The feedback provided from the Australian vegetable growers in attendance, which is outlined within the Outcomes section of this report, demonstrates that the funds have delivered benefits to growers. The feedback outlines that the growers see great value in innovation related seminars, and believe these seminars provide practical information to assist growers in adopting innovative technology and practices into their farming operations.

How well have Hort Innovation projects delivered intended outcomes and benefits to growers?

The focus of the project was aimed at developing and running seminars which were outcome-oriented and of high value to the industry. The four seminars, which had 412 Australian vegetable growers attend in total, were successful in delivering this outcome, which can be confirmed by the feedback received from those in attendance. As a result of the Variation in March 2016, the benefits to growers from the project were increased, as a professional document encouraging networking and surveying technology update and future seminar topics was distributed post-event to attendees.

How relevant are Hort Innovation projects to the needs of intended beneficiaries including targeted growers, advisors and industry stakeholders?

The project is highly relevant to the needs of the targeted growers and industry, as it is critical in getting information out to growers on the opportunities and possibilities for their business that could come from adopting innovative practices and technologies currently being developed around the world.



Image 1: Growers participating in the 2018 GIHS Q&A sessions

Recommendations

The following recommendations are based on grower feedback, discussions with seminar speakers, seminar minutes and on-site observations from the three seminars held throughout the project.

Recommendation 1: Continue to offer levy-funded innovation related seminars to benefit Australian vegetable growers.

Similar seminars should be offered to Australian vegetable growers which continue to present leading research from around the world. Overall, the responses provided in seminar feedback forms and discussions held with attendees after the seminar show that growers find the event to be highly beneficial and useful in planning the future direction of their operation.

Recommendation 2: Continue to emphasise an increased focus on networking.

A particularly popular element of the event is the ample opportunity it allows for quality networking. When running future seminars, this should be emphasised and catered for where possible, with provisions for adequate breaks provided.

Recommendation 3: Encourage growers to network further with speakers post event for increased knowledge transfer.

The exchange of contact details and information from the presentations can be disseminated and distributed post-event via fact sheets developed by event coordinators. This practice should be continued with an increased focus on networking and collaboration prior, during, and post-event.

Recommendation 4: Continue to run future seminars alongside Hort Connections where possible.

With growing operations requiring a large amount of time and resource investment, any event that requires growers to spend time away from the farm creates an obstacle to its own success. By holding seminars in conjunction with the Hort Connections conference, which is seeing increasing grower participation, seminar coordinators can avoid this obstacle by attracting growers who have already committed to leaving their farm for networking and knowledge-sharing. This should maximize grower engagement with the project.

Refereed scientific publications

None to report.

Intellectual property, commercialisation and confidentiality

No project IP, project outputs, commercialisation or confidentiality issues to report.

Appendices

- Appendix 1 – 2016 Global Innovations in Horticulture Seminar - Flyers
- Appendix 2 – 2016 Global Innovations in Horticulture Seminar – Media Release
- Appendix 3 – 2016 Global Innovations in Horticulture Seminar – Speaker List EDM
- Appendix 4 – 2016 Global Innovations in Horticulture Seminar – Weekly Update promotion
- Appendix 5 – 2016 Global Innovations in Horticulture Seminar – Vegetables Australia articles
- Appendix 6 – 2016 Global Innovations in Horticulture Seminar – Seminar booklets
- Appendix 7 – 2017 Global Innovations in Horticulture Seminar - Flyer
- Appendix 8 – 2017 Global Innovations in Horticulture Seminar – Speaker List EDM
- Appendix 9 – 2017 Global Innovations in Horticulture Seminar – Weekly Update promotion
- Appendix 10 – 2017 Global Innovations in Horticulture Seminar – Seminar Booklets
- Appendix 11 – 2017 Global Innovations in Horticulture Seminar – Media Release
- Appendix 12 – 2017 Global Innovations in Horticulture Seminar – Vegetables Australia article
- Appendix 13 - Global Innovations in Horticulture Seminar – Post-Seminar Survey
- Appendix 14 – 2018 Global Innovations in Horticulture Seminar - Flyer
- Appendix 15 – 2018 Global Innovations in Horticulture Seminar – Weekly Update article
- Appendix 16 – 2018 Global Innovations in Horticulture Seminar – Seminar booklets
- Appendix 17 – 2018 Global Innovations in Horticulture Seminar - Seminar minutes
- Appendix 18 – 2018 Global Innovations in Horticulture Seminar – Media Release
- Appendix 19 – 2018 Global Innovations in Horticulture Seminar – Vegetables Australia article

Appendix 1 – 2016 GIHS Flyers

GLOBAL INNOVATIONS *in* HORTICULTURE SEMINAR

There are limited places still available for levy paying vegetable growers.
For further information on the Seminar or to express your interest, please email AUSVEG at info@ausveg.com.au or phone (03) 9882 0277.

Thursday 23 June, 9:00am – 5:00pm
RACV Royal Pines

AUSVEG

This project has been funded by Horticulture Innovation Australia Limited using the National Vegetable Levy and funds from the Australian Government.

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Australia**



GLOBAL INNOVATIONS *in horticulture seminar*

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GLOBAL INNOVATIONS *in* HORTICULTURE *seminar*

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GLOBAL INNOVATIONS IN HORTICULTURE SEMINAR

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Appendix 2 – 2016 GIHS Media Releases



Media Release

15 March 2016

For immediate release

Innovation back on the agenda at veg grower seminar

Futuristic technologies and the latest advances in agricultural innovation will be on the agenda as world-leading experts address Australian vegetable growers at the 2016 Global Innovations in Horticulture Seminar, to be held on the Gold Coast from 23-25 June.

American researcher and science author Jon Entine, expert in genetic modification, will headline a stellar line up of speakers that will inspire over 100 Australian vegetable growers to embrace innovation as the industry moves towards increased mechanisation and more creative ways to reduce costs and increase profitability.

"AUSVEG is pleased to once again host the world's leading agricultural R&D experts to show Aussie growers the ways that innovations in technology and production methods can boost the profitability, productivity and sustainability of their operations," said AUSVEG spokesperson Shaun Lindhe.

"It is particularly exciting to have Jon Entine, an international expert on the topic of genetic modification, address our growers. His presentation is expected to inspire our growers to evaluate the local industry and think about how the industry can move into the future."

AUSVEG is the leading horticultural body representing 9,000 Australian vegetable and potato growers.

The Seminar aims to educate Australian growers on the innovations they can use on-farm, and builds on a highly successful series of annual seminars facilitated by AUSVEG to help with the development of the Australian vegetable industry and to ensure it remains at the pinnacle of global vegetable production.

"As global agriculture evolves, Australian growers need to have the information at hand to keep up with the rise in technical advancements, including increased automation and mechanisation. This will in-turn help growers increase export markets, create more jobs and boost our economy," said Mr Lindhe.

"If the Australian vegetable industry can learn from these innovators in agriculture, it will help to boost on-farm productivity, and increase the profitability of their farms, which will ultimately benefit rural communities, and the entire country."

The 2016 Global Innovations in Horticulture Seminar will be held at the RACV Royal Pines Resort on the Gold Coast, and aims to inform Australian growers of the benefits that new and improved agricultural technology can have on-farm.

Funded places are available for levy-paying vegetable growers to attend this event. For more information please contact AUSVEG on (03) 9882 0277, or info@ausveg.com.au.

ENDS

MEDIA CONTACT: Shaun Lindhe, Manager – Communications, AUSVEG

Phone: (03) 9882 0277, Mobile: 0405 977 789, Email: shaun.lindhe@ausveg.com.au

The 2016 Global Innovations in Horticulture Seminar is funded by Horticulture Innovation Australia using the National Vegetable Levy and funds from the Australian Government.





Media Release

1 April 2016

For immediate release

Speaker List released for Innovations Seminar

The 2016 Global Innovations in Horticulture Seminar will be held at the RACV Royal Pines Resort on the Gold Coast, and aims to inform Australian growers of the benefits that new and improved agricultural technology can have on-farm.

Now with a full bill, this year's Seminar will field an array of speakers from all around the globe covering fields such as: Precision Agriculture, Pollination, Processing Machinery, Robotic Technology, Genetic Modification, Agriculture Innovation Research, Plant Breeding and Agricultural Economics.

AUSVEG is the leading horticultural body representing 9,000 Australian vegetable and potato growers.

Jon Entine, Genetic Modification guru and Executive Director of the Genetic Literacy Project, will headline the event. After recently presenting at the National Press Club to a very impressed audience, we expect his presentation to rustle some feathers and turn some heads. Co-chairing will be Professor Richard Visser, Head and Chair of Wageningen University Plant Breeding, a widely respected authority on the science.

Other speakers joining the bill are Dr Amos Albert, CEO of Bosch Deepfield Robotics in Germany, Dr Fred Ziari CEO of IRZ Consulting a Precision Irrigation firm in the United States, Dr David Pattemore Pollination Scientist at Plant & Food Research New Zealand, Marco Azzaretti Manager of Product Management for processing machinery company in the United States Key Technology, Dr David Ireland Principal at ThinkPlace in Australia, and also from Wageningen University Dr Gert Kootstra, Expertise Leader in Computer Vision, and Dr Joe Guenther, Professor Emeritus of Agricultural Economics at the University of Idaho.

"With widely respected speakers from all over the globe presenting on different facets of horticulture, this is prepped to be a Seminar to remember for some time" said AUSVEG spokesperson Shaun Lindhe.

"Without a doubt growers will reap great benefit from the information on display at this Seminar. In previous years it has changed entire farming operations and received great media attention due to the calibre of speakers events such as this attract".

"So far growers and industry participants from some of Australia's biggest farming and agriculture based operations have registered interest, making it one of AUSVEG's most talked about Seminars to date. It has become an integral part of the Australian agriculture calendar, and a must see for operations looking to get an insight into the future of the industry".

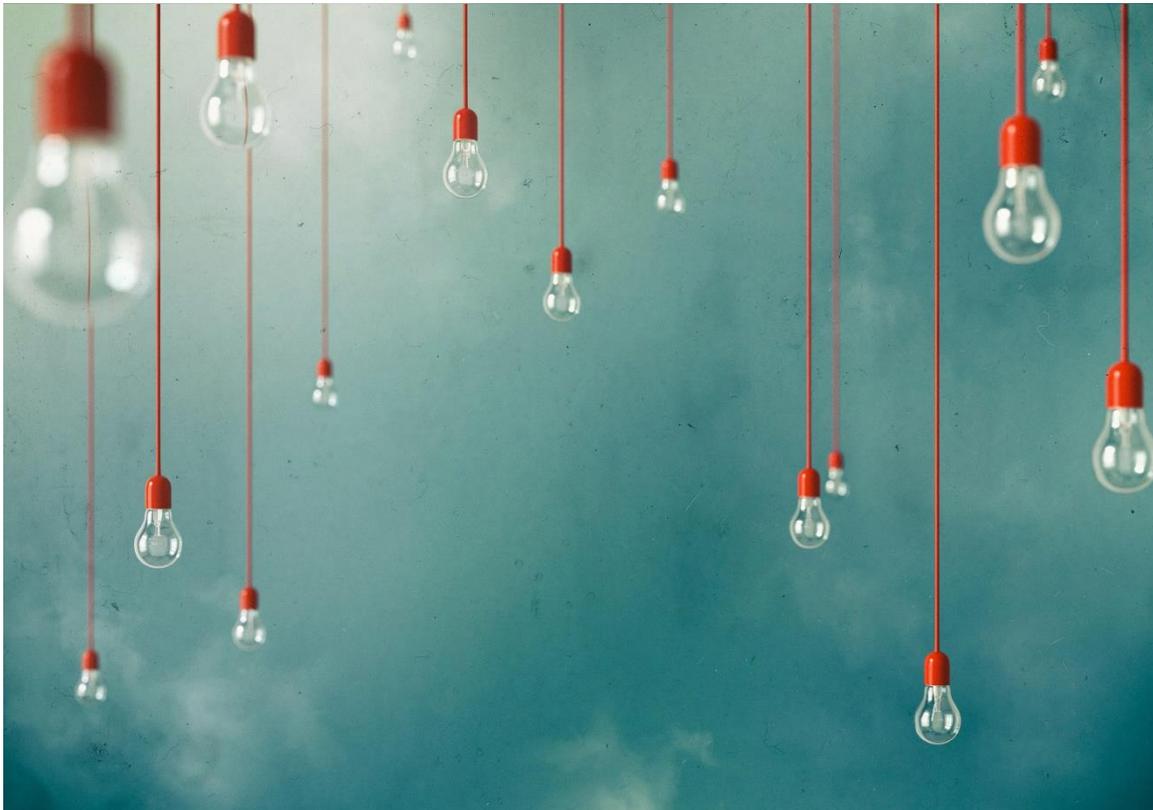
Funded places are available for growers to attend this event. For more information please contact AUSVEG on (03) 9882 0277, or info@ausveg.com.au.

The 2016 Global Innovations in Horticulture Seminar is funded by Horticulture Innovation Australia using the National Vegetable Levy and funds from the Australian Government.

ENDS

MEDIA CONTACT: Shaun Lindhe, AUSVEG Manager - Communications
Phone: (03) 9882 0277, Mobile: 0405 977 789, Email: shaun.lindhe@ausveg.com.au

Appendix 3 – 2016 GIHS Speaker List EDM



GLOBAL INNOVATIONS

in horticulture seminar

SPEAKER LIST

[click here for full details and registration information](#)

Thursday 23 June, 9:00am – 5:00pm
RACV Royal Pines

This project has been funded by Horticulture Innovation Australia Limited using the National Vegetable levy and funds from the Australian Government.

Horticulture
Innovation
Australia

AUSVEG

GLOBAL INNOVATIONS *in horticulture seminar*

On Thursday 23 June 2016, AUSVEG in conjunction with Horticulture Innovation Australia (Hort Innovation) will hold a seminar to discuss global innovations in horticulture that will demonstrate to attendees the very latest in innovative technology from around the world. This seminar will precede the 2016 National Horticulture Convention, Trade Show and Awards for Excellence, to be held at RACV Royal Pines Resort Gold Coast, Queensland from June 23-25, 2016.

With a focus on new innovations in horticulture from world renowned experts in the field, the seminar will showcase a variety of ideas that are at the leading edge of agricultural innovation. Growers will also get an insight into technologies that will allow them to become more efficient, more productive and ultimately more profitable.

Participants will have the opportunity to field questions to speakers, while discussing the importance and challenges of incorporating scientific and technical innovation into modern Australian farming practices. This year the following speakers will cover a wide variety of topics including: Precision Agriculture, Processing Machinery, Robotic Technology, Genetic Modification, Agriculture Innovation Research, Agricultural Economics, Pollination and Plant Breeding.

Funded places are available for vegetable levy paying growers to attend this event.

For more information please contact AUSVEG on (03) 9882 0277, or email info@ausveg.com.au.

SPEAKER LIST

Jon Entine

Author and Senior Research Fellow at the Institute for Food & Agricultural Literacy University of California U.S.A



Presentation

Biotech 2.0: How GMO innovation and new breeding techniques are revolutionizing food and farming

Jon Entine is founder of the Genetic Literacy Project, an independent Washington, DC based NGO that educates the public on the intersection of human and agricultural genetics. He is Senior Fellow at the Institute for Food and Agricultural Literacy at the University of California, Davis and the American Enterprise Institute in Washington. He lives in Cincinnati and lectures around the world on science literacy. Jon is a 45-year journalism veteran: 20 years with ABC and NBC News; writer of 7 books including "Let Them Eat Precaution: How Politics is Undermining the Genetic Revolution in Agriculture" and "Crop Chemophobia: Will Precaution Kill the Green Revolution?" He has won 20 international journalism accolades including two Emmys and a National Press Club Award.

Dr. Richard Visser

Chair and head Wageningen University Plant Breeding



Presentation

Breeding climate resilient vegetable crops

Richard Visser received his Msc in Molecular Microbiology and Cell and Plant Genetics in 1984, as well as his PhD in Biology in 1988 from the State University of Groningen. In addition to being the Chair and head of Wageningen University Plant Breeding, he currently holds the position of Dean of Research of Wageningen University & Research. Dr. Visser has supervised the completion of over 108 PhD students, and is involved in the supervision of over 60 more. He has been published in over 450 internationally refereed Journals including: Nature, Nature Biotech, Nature Plants, Plant Cell, Plant Journal, EMBO J, Plant Phys, MPMI, Planta, MGG, TAG, Molecular Breeding and Euphytica, and is a regular lecturer at various agriculture seminars throughout the world on Plant Breeding.

Dr. Amos Albert

CEO Bosch Deepfield Robotics



Presentation

From the internet of fields to the internet of plants

Prof. Dr. Amos Albert is the CEO of Deepfield Robotics, a Bosch start-up established in 2014, which is inspired to contribute innovative technologies towards sustainable farming. He holds degrees in Electrical Engineering and Economic Sciences and received his PhD in 2001 for his work on bipedal robots. In 2002 he joined Bosch Research and held different positions. In his last position Amos was the Chief Expert for Autonomous Systems and Robotics, responsible for their respective strategic programs. Besides his engagement in industry, Amos is giving graduate lectures on different topics of control theory. During 2011-2013 he also headed the Institute for Automatic Control, Leibniz University Hannover. Bosch Deepfield Robotics is inspired to contribute innovative technologies towards sustainable farming. Their approaches consist of both connectivity solutions to support farmers in making better decisions, as well as robotic systems, e.g. for improving seed breeding or mechanical weed control.

Dr. David Pattermore

Pollination Scientist
Plant & Food Research's Ruakura site
New Zealand



Presentation

The surprising ways that a deeper understanding of pollinators, flowers and their interactions can improve crop production

Dr. David Pattermore leads Plant & Food Research's Pollination & Apiculture team, with a diverse portfolio of research projects covering apiculture, alternative pollinators (bumble bees, native bees and flies), floral biology and the pollination of fruit, nut and vegetable seed crops. David is particularly interested in how the interaction between flowers & insect behaviour affects pollination and in the use of radio telemetry for studying insect behaviour. He leads a government funded programme to develop alternative strategies for crop pollination, as well as Plant & Food Research's internal programme on improving bee health and honey production. He has been at Plant & Food Research for the last five years since completing his PhD at Princeton University.



SPEAKER LIST

Marco Azzaretti

Product Manager of Key Technology's Advanced Inspection Systems

United States



Presentation

Achieving product quality objectives at maximum yield with digital sorting

Mr. Azzaretti has over 15 years of leadership experience with suppliers of food processing equipment and other industrial automation technologies. He holds a bachelor's degree in business from Xavier University, and earned an MBA from Northwestern University in the United States. Key Technology develops and manufactures automated digital sort systems for vegetables and potato inspection. Those systems integrate various sensor technologies, including multi-spectral lasers, colour and infrared cameras, and hyperspectral imagers; sensor data is processed through specialized software and algorithms for intelligent decision-making. Key's digital sort systems are used to intelligently identify and automatically remove defects and foreign materials from the product stream, managing product selection to achieve target quality grades while maximizing process yield.

Dr David Ireland

Principal, ThinkPlace

Australia



Presentation

Innovation in agriculture

David's experience in innovation ranges from bench scientist, to entrepreneur, consultant, and innovation systems policy and international development practitioner. He is recognised as a leading entrepreneur and innovation specialist and has recently been cited as one of the world's top 50 most talented social entrepreneurs. David is regularly invited to participate in global entrepreneurship and innovation accelerators and competitions and to present on innovation, creativity, entrepreneurship, and foresighting. He has also published widely in these fields. David holds a dual PhD in medicinal chemistry and innovation from the University of Queensland together with a Bachelor of Science with honours and Bachelor of Business Management. He has completed a number of post graduate qualifications in fields including executive leadership, strategy, and governance. David is a graduate of the Australian Institute of Company Directors and is a long-time supporter of various NGO programs.

Dr Joe Guenther

Professor Emeritus of Agricultural Economics University of Idaho
United States



Presentation

Enhancing Productivity with Technology

Joe Guenther, a former potato and vegetable grower, is Emeritus Professor of Agricultural Economics at the University of Idaho. He has been a consultant to numerous potato agribusinesses and is a former President of the Potato Association of America. Joe wrote a book titled 'The International Potato Industry.' He also writes for Spudman magazine, Aardappelwereld (Potato World), a Dutch potato industry magazine and The Packer, a fresh produce publication. Joe earned a BS at the University of Wisconsin, an MS from Montana State University, a PhD from Washington State University and was a Visiting Scholar at Cambridge University in England.

Dr. Gert Koostra

Expertise Leader Computer Vision, Wageningen University

The Netherlands



Presentation

Towards autonomous and flexible food processing

Gert Koostra is a researcher in the area of Computer Vision and Robotics in the agri-food domain. He received his PhD in 2009 from the University of Groningen, The Netherlands, on the topic of visual attentions of man and machine. From 2009 until 2012, Gert was a post-doctoral researcher at the Royal Institute of Technology (KTH), in Stockholm, Sweden, where he performed research on object detection and robotic grasping. Since 2012, he has worked at Wageningen, where he applies his knowledge on computer vision and robotics to automation in the agri-food industry. His talk at the Global Innovations in Horticulture Seminar will discuss research and development in the European project "PicknPack", which has the aim to develop new technologies for autonomous and flexible food processing lines.

Dr. Fred Ziari

CEO IRZ Consulting Inc

United States



Presentation

Precision Irrigation Technologies – A Global Model

Fred Ziari is an entrepreneur and innovator. His water resource and irrigation innovations in satellite soil-moisture monitoring and sensor technologies have resulted in savings of one hundred billion gallons of water and over 300 million kilowatt hours of electricity in just the last decade. He founded his first water resource engineering company, IRZ Consulting, in 1984 and his fourth company in 2008. Through IRZ Consulting, he has assisted agricultural communities around the world to maximize our planet's precious resources. In 2012, Mr. Ziari's three of four companies were acquired by Lindsay Corporation.

Appendix 4 – 2016 GIHS Weekly Update promotion

Sign-up now for the Global Innovations in Horticulture seminar



Following on from the successful 2015 Seminar, Australian levy-paying vegetable growers will have the chance to listen to presentations from the world's leading innovation experts at the 2016 Global Innovations in Horticulture Seminar on Thursday 23 June at RACV Royal Pines on the Gold Coast.

The Seminar will take place prior to the 2016 National Horticulture Convention at RACV Royal Pines from 23-25 June.

The Seminar will feature nine expert speakers from around the world on topics including precision agriculture, processing machinery, robotic technology, genetic modification, agriculture innovation research and plant breeding. Previous seminars have been very well received by growers, so don't miss out on the opportunity to benefit from the expertise of these leading thinkers in global horticulture.

Funded positions are available for attendance at this Seminar for levy-paying growers. For further details on the event, please [click here](#) to download the event flyer, including the full list of speakers and their topics. Interested parties can also contact AUSVEG Global Innovations Coordinator Dylan Komishon on (03) 9882 0277, fax on (03) 9882 6722 or by email at info@ausveg.com.au.

The Global Innovations in Horticulture Seminar is funded by Horticulture Innovation Australia using the National Vegetable Levy and funds from the Australian Government.



Appendix 5 – 2016 GIHS Vegetables Australia articles

20



Vegetable growers tune in to innovative ideas



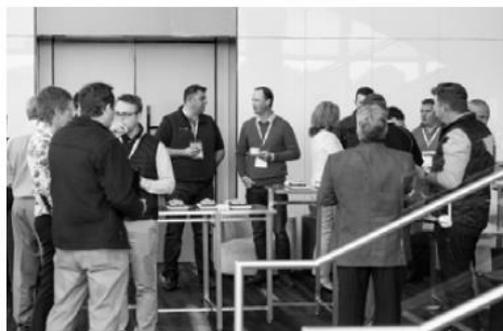
IN THE LEAD-UP TO THE 2016 NATIONAL HORTICULTURE CONVENTION, THE GLOBAL INNOVATIONS IN HORTICULTURE SEMINAR DEMONSTRATED TO ATTENDEES THE VERY LATEST IN INNOVATIVE TECHNOLOGY FROM AROUND THE WORLD. THE SEMINAR SHOWCASED A VARIETY OF IDEAS THAT ARE AT THE LEADING EDGE OF AGRICULTURAL INNOVATION.

Nine thought-provoking speakers from around the world presented at the 2016 Global Innovations in Horticulture Seminar on Thursday 23 June at RACV Royal Pines on the Gold Coast. Speakers presented to vegetable growers and industry representatives and discussed the very latest in vegetable R&D.

This year's presentations covered a wide array of horticultural sciences and emerging technologies, such as robotic technology, precision irrigation, pollination, processing machinery, horticultural innovation, plant breeding, agricultural economics and genetic modification.

how government regulation of products is the main issue facing agriculture today.

Dr Amos Albert, CEO of Bosch Deepfield Robotics in Germany, discussed the topic 'From the internet of fields to the internet of plants'. This presentation covered key points such as Deepfield Robotics' basic philosophy, as well as the benefits in regards to how they collect and process environmental data, the models they use to help farmers make better decisions, and how to manage feedback loops appropriately. Dr Albert also showed a live demonstration of a 4D scan, and its automated field testing abilities.



GM and robots

During the course of the Seminar, genetic modification guru, author and Senior Research Fellow at the Institute for Food and Agricultural Literacy from the University of California, Jon Entine, presented on innovation and new breeding techniques which are revolutionising food and farming. Mr Entine touched on subjects such as how industrial agriculture is often used in social media, the benefits of sustainability, and

In awe of automation

Wageningen University researcher and Expertise Leader in Computer Vision from the Netherlands, Dr Gert Kootstra, presented on automating the food industry. This covered ways in which processing machinery can help reduce food costs, improve product quality, reduce food waste, assess the quality of every food item, optimise logistics and increase shelf life. Additionally, Dr Kootstra offered a summary of the challenges facing the vegetable



processing machinery industry, such as variation in packaging and variation in products.

Key Technology representative, Marco Azzaretti, presented on the benefits of the US digital sorting company's products to the industry. He focused on explaining how the company's sensor-based automatic inspection systems work, their capabilities, and why digital sorting should be considered for various farming operations.

Precision irrigation specialist and CEO of IRZ Consulting in the United States, Dr Fred Ziari, gave an insightful overview into the role of precision irrigation in horticulture. Dr Ziari also covered topics such as the impact of population growth, as well as water use efficiency, food requirements, biofuels and environmental improvement.

Enhancing productivity

Dr Joe Guenther, Professor Emeritus of Agricultural Economics at the University of Idaho and consultant for Simplot, presented his views on how to enhance productivity with technology. His presentation focused on areas such as consumer acceptance, traditional breeding and innate technology, as well as the outline of grower costs.

Pollination Scientist from Plant and Food Research New Zealand, Dr David Pattemore, presented the topic 'Surprises in Pollination', which covered areas such as pollination's dependence on interaction with flowers and the environment, unlikely pollinators, as well as the importance of understanding what pollinator is visiting your crop.

Wageningen University Chair of the Plant Breeding sector Professor Richard Visser focused on the challenges of breeding climate-resistant vegetable crops. This covered areas such as threats to global food security, the need to produce more food with less input for more people, and the challenges in abiotic stress resistance. Finally, Dr David

Ireland, Principal of Australian organisation Thinkplace, gave an overview of the state of innovation in agriculture. Dr Ireland's presentation discussed topics such as the major issues surrounding food waste in the vegetable industry, and the importance of building effective partnerships to solve diverse business-related problems.

An insightful Seminar

The 2016 Global Innovations in Horticulture Seminar provided all attendees with provocative insights into the here-and-now of modern horticulture. Attendees were delighted by the variety of topics and talent of speakers on the program, leaving them asking a wide range of thought-provoking questions during each of the panel question and answer sessions.

Feedback from participants showed that over 97 per cent of attendees would consider attending the Global Innovations in Horticulture Seminar again, illustrating its remarkable success. The event left a positive impact on delegates, who in many cases were confident they would implement the technology and ideas on display into their own growing operations.

i All Seminar presentations will be made available on ausveg.com.au in coming weeks.

This project has been funded by Horticulture Innovation Australia Limited using the National Vegetable Levy and funds from the Australian Government.

Project Number: VG15032



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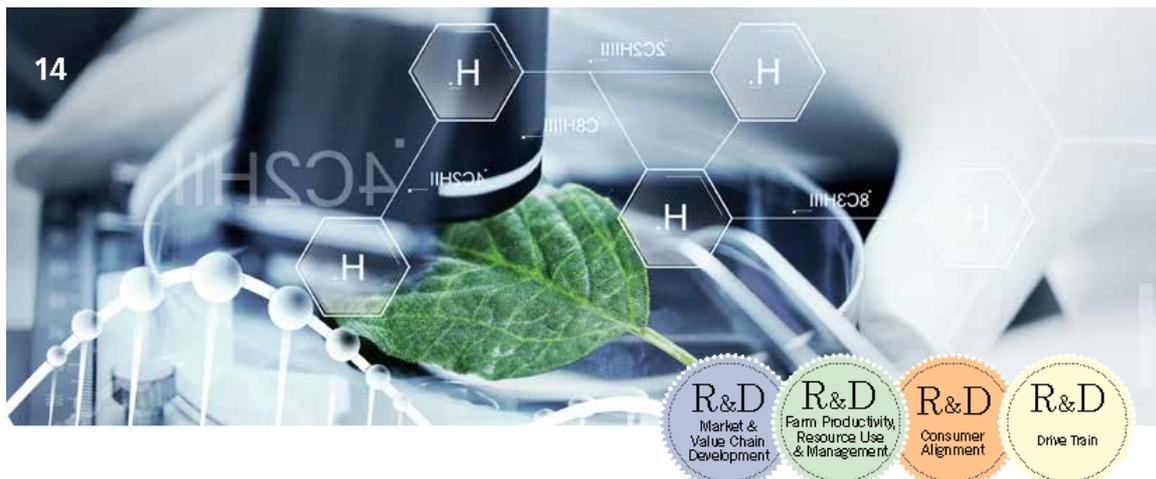


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Global Innovations in Horticulture Seminar: Making the most of the ideas boom

2016 IS OFFICIALLY THE YEAR OF INNOVATION. THE GLOBAL INNOVATIONS IN HORTICULTURE SEMINAR, WHICH WILL COINCIDE WITH THE NATIONAL HORTICULTURE CONVENTION ON THE GOLD COAST IN JUNE, IS SET TO FEATURE WORLD-LEADING SPEAKERS IN FARMING TECHNOLOGY. VEGETABLES AUSTRALIA TAKES A LOOK AT WHAT GROWERS CAN EXPECT FROM THIS EXCITING EVENT.

Following the Federal Government's recent launch of the 'ideas boom', many entrepreneurs and small businesses are champing at the bit to dive into a new wave of creativity. From a micro-optic device that can fit into a needle to aid surgery, to the development of anti-ageing sweet corn, Australia had its fair share of innovative ideas in 2015.

This year, AUSVEG, in partnership with Horticulture Innovation Australia Limited, will present the latest developments in agriculture at the 2016 Global Innovations in Horticulture Seminar, which will take place at RACV Royal Pines on the Gold Coast on Thursday 23 June. This highly anticipated event follows on from last year's Global Technologies in Horticulture Seminar, which was very well-received and generated high volumes of media coverage.

The seminar this year will focus on new international farming technologies that can help growers to reduce the cost of production, increase

efficiency and, ultimately, create a highly sustainable and competitive business.

Innovative speakers

Headlining the seminar is Genetic Literacy Project Executive Director Jon Entine, an American genetic modification guru, science journalist and author. Mr Entine recently gave a captivating presentation at the National Press Club that addressed the genetically modified (GM) food debate and whether we can sustain the food supply for generations to come. His views on GM have sparked much debate over the years and his presentation at the upcoming seminar is expected to ignite passionate discussions among delegates.

Dr Richard Visser, the Chair and Head of the Wageningen University Plant Breeding Department in the Netherlands, is another speaker not to be missed. Widely regarded as the foremost agricultural university in the world, Wageningen University's lecturers regularly

conduct seminars and trade events in various cities. Professor Visser recently gave a keynote speech on *Research, innovation and technology for an improved and more sustainable primary production* at the World Food Research and Innovation Forum in Milan, one of the largest horticulture forums in Europe.

Food for thought

Overall, nine speakers will be taking to the stage this year to discuss topics ranging from precision agriculture to genetic modification. They include:

- Dr Amos Albert, CEO of start up Bosch Deepfield Robotics in Germany.
- Dr Fred Ziari, CEO of IRZ Consulting, a precision irrigation firm in the United States.
- Dr David Pattemore, Pollination Scientist at Plant and Food Research in New Zealand.
- Marco Azzaretti, Product Manager for Key Technology, a processing machinery

company in the United States.

- Dr David Ireland, Principal at ThinkPlace in Australia.
- Dr Gert Kootstra, Expertise Leader in Computer Vision at Wageningen University.
- Dr Joe Guenther, Professor Emeritus of Agricultural Economics at the University of Idaho in the United States.

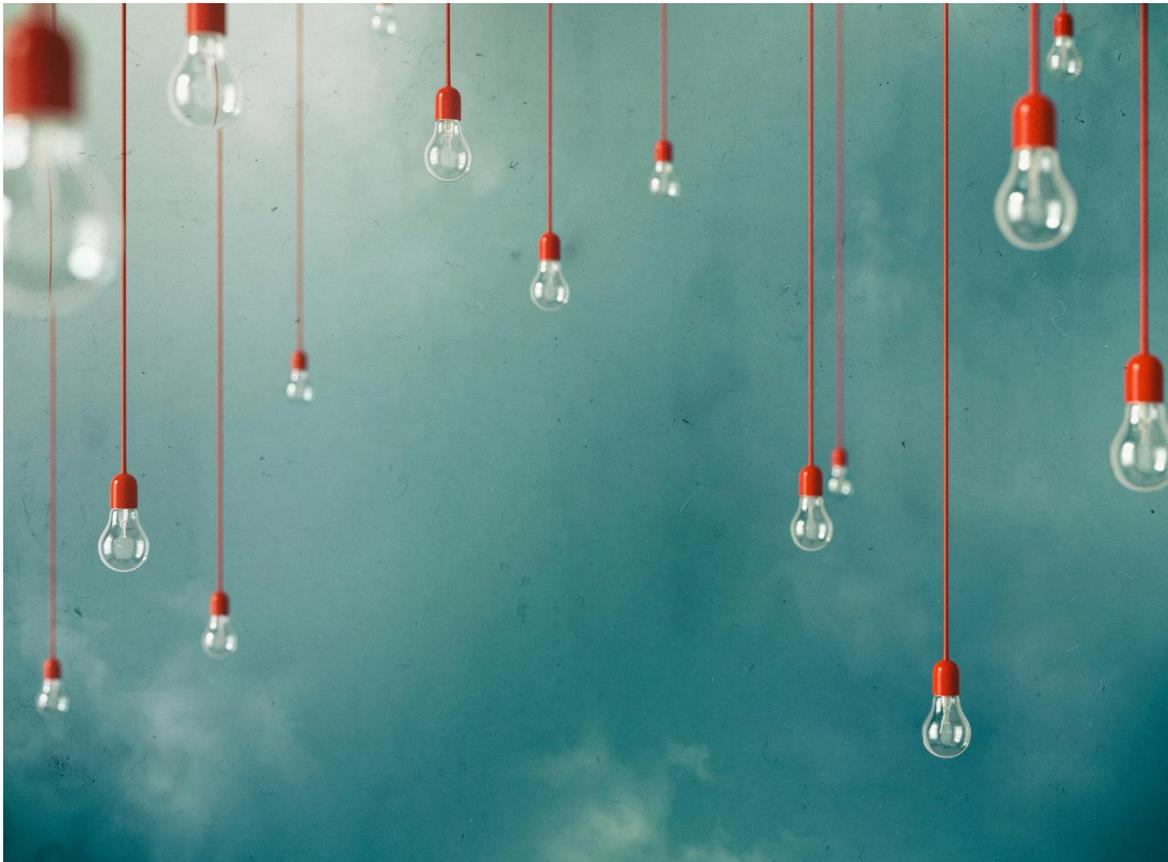
Vegetable levy paying growers who are interested in attending this event, or would like further information, can contact AUSVEG Global Innovations Coordinator Dylan Komishon on (03) 9882 0277 or info@usveg.com.au.

The 2016 Global Innovations in Horticulture Seminar is funded by Horticulture Innovation Australia using the National Vegetable Levy and funds from the Australian Government.

Project Number VG15032

Horticulture
Innovation
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Appendix 6 – 2016 GIHS Seminar booklets



GLOBAL INNOVATIONS *in horticulture seminar*

Group A – Cypress 1

Thursday 23 June, 9:00am – 5:00pm
RACV Royal Pines

This project has been funded by Horticulture Innovation Australia Limited using the National Vegetable levy and funds from the Australian Government.

**Horticulture
Innovation
Australia**

AUSVEG

GLOBAL INNOVATIONS *in horticulture seminar*

On Thursday 23 June 2016, AUSVEG in conjunction with Horticulture Innovation Australia (Hort Innovation) will hold a seminar to discuss global innovations in horticulture that will demonstrate to attendees the very latest in innovative technology from around the world. This seminar will precede the 2016 National Horticulture Convention, Trade Show and Awards for Excellence, to be held at RACV Royal Pines Resort Gold Coast, Queensland from June 23-25, 2016.

With a focus on new innovations in horticulture from world renowned experts in the field, the seminar will showcase a variety of ideas that are at the leading edge of agricultural

innovation. Growers will also get an insight into technologies that will allow them to become more efficient, more productive and ultimately more profitable.

Participants will have the opportunity to field questions to speakers, while discussing the importance and challenges of incorporating scientific and technical innovation into modern Australian farming practices. This year the following speakers will cover a wide variety of topics including: Precision Agriculture, Processing Machinery, Robotic Technology, Genetic Modification, Agriculture Innovation Research, Agricultural Economics, Pollination and Plant Breeding.

SPEAKER LIST

Jon Entine

Author and Senior Research Fellow at the Institute for Food & Agricultural Literacy University of California U.S.A



Presentation

Biotech 2.0: How GMO innovation and new breeding techniques are revolutionizing food and farming

Jon Entine is founder of the Genetic Literacy Project, an independent Washington, DC based NGO that educates the public on the intersection of human and agricultural genetics. He is Senior Fellow at the Institute for Food and Agricultural Literacy at the University of California, Davis and the American Enterprise Institute in Washington. He lives in Cincinnati and lectures around the world on science literacy. Jon is a 45-year journalism veteran: 20 years with ABC and NBC News; writer of 7 books including "Let Them Eat Precaution: How Politics is Undermining the Genetic Revolution in Agriculture" and "Crop Chemophobia: Will Precaution Kill the Green Revolution?" He has won 20 international journalism accolades including two Emmys and a National Press Club Award.

Dr. Richard Visser

Chair and head Wageningen University Plant Breeding



Presentation

Breeding climate resilient vegetable crops

Richard Visser received his Msc in Molecular Microbiology and Cell and Plant Genetics in 1984, as well as his PhD in Biology in 1988 from the State University of Groningen. In addition to being the Chair and head of Wageningen University Plant Breeding, he currently holds the position of Dean of Research of Wageningen University & Research. Dr. Visser has supervised the completion of over 108 PhD students, and is involved in the supervision of over 60 more. He has been published in over 450 internationally refereed Journals including: Nature, Nature Biotech, Nature Plants, Plant Cell, Plant Journal, EMBO J, Plant Phys, MPMI, Planta, MGG, TAG, Molecular Breeding and Euphytica, and is a regular lecturer at various agriculture seminars throughout the world on Plant Breeding.

Dr. Amos Albert

CEO Bosch Deepfield Robotics

Germany



Presentation

From the internet of fields to the internet of plants

Prof. Dr. Amos Albert is the CEO of Deepfield Robotics, a Bosch start-up established in 2014, which is inspired to contribute innovative technologies towards sustainable farming. He holds degrees in Electrical Engineering and Economic Sciences and received his PhD in 2001 for his work on bipedal robots. In 2002 he joined Bosch Research and held different positions. In his last position Amos was the Chief Expert for Autonomous Systems and Robotics, responsible for their respective strategic programs. Besides his engagement in industry, Amos is giving graduate lectures on different topics of control theory. During 2011-2013 he also headed the Institute for Automatic Control, Leibniz University Hannover. Bosch Deepfield Robotics is inspired to contribute innovative technologies towards sustainable farming. Their approaches consist of both connectivity solutions to support farmers in making better decisions, as well as robotic systems, e.g. for improving seed breeding or mechanical weed control.

Dr. David Pattermore

Pollination Scientist
Plant & Food Research's Ruakura site
New Zealand



Presentation

The surprising ways that a deeper understanding of pollinators, flowers and their interactions can improve crop production

Dr. David Pattermore leads Plant & Food Research's Pollination & Apiculture team, with a diverse portfolio of research projects covering apiculture, alternative pollinators (bumble bees, native bees and flies), floral biology and the pollination of fruit, nut and vegetable seed crops. David is particularly interested in how the interaction between flowers & insect behaviour affects pollination and in the use of radio telemetry for studying insect behaviour. He leads a government funded programme to develop alternative strategies for crop pollination, as well as Plant & Food Research's internal programme on improving bee health and honey production. He has been at Plant & Food Research for the last five years since completing his PhD at Princeton University.

SPEAKER LIST

Marco Azzaretti

Product Manager of Key Technology's Advanced Inspection Systems

United States



Presentation

Achieving product quality objectives at maximum yield with digital sorting

Mr. Azzaretti has over 15 years of leadership experience with suppliers of food processing equipment and other industrial automation technologies. He holds a bachelor's degree in business from Xavier University, and earned an MBA from Northwestern University in the United States. Key Technology develops and manufactures automated digital sort systems for vegetables and potato inspection. Those systems integrate various sensor technologies, including multi-spectral lasers, colour and infrared cameras, and hyperspectral imagers; sensor data is processed through specialised software and algorithms for intelligent decision-making. Key's digital sort systems are used to intelligently identify and automatically remove defects and foreign materials from the product stream, managing product selection to achieve target quality grades while maximizing process yield.

Dr David Ireland

Principal, ThinkPlace

Australia



Presentation

Innovation in agriculture

David's experience in innovation ranges from bench scientist, to entrepreneur, consultant, and innovation systems policy and international development practitioner. He is recognised as a leading entrepreneur and innovation specialist and has recently been cited as one of the world's top 50 most talented social entrepreneurs. David is regularly invited to participate in global entrepreneurship and innovation accelerators and competitions and to present on innovation, creativity, entrepreneurship, and foresighting. He has also published widely in these fields. David holds a dual PhD in medicinal chemistry and innovation from the University of Queensland together with a Bachelor of Science with honours and Bachelor of Business Management. He has completed a number of post graduate qualifications in fields including executive leadership, strategy, and governance. David is a graduate of the Australian Institute of Company Directors and is a long-time supporter of various NGO programs.

Dr Joe Guenther

Professor Emeritus of Agricultural Economics University of Idaho
United States



Presentation

Enhancing Productivity with Technology

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Dr. Gert Koostra

Expertise Leader Computer Vision, Wageningen University

The Netherlands



Presentation

Towards autonomous and flexible food processing

Dr. Gert Kootstra is researcher and scientific coordinator in Computer Vision and Robotics at the Wageningen UR. He received his PhD in Artificial Intelligence from the University of Groningen, The Netherlands, in 2009. From 2009-2012, he was a postdoctoral fellow at the Royal Institute of Technology (KTH) in Stockholm, focussing on machine vision and robotic grasping. Gert's current research deals with visual quality inspection and robotic handling in the agro-food domain.

Dr. Fred Ziari

CEO IRZ Consulting Inc

United States



Presentation

Precision Irrigation Technologies – A Global Model

Fred Ziari is an entrepreneur and innovator. His water resource and irrigation innovations in satellite soil-moisture monitoring and sensor technologies have resulted in savings of one hundred billion gallons of water and over 300 million kilowatt hours of electricity in just the last decade. He founded his first water resource engineering company, IRZ Consulting, in 1984 and his fourth company in 2008. Through IRZ Consulting, he has assisted agricultural communities around the world to maximize our planet's precious resources. In 2012, three of Dr. Ziari's four companies were acquired by Lindsay Corporation.



Feedback Form: What are your thoughts on today's Seminar?

AUSVEG would like to thank you for your participation and attendance at the 2016 Global Innovations in Horticulture Seminar. In an effort to continually measure and improve industry events, we ask that at the conclusion of today's seminar you kindly complete the following survey and return it to AUSVEG staff before leaving.

Your responses will be used to guide the development of future Seminars and will remain strictly confidential. The survey should not take more than 5 minutes to complete.

How did you find the following speakers today?

Dr Joseph Guenther: "Enhancing Productivity with Technology"

How engaging did you find Dr Guenther's presentation?

Not engaging Very engaging

How relevant was Dr Guenther's address to your business or operation?

Not relevant Very relevant

Dr Fred Ziari: "Precision Irrigation Technologies – A Global Model"

How engaging did you find Dr Ziari's presentation?

Not engaging Very engaging

How relevant was Dr Ziari's address to your business or operation?

Not relevant Very relevant

Dr David Pattemore: "The surprising ways that a deeper understanding of pollinators, flowers and their interactions can improve crop production"

How engaging did you find Dr Pattemore's presentation?

Not engaging Very engaging

How relevant was Dr Pattemore's address to your business or operation?

Not relevant Very relevant

Mr Marco Azzaretti: "Achieving product quality objectives at maximum yield with digital sorting"

How engaging did you find Mr Azzaretti's presentation?

Not engaging Very engaging

How relevant was Mr Azzaretti's address to your business or operation?

Not relevant Very relevant



Dr Gert Kootstra: "Towards autonomous and flexible food processing"

How engaging did you find Dr Kootstra's presentation?

Not engaging Very engaging

How relevant was Dr Kootstra's address to your business or operation?

Not relevant Very relevant

Dr Amos Albert: "From the internet of fields to the internet of plants"

How engaging did you find Dr Albert's presentation?

Not engaging Very engaging

How relevant was Dr Albert's address to your business or operation?

Not relevant Very relevant

Mr Jon Entine: "Biotech 2.0: How GMO innovation and new breeding techniques are revolutionising food and farming"

How engaging did you find Mr Entine's presentation?

Not engaging Very engaging

How relevant was Mr Entine's address to your business or operation?

Not relevant Very relevant

Dr David Ireland: "Innovation in Agriculture"

How engaging did you find Dr Ireland's presentation?

Not engaging Very engaging

How relevant was Dr Ireland's address to your business or operation?

Not relevant Very relevant

Professor Richard Visser: "Breeding climate resilient vegetable crops"

How engaging did you find Professor Visser's presentation?

Not engaging Very engaging

How relevant was Professor Visser's address to your business or operation?

Not relevant Very relevant



SURVEY

How worthwhile did you find the 2016 Global Innovations in Horticulture Seminar?

- Not worthwhile Somewhat worthwhile Worthwhile Very Worthwhile

Have you attended a Global Innovations in Horticulture Seminar in the past?

- Yes No

Would you consider attending another Global Innovations in Horticulture Seminar or similar event again?

- Yes No

How did you hear about the 2016 Global Innovations in Horticulture Seminar?

- AUSVEG Weekly Update Vegetables Australia Magazine AUSVEG representative
 Word of mouth Received direct invitation
 Other (please specify)

Was there something you liked or something we could improve for next time?



GROUP A – CYPRESS 1

9.00am - 9.20am	Tea, coffee and brief welcome
9.20am - 9.30am	Introduction by Chair, Hon. Paul Calvert
9.30am - 9.50am	Dr Gert Kootstra <i>Towards Autonomous and Flexible Food Processing.</i>
9.50am - 10.10am	Dr David Pattemore <i>The surprising ways that a deeper understanding of pollinators, flowers and their interactions can improve crop production.</i>
10.10am - 10.30am	Dr Joseph Guenther <i>Enhancing Productivity with Technology.</i>
10.30am - 11.00am	Panel Q&A
11.00am - 11.30am	Morning Tea
11.30am - 11.50am	Marco Azzaretti <i>Achieving product quality objectives at maximum yield with digital sorting.</i>
11.50am - 12.10am	Professor Richard Visser <i>Breeding climate resilient vegetable crops.</i>
12.10am - 12.30am	Dr David Ireland <i>Innovation in Agriculture.</i>
12.30am - 1.00pm	Panel Q&A
1.00pm - 2.00pm	Lunch (Jacaranda Room)
2.10pm - 2.30pm	Jon Entine <i>Biotech 2.0: How GMO innovation and new breeding techniques are revolutionizing food and farming.</i>
2.30pm - 2.50pm	Dr Amos Albert <i>From the internet of fields to the internet of plants.</i>
2.50pm - 3.10pm	Dr Fred Ziari <i>Precision Irrigation Technologies – A Global Model.</i>
3.10pm - 3.40pm	Panel Q&A
3.40pm - 3.50pm	Conclusion
4.00pm - 5.00pm	Post Seminar Hospitality (Jacaranda Room)



GLOBAL INNOVATIONS *in horticulture seminar*

Group B – Cypress 2

Thursday 23 June, 9:00am – 5:00pm
RACV Royal Pines

This project has been funded by Horticulture Innovation Australia Limited using the National Vegetable levy and funds from the Australian Government.

**Horticulture
Innovation
Australia**

AUSVEG

GLOBAL INNOVATIONS *in horticulture seminar*

On Thursday 23 June 2016, AUSVEG in conjunction with Horticulture Innovation Australia (Hort Innovation) will hold a seminar to discuss global innovations in horticulture that will demonstrate to attendees the very latest in innovative technology from around the world. This seminar will precede the 2016 National Horticulture Convention, Trade Show and Awards for Excellence, to be held at RACV Royal Pines Resort Gold Coast, Queensland from June 23-25, 2016.

With a focus on new innovations in horticulture from world renowned experts in the field, the seminar will showcase a variety of ideas that are at the leading edge of agricultural

innovation. Growers will also get an insight into technologies that will allow them to become more efficient, more productive and ultimately more profitable.

Participants will have the opportunity to field questions to speakers, while discussing the importance and challenges of incorporating scientific and technical innovation into modern Australian farming practices. This year the following speakers will cover a wide variety of topics including: Precision Agriculture, Processing Machinery, Robotic Technology, Genetic Modification, Agriculture Innovation Research, Agricultural Economics, Pollination and Plant Breeding.



SPEAKER LIST

Jon Entine

Author and Senior Research Fellow at the Institute for Food & Agricultural Literacy University of California U.S.A



Presentation

Biotech 2.0: How GMO innovation and new breeding techniques are revolutionizing food and farming

Jon Entine is founder of the Genetic Literacy Project, an independent Washington, DC based NGO that educates the public on the intersection of human and agricultural genetics. He is Senior Fellow at the Institute for Food and Agricultural Literacy at the University of California, Davis and the American Enterprise Institute in Washington. He lives in Cincinnati and lectures around the world on science literacy. Jon is a 45-year journalism veteran: 20 years with ABC and NBC News; writer of 7 books including "Let Them Eat Precaution: How Politics is Undermining the Genetic Revolution in Agriculture" and "Crop Chemophobia: Will Precaution Kill the Green Revolution?" He has won 20 international journalism accolades including two Emmys and a National Press Club Award.

Dr. Richard Visser

Chair and head Wageningen University Plant Breeding



Presentation

Breeding climate resilient vegetable crops

Richard Visser received his Msc in Molecular Microbiology and Cell and Plant Genetics in 1984, as well as his PhD in Biology in 1988 from the State University of Groningen. In addition to being the Chair and head of Wageningen University Plant Breeding, he currently holds the position of Dean of Research of Wageningen University & Research. Dr. Visser has supervised the completion of over 108 PhD students, and is involved in the supervision of over 60 more. He has been published in over 450 internationally refereed Journals including: Nature, Nature Biotech, Nature Plants, Plant Cell, Plant Journal, EMBO J, Plant Phys, MPMI, Planta, MGG, TAG, Molecular Breeding and Euphytica, and is a regular lecturer at various agriculture seminars throughout the world on Plant Breeding.

Dr. Amos Albert

CEO Bosch Deepfield Robotics

Germany



Presentation

From the internet of fields to the internet of plants

Prof. Dr. Amos Albert is the CEO of Deepfield Robotics, a Bosch start-up established in 2014, which is inspired to contribute innovative technologies towards sustainable farming. He holds degrees in Electrical Engineering and Economic Sciences and received his PhD in 2001 for his work on bipedal robots. In 2002 he joined Bosch Research and held different positions. In his last position Amos was the Chief Expert for Autonomous Systems and Robotics, responsible for their respective strategic programs. Besides his engagement in industry, Amos is giving graduate lectures on different topics of control theory. During 2011-2013 he also headed the Institute for Automatic Control, Leibniz University Hannover. Bosch Deepfield Robotics is inspired to contribute innovative technologies towards sustainable farming. Their approaches consist of both connectivity solutions to support farmers in making better decisions, as well as robotic systems, e.g. for improving seed breeding or mechanical weed control.

Dr. David Pattermore

Pollination Scientist
Plant & Food Research's Ruakura site
New Zealand



Presentation

The surprising ways that a deeper understanding of pollinators, flowers and their interactions can improve crop production

Dr. David Pattermore leads Plant & Food Research's Pollination & Apiculture team, with a diverse portfolio of research projects covering apiculture, alternative pollinators (bumble bees, native bees and flies), floral biology and the pollination of fruit, nut and vegetable seed crops. David is particularly interested in how the interaction between flowers & insect behaviour affects pollination and in the use of radio telemetry for studying insect behaviour. He leads a government funded programme to develop alternative strategies for crop pollination, as well as Plant & Food Research's internal programme on improving bee health and honey production. He has been at Plant & Food Research for the last five years since completing his PhD at Princeton University.



SPEAKER LIST

Marco Azzaretti

Product Manager of Key Technology's Advanced Inspection Systems

United States



Presentation

Achieving product quality objectives at maximum yield with digital sorting

Mr. Azzaretti has over 15 years of leadership experience with suppliers of food processing equipment and other industrial automation technologies. He holds a bachelor's degree in business from Xavier University, and earned an MBA from Northwestern University in the United States. Key Technology develops and manufactures automated digital sort systems for vegetables and potato inspection. Those systems integrate various sensor technologies, including multi-spectral lasers, colour and infrared cameras, and hyperspectral imagers; sensor data is processed through specialised software and algorithms for intelligent decision-making. Key's digital sort systems are used to intelligently identify and automatically remove defects and foreign materials from the product stream, managing product selection to achieve target quality grades while maximizing process yield.

Dr David Ireland

Principal, ThinkPlace

Australia



Presentation

Innovation in agriculture

David's experience in innovation ranges from bench scientist, to entrepreneur, consultant, and innovation systems policy and international development practitioner. He is recognised as a leading entrepreneur and innovation specialist and has recently been cited as one of the world's top 50 most talented social entrepreneurs. David is regularly invited to participate in global entrepreneurship and innovation accelerators and competitions and to present on innovation, creativity, entrepreneurship, and foresighting. He has also published widely in these fields. David holds a dual PhD in medicinal chemistry and innovation from the University of Queensland together with a Bachelor of Science with honours and Bachelor of Business Management. He has completed a number of post graduate qualifications in fields including executive leadership, strategy, and governance. David is a graduate of the Australian Institute of Company Directors and is a long-time supporter of various NGO programs.

Dr Joe Guenther

Professor Emeritus of Agricultural Economics University of Idaho

United States



Presentation

Enhancing Productivity with Technology

Joe Guenther, a former potato and vegetable grower, is Emeritus Professor of Agricultural Economics at the University of Idaho. He has been a consultant to numerous potato agribusinesses and is a former President of the Potato Association of America. Joe wrote a book titled 'The International Potato Industry.' He also writes for Spudman magazine, Aardappelwereld (Potato World), a Dutch potato industry magazine and The Packer, a fresh produce publication. Joe earned a BS at the University of Wisconsin, an MS from Montana State University, a PhD from Washington State University and was a Visiting Scholar at Cambridge University in England.

Dr. Gert Koostra

Expertise Leader Computer Vision, Wageningen University

The Netherlands



Presentation

Towards autonomous and flexible food processing

Dr. Gert Koostra is researcher and scientific coordinator in Computer Vision and Robotics at the Wageningen UR. He received his PhD in Artificial Intelligence from the University of Groningen, The Netherlands, in 2009. From 2009-2012, he was a postdoctoral fellow at the Royal Institute of Technology (KTH) in Stockholm, focussing on machine vision and robotic grasping. Gert's current research deals with visual quality inspection and robotic handling in the agro-food domain.

Dr. Fred Ziari

CEO IRZ Consulting Inc

United States



Presentation

Precision Irrigation Technologies – A Global Model

Fred Ziari is an entrepreneur and innovator. His water resource and irrigation innovations in satellite soil-moisture monitoring and sensor technologies have resulted in savings of one hundred billion gallons of water and over 300 million kilowatt hours of electricity in just the last decade. He founded his first water resource engineering company, IRZ Consulting, in 1984 and his fourth company in 2008. Through IRZ Consulting, he has assisted agricultural communities around the world to maximize our planet's precious resources. In 2012, three of Dr. Ziari's four companies were acquired by Lindsay Corporation.



Feedback Form: What are your thoughts on today's Seminar?

AUSVEG would like to thank you for your participation and attendance at the 2016 Global Innovations in Horticulture Seminar. In an effort to continually measure and improve industry events, we ask that at the conclusion of today's seminar you kindly complete the following survey and return it to AUSVEG staff before leaving.

Your responses will be used to guide the development of future Seminars and will remain strictly confidential. The survey should not take more than 5 minutes to complete.

How did you find the following speakers today?

Dr Joseph Guenther: "Enhancing Productivity with Technology"

How engaging did you find Dr Guenther's presentation?

Not engaging Very engaging

How relevant was Dr Guenther's address to your business or operation?

Not relevant Very relevant

Dr Fred Ziari: "Precision Irrigation Technologies – A Global Model"

How engaging did you find Dr Ziari's presentation?

Not engaging Very engaging

How relevant was Dr Ziari's address to your business or operation?

Not relevant Very relevant

Dr David Pattemore: "The surprising ways that a deeper understanding of pollinators, flowers and their interactions can improve crop production"

How engaging did you find Dr Pattemore's presentation?

Not engaging Very engaging

How relevant was Dr Pattemore's address to your business or operation?

Not relevant Very relevant

Mr Marco Azzaretti: "Achieving product quality objectives at maximum yield with digital sorting"

How engaging did you find Mr Azzaretti's presentation?

Not engaging Very engaging

How relevant was Mr Azzaretti's address to your business or operation?

Not relevant Very relevant



Dr Gert Kootstra: "Towards autonomous and flexible food processing"

How engaging did you find Dr Kootstra's presentation?

Not engaging Very engaging

How relevant was Dr Kootstra's address to your business or operation?

Not relevant Very relevant

Dr Amos Albert: "From the internet of fields to the internet of plants"

How engaging did you find Dr Albert's presentation?

Not engaging Very engaging

How relevant was Dr Albert's address to your business or operation?

Not relevant Very relevant

Mr Jon Entine: "Biotech 2.0: How GMO innovation and new breeding techniques are revolutionising food and farming"

How engaging did you find Mr Entine's presentation?

Not engaging Very engaging

How relevant was Mr Entine's address to your business or operation?

Not relevant Very relevant

Dr David Ireland: "Innovation in Agriculture"

How engaging did you find Dr Ireland's presentation?

Not engaging Very engaging

How relevant was Dr Ireland's address to your business or operation?

Not relevant Very relevant

Professor Richard Visser: "Breeding climate resilient vegetable crops"

How engaging did you find Professor Visser's presentation?

Not engaging Very engaging

How relevant was Professor Visser's address to your business or operation?

Not relevant Very relevant



How worthwhile did you find the 2016 Global Innovations in Horticulture Seminar?

- Not worthwhile Somewhat worthwhile Worthwhile Very Worthwhile

Have you attended a Global Innovations in Horticulture Seminar in the past?

- Yes No

Would you consider attending another Global Innovations in Horticulture Seminar or similar event again?

- Yes No

How did you hear about the 2016 Global Innovations in Horticulture Seminar?

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Was there something you liked or something we could improve for next time?



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3.10pm - 3.40pm	Panel Q&A
3.40pm - 3.50pm	Conclusion
4.00pm - 5.00pm	Post Seminar Hospitality (Jacaranda Room)



GLOBAL INNOVATIONS *in horticulture seminar*

Group C – Karrie Webb

Thursday 23 June, 9:00am – 5:00pm
RACV Royal Pines

This project has been funded by Horticulture Innovation Australia Limited using the National Vegetable levy and funds from the Australian Government.

**Horticulture
Innovation
Australia**

AUSVEG

GLOBAL INNOVATIONS

in horticulture seminar

On Thursday 23 June 2016, AUSVEG in conjunction with Horticulture Innovation Australia (Hort Innovation) will hold a seminar to discuss global innovations in horticulture that will demonstrate to attendees the very latest in innovative technology from around the world. This seminar will precede the 2016 National Horticulture Convention, Trade Show and Awards for Excellence, to be held at RACV Royal Pines Resort Gold Coast, Queensland from June 23-25, 2016.

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innovation. Growers will also get an insight into technologies that will allow them to become more efficient, more productive and ultimately more profitable.

Participants will have the opportunity to field questions to speakers, while discussing the importance and challenges of incorporating scientific and technical innovation into modern Australian farming practices. This year the following speakers will cover a wide variety of topics including: Precision Agriculture, Processing Machinery, Robotic Technology, Genetic Modification, Agriculture Innovation Research, Agricultural Economics, Pollination and Plant Breeding.



Jon Entine

Author and Senior Research Fellow at the Institute for Food & Agricultural Literacy University of California U.S.A



Presentation

Biotech 2.0: How GMO innovation and new breeding techniques are revolutionizing food and farming

Jon Entine is founder of the Genetic Literacy Project, an independent Washington, DC based NGO that educates the public on the intersection of human and agricultural genetics. He is Senior Fellow at the Institute for Food and Agricultural Literacy at the University of California, Davis and the American Enterprise Institute in Washington. He lives in Cincinnati and lectures around the world on science literacy. Jon is a 45-year journalism veteran: 20 years with ABC and NBC News; writer of 7 books including "Let Them Eat Precaution: How Politics is Undermining the Genetic Revolution in Agriculture" and "Crop Chemophobia: Will Precaution Kill the Green Revolution?" He has won 20 international journalism accolades including two Emmys and a National Press Club Award.

Dr. Richard Visser

Chair and head Wageningen University Plant Breeding

The Netherlands



Presentation

Breeding climate resilient vegetable crops

Richard Visser received his Msc in Molecular Microbiology and Cell and Plant Genetics in 1984, as well as his PhD in Biology in 1988 from the State University of Groningen. In addition to being the Chair and head of Wageningen University Plant Breeding, he currently holds the position of Dean of Research of Wageningen University & Research. Dr. Visser has supervised the completion of over 108 PhD students, and is involved in the supervision of over 60 more. He has been published in over 450 internationally refereed Journals including: Nature, Nature Biotech, Nature Plants, Plant Cell, Plant Journal, EMBO J, Plant Phys, MPMI, Planta, MGG, TAG, Molecular Breeding and Euphytica, and is a regular lecturer at various agriculture seminars throughout the world on Plant Breeding.

Dr. Amos Albert

CEO Bosch Deepfield Robotics

Germany



Presentation

From the internet of fields to the internet of plants

Prof. Dr. Amos Albert is the CEO of Deepfield Robotics, a Bosch start-up established in 2014, which is inspired to contribute innovative technologies towards sustainable farming. He holds degrees in Electrical Engineering and Economic Sciences and received his PhD in 2001 for his work on bipedal robots. In 2002 he joined Bosch Research and held different positions. In his last position Amos was the Chief Expert for Autonomous Systems and Robotics, responsible for their respective strategic programs. Besides his engagement in industry, Amos is giving graduate lectures on different topics of control theory. During 2011-2013 he also headed the Institute for Automatic Control, Leibniz University Hannover. Bosch Deepfield Robotics is inspired to contribute innovative technologies towards sustainable farming. Their approaches consist of both connectivity solutions to support farmers in making better decisions, as well as robotic systems, e.g. for improving seed breeding or mechanical weed control.

Dr. David Pattemore

Pollination Scientist
Plant & Food Research's Ruakura site
New Zealand



Presentation

The surprising ways that a deeper understanding of pollinators, flowers and their interactions can improve crop production

Dr. David Pattemore leads Plant & Food Research's Pollination & Apiculture team, with a diverse portfolio of research projects covering apiculture, alternative pollinators (bumble bees, native bees and flies), floral biology and the pollination of fruit, nut and vegetable seed crops. David is particularly interested in how the interaction between flowers & insect behaviour affects pollination and in the use of radio telemetry for studying insect behaviour. He leads a government funded programme to develop alternative strategies for crop pollination, as well as Plant & Food Research's internal programme on improving bee health and honey production. He has been at Plant & Food Research for the last five years since completing his PhD at Princeton University.



SPEAKER LIST

Marco Azzaretti

Product Manager of Key Technology's Advanced Inspection Systems

United States



Presentation

Achieving product quality objectives at maximum yield with digital sorting

Mr. Azzaretti has over 15 years of leadership experience with suppliers of food processing equipment and other industrial automation technologies. He holds a bachelor's degree in business from Xavier University, and earned an MBA from Northwestern University in the United States. Key Technology develops and manufactures automated digital sort systems for vegetables and potato inspection. Those systems integrate various sensor technologies, including multi-spectral lasers, colour and infrared cameras, and hyperspectral imagers; sensor data is processed through specialised software and algorithms for intelligent decision-making. Key's digital sort systems are used to intelligently identify and automatically remove defects and foreign materials from the product stream, managing product selection to achieve target quality grades while maximizing process yield.

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Principal, ThinkPlace

Australia



Presentation

Innovation in agriculture

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Dr Joe Guenther

Professor Emeritus of Agricultural Economics University of Idaho

United States



Presentation

Enhancing Productivity with Technology

Joe Guenther, a former potato and vegetable grower, is Emeritus Professor of Agricultural Economics at the University of Idaho. He has been a consultant to numerous potato agribusinesses and is a former President of the Potato Association of America. Joe wrote a book titled 'The International Potato Industry.' He also writes for Spudman magazine, Aardappelwereld (Potato World), a Dutch potato industry magazine and The Packer, a fresh produce publication. Joe earned a BS at the University of Wisconsin, an MS from Montana State University, a PhD from Washington State University and was a Visiting Scholar at Cambridge University in England.

Dr. Gert Koostra

Expertise Leader Computer Vision, Wageningen University

The Netherlands



Presentation

Towards autonomous and flexible food processing

Dr. Gert Koostra is researcher and scientific coordinator in Computer Vision and Robotics at the Wageningen UR. He received his PhD in Artificial Intelligence from the University of Groningen, The Netherlands, in 2009. From 2009-2012, he was a postdoctoral fellow at the Royal Institute of Technology (KTH) in Stockholm, focussing on machine vision and robotic grasping. Gert's current research deals with visual quality inspection and robotic handling in the agro-food domain.

Dr. Fred Ziari

CEO IRZ Consulting Inc

United States



Presentation

Precision Irrigation Technologies – A Global Model

Fred Ziari is an entrepreneur and innovator. His water resource and irrigation innovations in satellite soil-moisture monitoring and sensor technologies have resulted in savings of one hundred billion gallons of water and over 300 million kilowatt hours of electricity in just the last decade. He founded his first water resource engineering company, IRZ Consulting, in 1984 and his fourth company in 2008. Through IRZ Consulting, he has assisted agricultural communities around the world to maximize our planet's precious resources. In 2012, three of Dr. Ziari's four companies were acquired by Lindsay Corporation.



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Your responses will be used to guide the development of future Seminars and will remain strictly confidential. The survey should not take more than 5 minutes to complete.

How did you find the following speakers today?

Dr Joseph Guenther: “Enhancing Productivity with Technology”

How engaging did you find Dr Guenther’s presentation?

Not engaging **Very engaging**

How relevant was Dr Guenther’s address to your business or operation?

Not relevant **Very relevant**

Dr Fred Ziari: “Precision Irrigation Technologies – A Global Model”

How engaging did you find Dr Ziari’s presentation?

Not engaging **Very engaging**

How relevant was Dr Ziari’s address to your business or operation?

Not relevant **Very relevant**

Dr David Pattemore: “The surprising ways that a deeper understanding of pollinators, flowers and their interactions can improve crop production”

How engaging did you find Dr Pattemore’s presentation?

Not engaging **Very engaging**

How relevant was Dr Pattemore’s address to your business or operation?

Not relevant **Very relevant**

Mr Marco Azzaretti: “Achieving product quality objectives at maximum yield with digital sorting”

How engaging did you find Mr Azzaretti’s presentation?

Not engaging **Very engaging**

How relevant was Mr Azzaretti’s address to your business or operation?

Not relevant **Very relevant**



Dr Gert Kootstra: "Towards autonomous and flexible food processing"

How engaging did you find Dr Kootstra's presentation?

Not engaging Very engaging

How relevant was Dr Kootstra's address to your business or operation?

Not relevant Very relevant

Dr Amos Albert: "From the internet of fields to the internet of plants"

How engaging did you find Dr Albert's presentation?

Not engaging Very engaging

How relevant was Dr Albert's address to your business or operation?

Not relevant Very relevant

Mr Jon Entine: "Biotech 2.0: How GMO innovation and new breeding techniques are revolutionising food and farming"

How engaging did you find Mr Entine's presentation?

Not engaging Very engaging

How relevant was Mr Entine's address to your business or operation?

Not relevant Very relevant

Dr David Ireland: "Innovation in Agriculture"

How engaging did you find Dr Ireland's presentation?

Not engaging Very engaging

How relevant was Dr Ireland's address to your business or operation?

Not relevant Very relevant

Professor Richard Visser: "Breeding climate resilient vegetable crops"

How engaging did you find Professor Visser's presentation?

Not engaging Very engaging

How relevant was Professor Visser's address to your business or operation?

Not relevant Very relevant



How worthwhile did you find the 2016 Global Innovations in Horticulture Seminar?

- Not worthwhile Somewhat worthwhile Worthwhile Very Worthwhile

Have you attended a Global Innovations in Horticulture Seminar in the past?

- Yes No

Would you consider attending another Global Innovations in Horticulture Seminar or similar event again?

- Yes No

How did you hear about the 2016 Global Innovations in Horticulture Seminar?

- AUSVEG Weekly Update Vegetables Australia Magazine AUSVEG representative
 Word of mouth Received direct invitation
 Other (please specify)

Was there something you liked or something we could improve for next time?



9.00am - 9.20am	Tea, coffee and brief welcome
9.20am - 9.30am	Introduction by Chair, Mr Greg Fraser
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2.30pm - 2.50pm	Prof Richard Visser <i>Breeding climate resilient vegetable crops.</i>
2.50pm - 3.10pm	Dr David Ireland <i>Innovation in Agriculture.</i>
3.10pm - 3.40pm	Panel Q&A
3.40pm - 3.50pm	Conclusion
4.00pm - 5.00pm	Post Seminar Hospitality (Jacaranda Room)

Appendix 7 – 2017 GIHS Flyer



GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR 2017



12.40pm – 5.00pm Tuesday 16 May
Adelaide Convention Centre
Click here to express your interest

There are limited places still available for levy paying vegetable growers. For further information on the Seminar or to express your interest, please email AUSVEG at innovation@ausveg.com.au or phone 03 9882 0277.



This project has been funded by Horticulture Innovation Australia Limited using the research and development vegetable levy and funds from the Australian Government.

Appendix 8 – 2017 Speaker List



GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR 2017



SPEAKER LIST NOW FINALISED

12.40pm – 5.00pm Tuesday 16 May, Adelaide Convention Centre

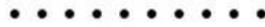
[Click here to express your interest](#)

There are limited funded places still available for levy paying vegetable growers. For further information on the Seminar or to express your interest, please email AUSVEG at innovation@ausveg.com.au or phone 03 9882 0277.



This project has been funded by Horticulture Innovation Australia Limited using the research and development vegetable levy and funds from the Australian Government.

Appendix 9 – 2017 GIHS Weekly Update promotion



2017 Global Innovations in Horticulture Seminar: Registrations for funded positions now open!

Following the success of the 2016 Global Innovations in Horticulture Seminar, Australian levy-paying vegetable growers will once again have the chance to listen to presentations from the world's leading innovation experts at the 2017 Global Innovations in Horticulture Seminar.

The Seminar will take place during Hort Connections 2017, and will be held at the Adelaide Convention Centre on Tuesday 16 May.

The seminar will feature nine expert speakers from around the world on topics ranging from precision agriculture to processing machinery. Previous seminars have been very well received by growers, so don't miss out on the opportunity to benefit from the expertise of the leading thinkers in global horticulture.

Funded positions are available for levy-paying growers to attend this event. Growers interested in attending or looking for further details can contact AUSVEG on 03 9882 0277, by fax at 03 9882 6722 or via the contact form [here](#).

The 2017 Global Innovations in Horticulture Seminar is funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.



Appendix 10 – 2017 GIHS Seminar Booklets



GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR 2017



GLOBAL INNOVATIONS IN HORTICULTURE SEMINAR

12.40pm – 5.00pm

Tuesday 16 May

Adelaide Convention Centre



This project has been funded by Horticulture Innovation Australia Limited using the research and development vegetable levy and funds from the Australian Government.

**GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR 2017**

12:40	Ag Investment Trends by Michael Dean, Agfunder
13:10	High Tech to Feed the World by Frans Kampers, Wageningen UR
13:30	Vertical Farming by Henry Gordon-Smith, Association for Vertical Farming
13:50	Panel Q&A
14:00	Afternoon Tea
14:10	Commercialisation & Adoption of Research by Ben van Delden, KPMG
14:30	Applications for Farming by Hugh Reardon, Apunga
14:50	The Changing Face of Agriculture: Fruit Flies, Innovation and Global Trade by Dr Eric Jang, USDA
15:10	Panel Q&A
15:20	Afternoon Tea
15:30	Post Harvest Technology by Janneke de Kramer, Wageningen UR
15:50	Horticulture – Gaining Efficiency Today in the Farming Operation by Roel Yakoobi & Gottfried Pessl
16:10	Culture, Do You Have An Emerging Risk? by Lone Jespersen, Cultivate Food Safety
16:30	Panel Q&A
16:40	Conclusion by Toby Travanner
17:00	Post Seminar Hospitality



Michael Dean
Co-founder -
AgFunder

Michael is Co-Founder and Chief Investment Officer at AgFunder, a San Francisco based online investment platform for global agriculture and food technology. Michael has over 20 years of legal, business management and project development experience. He leads the AgFunder investment team and oversees deal identification, origination and execution on the AgFunder platform. A seasoned agriculture investor and operator, prior to starting AgFunder, Michael founded and operated SeedRock Africa Agriculture. He managed all development activities in West Africa including the implementation of farming operations; the construction of the company's edible oil processing facility; the launch of the "Africa Gold" sunflower oil brand and the granting of official government leaseholds to over 43,000 hectares of agricultural land. Michael previously advised many of Australia's largest investment corporations on the acquisition and development aspects of their property, agribusiness, resources, renewable energy, construction and associated investment activities. Michael is a regular speaker on food and agriculture technology investing at various global conferences, and sits on the advisory board of the UK based World Agri-Tech Investment Summit. He is a board member of the SproutX Agtech Accelerator and holds a Master of Laws degree from the University of Sydney.



Frans Kampers
Coordinator Innovative
Technologies -
Wageningen UR

After completing his PhD in physics in Eindhoven, the Netherlands Frans Kampers joined what is now Wageningen University and Research Center in 1989. After managing functions in instrumentation and measurement technology and information strategy, he co-ordinated the bionanotechnology research in Wageningen, which focuses on applications of nanotechnology in food and nutrition. He was president of the International Society of Food Applications of Nanoscale Sciences (ISFANS) and is a member of the Executive Board of NanoNextNL, the Dutch research program on nanotechnology. He coordinated the Belgium/Netherlands region in the proposal for a Knowledge and Innovation Community (KIC) for the European food sector, co-ordinates the research program "High Tech to Feed the World" and has been involved in the co-ordination of the EU project PicknPack, assisting start-up companies to get to the seed phase.



Henry Gordon-Smith
Founder - Association
for Vertical Farming

Henry Gordon-Smith is a sustainability strategist focused on urban agriculture, water issues, and emerging technologies. Henry was born in Hong Kong and has lived in Japan, Germany, the Czech Republic, Russia, Canada, Spain, Austria, and the United States. Henry earned his BA in Political Science from the University of British Columbia, Vancouver, a certificate in Food Security and Urban Agriculture from Ryerson University in Toronto, and an MSc in Sustainability Management from Columbia University. Henry is Founder of the popular blog Agritecture.com and a board member at the Association for Vertical Farming (AVF). Two years ago, Henry launched his company Blue Planet Consulting, a boutique urban agriculture advising firm where he helps entrepreneurs with vertical farming feasibility studies, recruiting, and systems design.



Ben van Delden
Head of AgTech
Head of Markets -
KPMG Australia

Over his 20 years at KPMG Ben van Delden has specialised in providing audit, accounting, innovation and business growth services to public and private organisations operating in agribusiness, consumer and industrial markets, transport and logistics, entertainment, media and real estate. In Ben's career at KPMG he has held roles of Audit partner, Head of Markets and Innovation for New Zealand, Head of Markets and Head of AgTech in Australia.

Ben has worked extensively in the food and agribusiness sector on both sides of the Tasman. He was a judge of the inaugural 2016 FoodBytes! AgTech pitch fest in Sydney, and has been a judge and steering committee member of the New Zealand food Awards (2010-2014).

Ben enjoys applying his experience from working with start-ups to the emerging fields of AgTech and SmartAgriculture, developing solutions to sector challenges and opportunities, with a particular focus on commercialising technology and connecting capital to investible solutions.

**GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR 2017**



Hugh Reardon
Director of Technical
Services - Apunga

Hugh is a fourth-generation farmer and has been involved in the horticultural industry for over 12 years. Hugh is a Director of Dicky Bill Farming (formerly Australian Fresh Salads), one of Australia's leading and most innovative producers of baby salad leaves. With farming operations in Queensland and Victoria, Hugh oversees the day-to-day running and management of the Dicky Bill farms.

Hugh is also a Co-Founder and Director of an ag-tech start-up, Apunga. Apunga is a joint venture between Dicky Bill Farming and Technika, an engineering and software consultancy, that has developed the only Australian developed and dedicated horticultural farm management application. The company was formed when Hugh was unable to find a suitable online farm management tool for the horticultural sector. Apunga has enabled Hugh to combine his two passions - farming and technology.

The farming business allows Hugh to rapidly test innovation and software developments in Apunga, making it a truly fit-for-purpose solution for horticultural farmers. Hugh is well placed to provide unique insights into blending traditional farming with technology to optimise production yields in a sustainable manner.



Dr Eric Jang
Principal - Fruit Fly
Systems Applied
Technologies

Dr Jang has 40 years of research experience in the area of entomology, primarily in the areas of insect physiology/biochemistry, postharvest entomology (quarantine treatments and systems approaches), insect chemical ecology and areawide management (including SIT). With ARS Dr Jang worked for 32 years on postharvest disinfection and chemical ecology of tephritid fruit flies and other pests. Dr Jang has authored or co-authored over 190 scientific papers, conference proceedings and book chapters. Dr Jang's expertise has been recognised by his frequent requests to speak at local, national and international scientific conferences, appointment to chair numerous international, federal and state scientific advisory panels, and request for consultations worldwide in the areas of detection, control and risk assessments of tephritid fruit flies and other invasive pests. He is frequently asked by Joint FAO/IAEA Pest Control Section to participate and provide advice on program-related activities.



Janneke de Kramer
R&D Manager -
Wageningen UR

Wageningen Food & Biobased Research combines knowledge of plant physiology and technology for optimal maintenance of quality following harvest. Janneke is proud to lead an excellent team of over 25 researchers and engineers: the postharvest technology group which combines scientific insights with practical application for companies around the world. As a control systems researcher, Janneke co-invented Quest, which reduces energy consumption of reefer container whilst upholding produce quality, as well as enabling modal shift which develops postharvest protocols for sea transport. Currently Janneke is also involved in Agro Food Robotics and research for the Food Chain and Horticulture.



Roei Yakoobi
CEO - Tie Up Ventures

Roei has a rich history in agricultural production and technology which started with family in Israel and spread to Australia several years ago. His high energy, fast paced and outcome-orientated focus has enabled him to deliver on a number of challenging projects across agriculture.

An opportunity to assist high value fruit farmers to increase their profit and reduce wastage saw Roei import and re-develop a technology platform as a solution. This success, which has come from a number of seasons with various growers, gave Roei an insight into their businesses to find other efficiency drivers that needed technology. From there Tie Up Farming was created to offer customised services to growers who are wanting to challenge themselves, before someone else does.



Gottfried Pessl
CEO - Pessl Instruments

Gottfried Pessl is the Founder and CEO of Pessl Instruments GmbH, a leader in IOT for Agriculture which started in 1984. Gottfried has been driving the development of the company over the years, and introduced its first cloud services way back in 2004, when there was still no description for the "Internet of Things". A pioneer in the field of digital agriculture, and an advocate for open architecture and seamless integration of technology. Gottfried is a trained farmer who studied export in Graz, Austria, and leads a fast-growing company of more than 100 people headquartered in Weiz, Austria. The brand METOS® which is sold in more than 80 countries and includes irrigation management tools, professional weather stations for disease and insect monitoring, automatic crop and insect monitoring devices, a portable soil lab and the software for risk mitigation on farms, is also an initiative of Gottfried's.



Lone Jespersen
Principal - Cultivate
Food Safety

Lone is Principal at Cultivate, an organisation dedicated to help food manufacturers globally make safe, great tasting food through cultural effectiveness. Lone has significant experience with food manufacturing, having previously spent eleven years with Maple Leaf Foods. Following the tragic event in 2008 when Maple Leaf products caused the loss of 23 Canadian lives, Lone lead the execution of the Maple Leaf Foods food safety strategy and its operations learning strategy.

Prior to that, Lone worked for Woodbridge Foam as Engineering and Operations manager responsible for the safety and quality of automobile safety products. Lone holds a Master in Mechanical Engineering from Syd Dansk University, Denmark, a Master of Food Science from the University of Guelph, Canada, and is presently pursuing her PhD on Culture Enabled Food Safety with Dr Mansel Griffiths at the University of Guelph, Canada. Lone currently serves as chair of the GFSI technical working group on Food Safety Culture, a group dedicated to characterising and quantifying food safety culture across the global food industry from farm to fork.

**GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR 2017**

How did you find the following speakers today?

Mr Michael Dean: “Agtech investment trends”

How engaging did you find Mr Dean's presentation?

Not engaging Very engaging

How relevant was Mr Dean's address to your business or operation?

Not relevant Very relevant

Dr Frans Kampers: “High Tech to Feed the World”

How engaging did you find Dr Kamper's presentation?

Not engaging Very engaging

How relevant was Dr Kamper's address to your business or operation?

Not relevant Very relevant

Mr Henry Gordon-Smith: “Vertical Farming”

How engaging did you find Mr Gordon-Smith's presentation?

Not engaging Very engaging

How relevant was Mr Gordon-Smith's address to your business or operation?

Not relevant Very relevant

Mr Ben van Delden: “Commercialisation and adoption of research - why we need to shift our thinking about how we collaborate to drive adoption of technology”

How engaging did you find Mr van Delden's presentation?

Not engaging Very engaging

How relevant was Mr van Delden's address to your business or operation?

Not relevant Very relevant

Mr Hugh Reardon: “Applications for Farming”

How engaging did you find Mr Reardon's presentation?

Not engaging Very engaging

How relevant was Mr Reardon's address to your business or operation?

Not relevant Very relevant



Dr Eric Jang: “The changing face of agriculture: fruit flies, innovation and global trade”

How engaging did you find Dr Jang’s presentation?

Not engaging Very engaging

How relevant was Dr Jang’s address to your business or operation?

Not relevant Very relevant

Ms Janneke de Kramer: “Post-Harvest Technology”

How engaging did you find Ms de Kramer’s presentation?

Not engaging Very engaging

How relevant was Ms de Kramer’s address to your business or operation?

Not relevant Very relevant

Mr Roei Yakoobi and Mr Gottfried Pessl: “Gaining Efficiency Today in the Farming Operation”

How engaging did you find Mr Yakoobi and Mr Pessl’s presentation?

Not engaging Very engaging

How relevant was Mr Yakoobi and Mr Pessl’s address to your business or operation?

Not relevant Very relevant

Ms Lone Jespersen: “Culture, Do You Have an Emerging Risk?”

How engaging did you find Ms Jespersen’s presentation?

Not engaging Very engaging

How relevant was Ms Jespersen’s address to your business or operation?

Not relevant Very relevant



**GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR 2017**

How worthwhile did you find the 2017 Global Innovations in Horticulture Seminar?

- Not worthwhile Slightly worthwhile Worthwhile Very worthwhile

Would you consider attending another Global Innovations in Horticulture Seminar or similar event again?

- Yes No

How did you hear about the 2017 Global Innovations in Horticulture Seminar?

- AUSVEG Weekly Update Vegetables Australia Magazine AUSVEG representative
 Word of mouth Other (please specify) _____

Was there something you liked or something we could improve for next time?

Additional Feedback

Thank you for taking the time to complete this survey. Your responses will be used to guide and improve future seminars.

If you have any further questions or comments about the 2017 Global Innovations in Horticulture Seminar, please contact Dylan Komishon via email at dylan.komishon@ausveg.com.au or by phone on 03 9882 0277 or 0424 788 213.

Appendix 11 – 2017 GIHS Media Release

[View this email in your browser](#)



17 May 2017

Media Release

For immediate release

Innovation seminar inspires all sectors of Australian hort

Members from all sectors of the horticulture industry have been left inspired and excited by the 2017 Global Innovations in Horticulture Seminar, with over 130 attendees hearing presentations from international innovation experts on new and emerging technologies in horticulture around the world.

The seminar was funded by Horticulture Innovation Australia using the research and development vegetable levy and funds from the Australian Government. Headlining the seminar's speaker list was Agfunder's Michael Dean, who spoke about trends in investment in agriculture. With extensive experience including sitting on the advisory board of the World Agri-Tech Investment Summit, Mr Dean offered attendees a valuable perspective on the future of agriculture investment.

Mr Dean was joined by a collection of other speakers, with a highlight being Wageningen University's Frans Kampers presenting on the use of technology to meet challenges in the agricultural and food sectors. Attendees also heard the Association for Vertical Farming's Henry Gordon-Smith discuss the benefits of vertical farming, including a range of real-world case studies of the implementation of vertical farming.

"The Global Innovations in Horticulture Seminar is a fantastic way for members of

the industry to learn about the latest and greatest innovations in agricultural technology and the ways in which innovative thinking can help address the key challenges facing our industry,” said AUSVEG CEO James Whiteside.

“The Australian horticulture industry has to tackle many of the same challenges faced by the sector internationally – with the main issues continuing to revolve around the need for more efficient and sustainable resource use.

“Today’s seminar showed a range of ways in which members of the industry can take advantage of new and emerging technologies to help deal with these problems. We are proud to have presented such a diverse and exciting range of speakers for attendees, and the feedback we have received so far has been nothing short of wonderful.

“The Australian horticulture industry is thriving, and with the evolution of on-farm technology and ongoing improvements in business culture, the possibilities for what we can achieve in the future are staggering.”

AUSVEG is the leading body representing Australia’s vegetable and potato growers, and has joined other leading industry organisations to deliver Hort Connections 2017, the premier event in Australian horticulture.

“The turnout to this year’s event was fantastic, and it’s truly a reflection of the horticulture industry’s willingness and desire to learn, expand and grow both personally and professionally,” said Mr Whiteside.

“The seminar is an integral aspect of the horticulture industry’s events calendar, and we take pride in being able to present attendees with fantastic new information and fresh perspectives year after year.”

ENDS

MEDIA CONTACT: Shaun Lindhe, AUSVEG National Manager – Communications

Phone: (03) 9882 0277, Mobile: 0405 977 789, Email:

shaun.lindhe@ausveg.com.au

The Global Innovations in Horticulture Seminar was funded by Horticulture Innovation Australia using the vegetable research and development levy and funds from the Australian Government.

**Horticulture
Innovation
Australia**

Appendix 12 – 2017 GIHS Vegetables Australia Article

R&D | GLOBAL INNOVATIONS |



From left to right: Jørgen Jespersen, Ben van Dooren, Catherine Posh, and Janyne de Kramer respond to questions at the 2017 Global Innovations in Horticulture Seminar.



Associate Professor Vertical Farming Co-Founder Henry Gordon-Smith.

VEGETABLE GROWERS REAP GLOBAL REWARDS

Returning in May was the Global Innovations in Horticulture Seminar, an event held at Hort Connections 2017 that demonstrated the very latest in innovative research and technology from around the world. The seminar showed a range of ways for industry to take advantage of new and emerging technologies to help address the key challenges facing the vegetable industry.

Members from all sectors of the horticulture industry were left inspired and excited by the 2017 Global Innovations in Horticulture Seminar, which took place at the Adelaide Convention Centre on Tuesday 26 May. Over 130 attendees tuned in to nine presentations from international innovation experts, who presented on new and emerging research and technologies taking place in horticulture around the world.

Opening the vegetable leg-funded seminar was Michael Dean from AgriUnder, an equity crowdfunding company, who spoke about trends in agricultural investment. With extensive experience, including sitting on the advisory board of the World Agri-Tech Investment Summit, Mr Dean offered attendees a valuable perspective on the future of agricultural technology.

Joining Mr Dean on stage was Wageningen University's Frans Kampers, who presented on the use of technology to meet challenges in the agricultural and food sectors. Mr Kampers commented that technology solutions were needed to maintain nutrition security, sustainability, and consumer health and well-being. He outlined the importance of speeding up the use of robotics and drones to inspect fields, in a bid to increase sustainability.

INDUSTRY TRANSFORMATION

Attendees also heard the Association for Vertical Farming's Henry Gordon-Smith discuss the benefits of vertical farming, including a range of real-world case studies on the implementation of vertical farms. Mr Gordon-Smith spoke about finding a solution

to global farming challenges, and stressed the need to think about the next generation of farmers, and ways we can keep them excited about the industry.

Next up was Ben van Dooren from iFVG, who discussed commercialisation and adoption of research, and the tools required to empower Australia's food industry. He touched on the need for science to help Australia push boundaries, and reiterated the importance of co-investment in the agricultural sector.

Growers were then introduced to Apunga by Australian vegetable grower Hugh Reardon. Apunga is the only Australian developed and dedicated horticultural farm management application, and is a joint venture between Dicky Bill Farming (where Mr Reardon is a Director) and The Technika Group, an engineering and software consultancy. Mr Reardon spoke about how the app was developed, and discussed its aim to reduce waste and gain full traceability of produce.

INNOVATION IN FOCUS

Dr Eric Jang, Principal of Fruit Fly Systems Applied Technologies in the US, was joined on stage by Dan Ryan from Horticulture Innovation Australia, with the pair presenting on fruit flies, innovation and global trade. Dr Jang began by outlining the global initiatives on fruit flies, while Mr Ryan discussed his role as the Program Director of the Sterile Insect Technique (SIT) Plus consortium, a research group facilitated by Hort Innovation, and the new developments being made in area-wide management into fruit flies in Australia.

Wageningen Food and Biobased Research's Jannette de Kramer, R&D Manager of its Postharvest Technology team, gave the audience an insight into its research to date. Ms de Kramer also spoke about the science behind postharvest innovation, the impact it has on the fresh food chain, and what new research her department is currently undertaking.

Sharing the stage was Tie Up Ventures Chief Executive Officer Ross Yakoobi and Pest Instruments CEO Gormfed Pears, with a joint focus on gaining efficiency today in farming. Mr Yakoobi described the work undertaken by his company Tie Up Ventures, an organisation that provides growers with innovative solutions and technologies to deal with everyday farming problems, while Mr Pears spoke about the ag-tech revolution, and collating data to create a smart, connected product.

The final speaker of the afternoon was Canadian native Lone Jespersen from Cultivate Food Safety. She urged the audience to be aware of the risks in fresh food production, and recalled her time at Maple Leaf Foods when a tragic event involving contaminated product caused the loss of 25 Canadian lives in 2008. Ms Jespersen also spoke about the need to be creative when measuring food safety within organisations.

At the conclusion of the seminar, two Hort Connections 2017 National Awards for Excellence winners were announced, with Rijk Zwaan receiving the Innovation Partner award and Hills Transplants taking home the Environmental Award.

R&D	INFO
Consumer Alignment	Presentations at the 2017 Global Innovations in Horticulture Seminar are available to watch at you.ise.com.au/2017/GIHS/04/05/01
Drive Train	
Market & Value Chain Development	This project has been funded by Horticulture Innovation Australia using the agricultural research and development levy and funds from the Australian Government.
Game Productivity	
Resource Use & Management	Project number: VGL2532

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Appendix 13 – GIHS Post-Seminar Survey



GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR

The following survey seeks to engage with delegates to interpret what technologies or innovations presented at the 2017 Global Innovations in Horticulture Seminar have been utilised. It also intends to gauge what potential topics attendees would like to see at the 2018 GIHS.

1. First Name:

2. Last Name:

3. Email address:

4. Did you attend the 2017 Global Innovations in Horticulture Seminar?

5. Have you or your business utilised any of the innovations/technologies on display at the 2017 GIHS?

Yes

No

Considering it

Currently in the planning and implementation phase

6. If any, what innovations/technologies have been utilised by your business?

7. What was your favourite topic at the 2017 GIHS?

- AgTech Investment Trends
- Nanotechnology
- Vertical Farming
- Commercialisation and Adoption of Research
- Applications for Farming
- The Changing Face of Agriculture: Fruit Flies, Innovation and Global Trade
- Post- Harvest Technology
- Precision Agriculture
- Food Safety

8. What was your least favourite topic at the 2017 GIHS?

- AgTech Investment Trends
- Nanotechnology
- Vertical Farming
- Commercialisation & Adoption of Research
- Applications for Farming
- The Changing Face of Agriculture: Fruit Flies, Innovation and Global Trade
- Post- Harvest Technology
- Precision Agriculture
- Food Safety

9. What topic(s) would you like to see at the 2018 GIHS?

10. Would you like to attend the 2018 GIHS?

- Yes
- No
- Maybe



The following survey seeks to engage with delegates to interpret what technologies or innovations presented at the 2017 Global Innovations in Horticulture Seminar have been utilised. It also intends to gauge what potential topics attendees would like to see at the 2018 GIHS.

11. First Name:

12. Last Name:

13. Email address:

14. Did you attend the 2017 Global Innovations in Horticulture Seminar?

15. Have you or your business utilised any of the innovations/technologies on display at the 2017 GIHS?

- Yes
- No
- Considering it
- Currently in the planning and implementation phase

16. If any, what innovations/technologies have been utilised by your business?

17. What was your favourite topic at the 2017 GIHS?

- AgTech Investment Trends
- Nanotechnology
- Vertical Farming
- Commercialisation and Adoption of Research
- Applications for Farming
- The Changing Face of Agriculture: Fruit Flies, Innovation and Global Trade
- Post- Harvest Technology
- Precision Agriculture
- Food Safety

18. What was your least favourite topic at the 2017 GIHS?

- AgTech Investment Trends
- Nanotechnology
- Vertical Farming
- Commercialisation & Adoption of Research
- Applications for Farming
- The Changing Face of Agriculture: Fruit Flies, Innovation and Global Trade
- Post- Harvest Technology
- Precision Agriculture
- Food Safety

19. What topic(s) would you like to see at the 2018 GIHS?

20. Would you like to attend the 2018 GIHS?

- Yes
- No
- Maybe

Appendix 14 – 2018 GIHS Flyer



HORT CONNECTIONS
 18-20 June 2018
 Brisbane Convention Centre
 

VEGETABLE GROWER FUNDING
 Attend seminars held during Hort Connections 2018

Hort Connections, formed from combining the National Horticulture Convention and PMA Fresh Connections, is the largest event in Australian horticulture. This year we expect it to bring together 3,000 delegates and exhibitors from across Australian horticulture to the one location to learn, establish business relationships and celebrate our industry. Previous events have been covered extensively in industry and regional media, including features in industry-leading print outlets like The Land and The Weekly Times and national coverage through ABC Radio National.

Held during Hort Connections, AUSVEG manages and facilitates vegetable-levy funded seminars aimed at research and development into the vegetable industry. These are the annual Global Innovations in Horticulture Seminar, and Export Seminar.

With a focus on new innovations in horticulture from world renowned experts in the field, the Global Innovations in Horticulture Seminar will showcase a variety of ideas that are at the leading edge of agricultural innovation. Growers will also get an insight into technologies that will allow them to become more efficient, more productive and ultimately more profitable.

The Export Seminar's aim is to provide an 'export 101' session on the basics of the export process, for growers who are looking to commence their export journey, and to provide a session on 'export opportunities' to offer exporting growers insights from other horticultural sectors that have been successful in exporting.

As part of a vegetable levy payers attendance at either seminar, funding is available to cover two-nights' accommodation as well as return flights. Funded positions are limited, so growers are encouraged to get in as quickly as possible. The two seminars take place in the following timeslots during Hort Connections:

<p>GLOBAL INNOVATIONS IN HORTICULTURE SEMINAR</p> <p>Wednesday 20 June 8am – 12.30pm Brisbane Convention & Exhibition Centre Meeting Room M3</p>	<p>AUSTRALIAN VEGETABLES EXPORT SEMINAR</p> <p>Monday 18 June 8am – 12.30pm Brisbane Convention & Exhibition Centre Meeting Room M2</p>
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Grower participants are encouraged to contact AUSVEG by phone on 03 9882 0277, fax on 03 9882 6722 or email info@hortconnections.com.au to express their interest in participating in one of the seminars.

*Please note **Hort Innovation membership** (free) is mandatory for all grower seminar participants to receive funding. This can be completed whilst registering for Hort Connections using the link [here](#). Hort Connections events aside from the Global Innovations in Horticulture Seminar and the Export Symposium are at a cost to all participants.

 <p>VEGETABLE FUND</p>	<p>This project has been funded by Hort Innovation using the vegetable research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au</p>
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HORT CONNECTIONS 2018 CO-HOSTS



Appendix 15 – 2018 GIHS Weekly Update article



2018 Global Innovations in Horticulture Seminar - Registrations for funding now open!

Fully-funded positions are available for levy-paying vegetable growers to fly to and attend the seminar, being held in Brisbane during Hort Connections 2018.

13 MAR 2018

2018 Global Innovations in Horticulture Seminar – Registrations for funding now open!



Following the success of the 2017 Global Innovations in Horticulture Seminar, Australian levy-paying vegetable growers once again have the chance to listen to presentations from the world's leading innovation experts at the 2018 Global Innovations in Horticulture Seminar.

This year’s seminar will take place during Hort Connections 2018, to be held at the Brisbane Convention & Exhibition Centre on 20 June, and will feature nine expert speakers from around the world on topics ranging from robotics in agriculture to traceability of produce throughout the supply chain. As we get closer to the event we’ll be providing more updates on the speaker list, so keep an eye out!

This seminar is a strategic levy investment by Hort Innovation as a way of bringing growers into closer contact with the latest research and development shaping our industry, and we’re able to offer fully-funded positions (including flights and accommodation) for growers who pay the vegetable levy.

This is a great opportunity to take in new perspectives about horticultural production and see the technology that will be playing a major role in our industry in years to come, but places are sure to fill up fast, so register soon and avoid missing the opportunity to benefit from the expertise of the leading thinkers in global horticulture!

Growers who are interested in attending or looking for further details can contact AUSVEG by phone on 03 9882 0277, fax on 03 9882 6722 or e-mail at innovation@ausveg.com.au with expressions of interest.

Previous seminars have been very well received by growers attending the events, and the knowledge and tech on display provide great insights into how horticulture in Australia and overseas is evolving to adopt new technology and processes. If you’re interested in taking a look at previous presentations covering crucial topics like postharvest technology and the commercialisation and adoption of cutting-edge research, you can view [a recap of the 2017 seminar on our website](#).

This post appeared in the AUSVEG Weekly Update published 13 March 2018.

 Strategic levy investment	 VEGETABLE FUND	This project has been funded by Hort Innovation using the vegetable research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au
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SHARE



Appendix 16 – 2018 GHS seminar booklet





**GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR 2018**

0800-0810	Introduction Greg Fraser – Plant Health Australia
0810-0830	New technologies in horticulture to feed the world Erik Peckkeriet – Wageningen UR
0830-0850	Innovation in Vegetable seeds; Why labour-saving traits can help your business Kevin Walsh – Monsanto Company
0850-0910	What makes a vertical indoor farming project profitable? Nicolas Tsuriokawa – Urban Crop Solutions
0940-1000	Multi Tool Trac: The innovative tractor to meet the high demands of the best growers in the world Maarten van Ham – Multi Tool Trac
1000-1020	Scientific Traceability – Proving Origin, Protecting Reputations Sandon Adams – Oritain
1020-1040	Creating opportunities through prolific invention Michael Manion – Keon Research
1110-1210	AgRobotics Panel Salah Moghadam – The Australian Centre for Field Robotics Peyman Moghadam – CSIRO Data61 Jesse Reeder – Bosch Erik Peckkeriet – Moderator
1210-1230	Conclusion Greg Fraser – Plant Health Australia



Dr Michael Manion
CEO – Founder – Keon Research

Dr Michael Manion is an inventor, scientist and entrepreneur. He has worked both in the USA and Australia for research institutes, universities, investment groups and private companies across a range of technology landscapes and intellectual property domains. After completing his BSc with Honours at The University of Newcastle, Australia, he obtained a PhD in Physiological Biophysics from UAB. This was followed by several years of post-graduate research at the Fred Hutchinson Cancer Research Center in Seattle. He completed an MBA in Technology Management at the University of Washington, and is a graduate of the Australian Institute of Company Directors. In addition to a scientific career, Michael has worked internationally in technology commercialisation, assisting with intellectual property management, research & development as well as licensing and start-up matters including VC fundraising. Michael has served as a Director on several companies including biotech, technology and non-tech organisations. Michael has successfully innovated, developed and commercialised technologies in a diverse array of domains from biotech, ag-tech, food-tech, nanotech, medical devices, materials science, water technology, energy systems, optics, computing, and sensing systems. He is a named inventor on more than 50 patent applications. In 2010 he founded Invention Evaluator to support inventors and those who wish to bring new technologies to the market through quality invention analysis. Invention Evaluator was acquired by Telepath (NASDAQ) in 2016. In 2018 he established Keon Research in Seattle, an innovation consultancy and technology development company working on a diverse range of novel technologies together with his creative team of scientists.



Maarten van Ham
International Affairs Manager – Multi Tool Trac

Maarten A. van Ham MSc (1984 The Netherlands) is a creative and international working and academic experience in mechanics, green technology, agriculture, construction, innovation, sales and leisure. After his studies in 'Sjengentalen' College Maarten has lived and worked in various countries. A very valuable experience was obtained during his work for 'borderless borders' in Eastern Europe and Africa. After his marriage with his Spanish wife he manages their family estate in Toledo, Spain, growing olives and cereals. Ever since his brother finished Multi Tool Trac, Maarten has been involved in the development of the first electric tractor in the world. Since 2015 he has been focusing on international purchases and sales.



This project has been funded by Hort Innovation, using the vegetable industry research and development levy and contributions from the Australian Government. Hort Innovation is the grower owned, not-for-profit research and development corporation for Australian horticulture.



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SEMINAR 2018**



Kevin Walsh
Global Recommendation Lead, Monsanto Vegetable Seeds – Seminis

A global expert in the vegetable seed industry, Kevin has extensive experience in conducting research projects to commercial field systems. Kevin has worked for over 15 years in the vegetable industry, with his seed business for the last 7 years and the prior 12 years with the retail supplier industry. Currently Kevin leads the customer projects with Seminis, exploring how breeding techniques are leading to new varieties that allow for labour saving technologies, particularly at harvest. He has successfully launched several varieties with adoption to automation bringing solutions to growers with labour efficiency.



DR PEYMAN MOGHADAM
Agtech Cluster Leader | Senior Research Scientist – CSIRO Data61

Dr Peyman Moghadam is the AgTech Cluster Leader at the Autonomous Systems, CSIRO Data61, where he leads the transition of innovative technologies into farms. He received his PhD in Robotics from the Nanyang Technological University (Singapore) in 2011. Before joining CSIRO, he has worked in a number of top leading organisations, such as the Deutsche Telekom, Singapore's (GEM) and the Singapore-UK Alliance for Research and Technology (Singapore). He has won numerous awards for his innovations including National Award for Research and Development and the Lord Mayor's Building and Progress Award. Dr Moghadam is also an Adjunct Associate Professor at the Queensland University of Technology (QUT) and Adjunct Fellow at the University of Queensland (UQ).



SANDON ADAMS
Business Development Manager – Australia – Oritain Global Limited

Sandon leads the Australian business for Oritain Global Limited. Oritain are global leaders in scientifically proving the origin of food to both protect and enhance reputations. With no reliance on packaging, labels, bar codes or additives, Oritain uses what naturally occurs in food products to determine where they were grown or manufactured. Being business support, their provenance claims and supply chain are transparent.

As a member of a four-generation farming family, Sandon has a background in agriculture and is passionate about adding value in Australian food and agri supply chains. His experience spans broad-acre cropping, horticulture, agri supply and FMCS, where he has worked in senior roles for the world's largest food & beverage company (Nestlé).



ERIK PECKKERIET
Business Development Manager – Wageningen University and Research

Erik Peckkeriet works as a senior Project Manager in Agri-robotics at Wageningen University and Research, The Netherlands.

He is leading the business development of the Agri Food Robotics Program at Wageningen's science groups with a business in the Agri Food Robotics domain. Main projects he is working on include the development of new robotic systems for public sector farmers and especially in berry, hop and potato. His researches are: Agri-robotics for 1) and 2) robot harvesting systems for cutting roses, gerberas, cucumbers, sweet peppers and tomato leaves and now new agri-robotics production systems for onion, cucumber, potato, and tomato and other open field horticultural solutions.

His main focus is the mobile (to be used) camera sensor systems to capture information for the precision horticulture based on big data and in the operation. Building of solutions and providing them through farm management systems. He will provide an overview of the state of the art technologies and beyond.



**GLOBAL INNOVATIONS
IN HORTICULTURE
SEMINAR 2018**



PROF SALAH SUKKARIEH
Director of Research and Innovation - The Australian Centre for Field Robotics

Professor Salah Sukkarieh is an international expert in the research, development and commercialisation of food robotic systems. He has led a number of robotics and intelligent systems R&D projects in logistical, commercial aviation, aerospace, education, environment monitoring, agriculture and mining. He was awarded the NSW Science and Engineering Award for Excellence in Engineering and Information and Communications Technologies in 2014 and the 2017 CSIRO Europe Prize for Leadership in Innovation and Science. Salah is a fellow of Australian Academy of Technological Sciences and Engineering (ATSE).



NICOLAS TSURUKAWA
Japan Country Manager - Urban Crop Solutions

Nicolas Tsurukawa is a bioengineer, a researcher on urban farming policies at Leige University (Belgium), a member of the Japanese Association of Indoor Farming, and Japan country manager for Urban Crop Solutions, an industrial turn-key supplier of automated indoor farming facilities with a portfolio of 180+ crop varieties.



JESSE READER
Sector Specialist - Agriculture - Bosch Australia

Jesse Reader is the Agriculture Sector Specialist at Bosch Australia. Jesse is an accomplished agronomist with 15+ years experience in horticulture and has spent that time in a variety of roles including on-farm technical agronomy national, providing management and oversight of multi-million dollar R&D portfolios and in more recent times consulting to the horticulture industry. Jesse's position at Apple and Pear Australia Ltd saw him drive infield technology transfer and extension through the Flagship Future Q-Code program, earning him the industry 'most awarded' for 2015.

Jesse's current role at global giant Bosch combines his deep technical know-how with business development and application – as Bosch explore the global AgTech market and look to align industry pain points with their extensive capability in sensors, automation, robotics, software and IoT connectivity.

Current robotic and automation engagement ranges from commercial, in-field robotic platform development, through to back house process automation.

How did you find the following speakers today?

Mr Kevin Erik Pekkeriet

How engaging did you find Mr Pekkeriet's presentation?

Not engaging Very engaging

How relevant was Mr Pekkeriet's address to your business or operation?

Not relevant Very relevant

Mr Kevin Walsh

How engaging did you find Mr Walsh's presentation?

Not engaging Very engaging

How relevant was Mr Walsh's address to your business or operation?

Not relevant Very relevant

Mr Nicolas Tsurakawa

How engaging did you find Mr Tsurakawa's presentation?

Not engaging Very engaging

How relevant was Tsurakawa's address to your business or operation?

Not relevant Very relevant

Mr Maarten van Ham

How engaging did you find Mr van Ham's presentation?

Not engaging Very engaging

How relevant was Mr van Ham's address to your business or operation?

Not relevant Very relevant

Mr Sandon Adams

How engaging did you find Mr Adams' presentation?

Not engaging Very engaging

How relevant was Mr Adams' address to your business or operation?

Not relevant Very relevant

Dr Michael Manion

How engaging did you find Mr Manion's presentation?

Not engaging Very engaging

How relevant was Mr Manion's address to your business or operation?

Not relevant Very relevant

Professor Salah Sukkarieh:

How engaging did you find Professor Sukkarieh's presentation?

Not engaging Very engaging

How relevant was Professor Sukkarieh's address to your business or operation?

Not relevant Very relevant



**GLOBAL INNOVATIONS
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Dr Peyman Moghadam

How engaging did you find Dr Moghadam's presentation?

Not engaging Very engaging

How relevant was Dr Moghadam's address to your business or operation?

Not relevant Very relevant

Mr Jesse Reader

How engaging did you find Mr Reader's presentation?

Not engaging Very engaging

How relevant was Mr Reader's address to your business or operation?

Not relevant Very relevant

How worthwhile did you find the 2018 Global Innovations in Horticulture Seminar?

Not worthwhile Slightly worthwhile Worthwhile Very worthwhile

Would you consider attending another Global Innovations in Horticulture Seminar or similar event again?

Yes No

How did you hear about the 2018 Global Innovations in Horticulture Seminar?

AUSVEG Weekly Update Vegetables Australia Magazine AUSVEG representative

Word of mouth Other (please specify) _____

Was there something you liked or something we could improve for next time?

Additional Feedback

Thank you for taking the time to complete this survey. Your responses will be used to guide and improve future seminars. If you have any further questions or comments about the 2018 Global Innovations in Horticulture Seminar, please contact Dylan Komishon via email at dylan.komishon@ausveg.com.au or by phone on 03 9882 0277 or 0424 788 213.

Appendix 17 – 2018 GHS Minutes



Global Innovations in Horticulture Seminar
Meeting Minutes – Wednesday 20 June 2018

Attendees: Mr Greg Fraser Mr Erik Pekkeriet Mr Kevin Walsh Mr Nicolas Tsurukawa Mr Maarten Van Ham Mr Sandon Adams Dr Michael Manion Professor Salah Sukkarieh Dr Peyman Moghadam Mr Jesse Reader	Venue: Brisbane Convention Centre Hort Connections 2018
Date: Wednesday 20 June 2018	Time: 8:14am-12:35pm

The Seminar began at 8:14am.

Welcome and introduction by Greg Fraser

The Chair welcomed speakers and guests to the Seminar and noted housekeeping items. The Chair also requested that delegates complete their feedback forms throughout the course of the Seminar and participate in the live online polling feature.

The Chair introduced the first round of Seminar speakers.

Panel Q&A

- **Mr Erik Pekkeriet, Wageningen University Business Development Manager**
- **Mr Kevin Walsh, Monsanto Vegetable Seeds – Seminis Global Recommendation Lead**
- **Mr Nicolas Tsurukawa, Urban Crop Solutions Japan Country Manager**

Q: I believe the biggest problem in vertical farming is that plants lack conditioning, they lack environmental stress, which leads to poor shelf life. Is that true, and from my experience I would say that is true.

Kevin Walsh: I've visited a lot of vertical farming companies while I've been travelling. Because they're using LED lighting and different light spectrums they actually remove that problem. That was one of the teething problems to start with. What I see is that they're a lot more robust and it depends on what crop you talk about. Some lettuce types are more difficult than others. What they're doing is really smartly using LED technology or lighting technology to actually improve that robustness of the product.

Q: Just as an example, if you get a field-grown cos versus a hydroponic cos, on a shelf life point of view, the field-grown cos grown well would be better, but obviously the hydroponics, the

consistency and all that time, if you've got difficult field growing conditions, the hydroponics wins out.

Kevin Walsh: That's the balance, right.

Q: I presume if the agricultural system changes, then there will be a driver for breeders to look at developing plants to suit that agricultural system. If we've got expansion of indoor agriculture in one form or another, all these vertical systems, perhaps we will be breeding varieties of plants to suit those systems and so we get that link between the variety and the economic factor.

Kevin Walsh: I've been fortunate enough to travel around several places and meet several growers, where we have problems with land with nematodes and everything else, they're actually putting hydroponic systems on top of the soil outdoor and they're seeing a lot of efficiencies because they can turn crop cycles more quickly. That's one of the biggest advantages with hydroponic lettuce for example is that you can turn 12 cycles per year in the same space. In open field you're doing one, two or three crops depending on the area you grow in, so that efficiency at that level, just by adopting hydroponics and putting it on top of his soil. I see a lot of people combining vertical farming, urban farming – that's really a space that everybody's talking about, but if you look at the industry as a whole, labour is the biggest concern for everyone in this room. It's about 50 per cent in general of the total production costs. If you put it all together, if you go to box farming, it's really difficult to automate, vertically it's difficult to automate, so where is that balance in the systems and how you combine them to be more efficient.

Nicolas Tsurukawa: I think there is a misconception that you should choose between indoor farming and conventional farming. You can actually combine them by using for example a container to produce microgreens during most of the year, and whenever you have droughts or floods and you need to somehow catch up before your season, you can produce seedlings quickly in a controlled environment where you light 18 hours a day and have faster cycles to produce seedlings.

Q: Erik, you briefly mentioned IoF2020, could you explain a bit more about that?

Erik Pekkeriet: IoF2020 (Internet of Food & Farm 2020) is a European program, it runs 90 use-cases on all different sectors, in vegetables, fruits, meat, all agricultural businesses and also through the whole value chain. There are use-cases that are more in the field, like the one I showed in weeding, that are more active in collaboration between farmers and there are more use-cases into the value chain, up to retail etc. They identified these use-cases have a broad spread in the agricultural domain so that's one axis, and on the other technology axis where technology providers are making IoT systems, coming in most cases from other businesses, and trying to learn all the use-cases from agriculture – how it works and how you can have safe data. For example, we had to do analysis to have a safe data value chain that was completely new for us but we learnt a lot from it. It's very good that other industries aren't interfering in our projects, it's called technical support. There's business support as well. We have data and how are we making use of the data? The approach that is also very good for precision horticulture and IoT is looking for the minimal viable product, so it's not new, but doing it in the right way in these kinds of projects is very powerful to have in one year a solution which works and has a commercial interest. It's not a big win probably, but then you can start building on that and add new functionality to have a successful IoT solution. You have this axis, so technology, business and the agricultural domain that will come together in that whole program. We have a yearly event where we share everything, we have a platform where you can watch the website and IoF2020 what is exactly there. For many people it's quite new. We still run a lot from research but it's interesting.

Q: How soon we will be able to order an automatic broccoli harvester at an event like this? How far away are we?

Erik Pekkeriet: It will be a four-row selective harvester and we will test it if a decision for a full prototype will take a year from October onwards. Then you will find it in a show. It will take 1.5 years. It's not a big promise.

The Seminar adjourned at 9:40am for Morning Tea.

The Seminar resumed at 10:05am.

Q: A lot of the crops we grow, like peas, beans, corn etc, are uniform harvest grown. How do we get some of the other plants to come on to get that uniformity? Is it genetically within the plant that they have a multiple maturity rate for their elongation for propagation of seed within that plant? Or can we breed that into the plant to make broccoli and cauliflower easier to harvest?

Kevin Walsh: It's part of the breeding toolbox. If you look at double haploid technology, crisper technologies, utilising all of those things. If you do double haploid and CMS technology, that gives you 100 per cent genetic uniformity. It's how you combine the toolbox. Just normal breeding, it's about selection. If you look at some of the tools that some of our breeders are working with now, they can have 2,000 plants, but because of the markers and the chipping technologies they use, they can go to exactly to the right plant at the right time, so they're more predictive in selection rather than by visual eye. They actually have their tools in the background to help them do that with markers and different things. We're not the only ones using that technology.

Greg Fraser: Another factor of that variability is about what's in your land and how you map your paddocks and fields and what you can do to make those fields more uniform. You look at variable fertiliser treatment, variable planting rates etc, it comes back to collecting the data, and using that data to improve your system, whatever case that may be, but that could be one of the elements worth considering.

Panel Q&A

- **Mr Maarten Van Ham, Multi Tool Trac International Affairs Manager**
- **Mr Sandon Adams, Oritain Global Limited Business Development Manager – Australia**
- **Dr Michael Manion, Keon Research CEO and Founder**

No questions were asked.

The Seminar adjourned at 11:14am for a short break.

The Seminar resumed at 11:29am.

AgRobotics Panel

The Chair provided an introduction of the panel members, who shared a short individual presentation before the panel discussion.

Panel Q&A

- **Professor Salah Sukkarieh, The Australian Centre for Field Robotics Director of Research and Innovation**
- **Mr Jesse Reader, Bosch Australia Sector Specialist – Agriculture**
- **Dr Peyman Moghadam, CSIRO Data61 Senior Research Scientist and Agtech Cluster Leader**

Q: How does it come that there is a good interest in agriculture? What helps you?

Jesse Reader: This is nearly the least digitised industry on the planet. If you come back to the start from an agtech point of view, you're talking about something that is wide open for disruption and new business models. When you pare it back you look at the drivers from climatic diversities, no subsidies, highest labour cost in the OECD, it just goes on and on. That's why Australia is the perfect and prime market and it's a necessity, and we've got some of the most innovative growers in the world who have really adopted that. That's what's really driving it coupled with the decrease in technology costs.

Salah Sukkarieh: What you see there is the market drivers and the issues from the industry. On the other side you have a country that has over the last 20 years been working in field robotics, both in research as well as in commercialisation, so mining, infrastructure, monitoring etc. So there's a lot of know-how and knowledge amongst the universities on how to deal with automation. Especially outdoor robotics which is very hard, 24 hours, seven days a week, all weather conditions. I think it's the need that's happening on one side, but you have the capability as well on the other side and they're coming together.

Peyman Moghadam: I think Australia is also the perfect test pad. Not in the sense that we have good land and water, it's like we are off-season. Robotics is a good example, you have six months, the rest of the universe is harvesting and once that finishes they can come to Australia. We're looking at it from robotics technology but we are the perfect test pad in the sense that six months in the year, they could come here and test stuff.

Q: I see a lot of technology, but it's not implemented yet. Where is it stuck?

Salah Sukkarieh: I'll look at it with a university hat on. You have the 'push' idea – I'll do my research and the farmer wants it, and I'll just push it into their face until they accept it. Then there's the 'pull' methodology – you speak to the growers and see what they're interested in and you start to take it in. You get the same concepts in all the other industries around Australia. The difference is that with other industries you generally have a big OEM that sits there, a big company that's sitting there ready to take it on and push it out. In agriculture, you have many different growers that you have to deal with, so there's this gap in between by saying, 'I've got this technology to a certain level, what am I going to do with it? Who's going to take over that risk of pushing it out and making it work for other growers?' That, in agriculture, is a little bit harder than what you would find in other industries. You get a lot of different companies and you've got to look at it a little bit closer, deeper to see what they're doing. You have some companies there that might be bigger players, and they're taking the risk to take it forward, and that's really what we've got to wait for in the agriculture industry.

Jesse Reader: It's really interesting. I think there's a few things at the moment; the business models just aren't clear. In a lot of cases, the way in which we will adopt the technology that the market failure is very clear, that the technology it is addressing has come from a real ground-up problem and has been co-created with the users that will take it. There are some missing pieces in there depending on who you're referring to, which company and which approach. Then there's this perpetual debate also about is the industry in parallel? Do you build the technology around the growing system, or do you change the growing system for the technology? There is a little bit in parallel but unquestionably – let's take the robotic one, currently I would say that less than one per cent of Australian orchards could handle that technology and adopt it right now. The issue there is not necessarily the technology – the adoption will be a real challenge because there aren't many orchards that could grab it and take it right now. Or, do you come back in the other direction and put the pressure back on the tech and the companies and say you've gone down the wrong road. That's not a scalable business model if you've picked out a niche angle. Come up with something that is more suitable to deal with the complex systems and the problems we've got now that will actually allow us to get down the road where we can take these systems. But, be prepared for a much more complex piece of technology that will take longer to develop and it will be a lot more expensive.

Q: There is a lot of technology, there are agricultural agencies that fund your projects, but is the farmer directly engaged enough? Are there farmer heroes that do the precision agriculture and get enough value out of it, and are they also placed as a hero into the communication outside? How is that organised here?

Peyman Moghadam: We have great funding agencies and RDCs in Australia that do manage that interaction. We often get to go out and talk to them and showcase the technology in action. But I guess it becomes the question of scalability. It works with one farm, it works with one crop, but then if you want to make it a viable business model it needs to be scaled. I guess that's where we saw the majority of the technology push happen in broadacre, not because it was an easy thing to fix, but because when you fix it in cotton it could be done in wheat. It could be done in so many other things. It's the same problem more or less, but then apple versus mango – it's a different issue.

Jesse Reader: I think we need to be mindful that the mandate is different for someone who is under a funded project model versus working with a commercial start-up with a different set of priorities, in terms of the way they would both need or should engage. You can be shackled in some cases to do what you've been asked to do and in other cases perhaps you have a little bit more freedom. If it's not done like that from the start with the clear pain point being addressed, it's destined to trip over.

Salah Sukkarieh: It's long-term. We all know that robotics is coming. You've got to go through this process of knowledge gain and sharing – universities and start-ups and institutes need to learn what needs to work on a farm and the industry needs to learn about what technologies are available. You might not see it now but it's going to happen. The cost of technology keeps dropping and becomes easier to use. It becomes a lot more modular. All the RDCs are running their programs and ensuring there is some engagement from the end user into their program.

Q: In one sentence, what needs to be done to make precision agriculture and robotics a success in Australia?

Jesse Reader: We need more investment because robotics is a slow burn and we need to manage expectation.

Salah Sukkarieh: Stick to path – it's a long game.

Peyman Moghadam: I think we need to design the future of farms.

Q: My question is about commercialisation. There is a lot going on – are we one year away, three years away, five years away from simple weeding robots etc. I can see an application on my farm for that right now, so how long away is commercialisation where I can buy something off the shelf?

Salah Sukkarieh: Autonomous weeding is a no-brainer now, not just for what we do but for lots of different start-ups and institutions around the world. Being able to demonstrate it routinely 24 hours is fine. Putting it in an operational context and making sure that equates to a proper return on investment for the farmer is the part that needs to happen. From a technology perspective, it's ready. It's really taking it outside of the labs and start-ups, into an operational context, showing it 24/7 and making sure there is a proper return on investment for the farmer. In our projects we have economists that look at the economic framework and you'd be surprised that there is a point where autonomous doesn't work for farmers. It's working out that right value proposition for the farmer. But the technology is there and it's ready to fall out.

Jesse Reader: I've had very little to do with robotics in vegetables but if you said right now that there was a prototype that had proved out its business case and that it had the technology and it was refined and ready to go at the prototype stage, conservatively a 2-3 year industrialisation and commercialisation phase before that's in your hands. However, the preface to that comment is the regulatory side. There's a whole lot of fish hooks still left in this.

technology curve looks like and map that on top of how long that will take before you have a farm that is ready for automation. The more you can architect any environment and make it more structured, the easier it is for robotics to work in there. If it takes five years before you can get a robot on your farm, maybe it calls for a different architecture anyway.

Q: What level of collaboration have you had with growers with specific projects? What level of input from growers can you get to achieve an outcome?

Peyman Moghadam: It's very direct. We do have one project with Hort Innovation that we're running with QDAF and CSIRO where we have grower engagement every few months. It comes back to the technology, we need to test the MVP (minimal viable product) somewhere but it needs to be in the actual setting within the cycle of the harvest.

Q: There are questions about narrowing the scope as it seems like you're trying to do a lot of things with the same platform but maybe more concentrated effort with a specific type of operation may get an outcome sooner.

Salah Sukkarieh: Whenever you get funding from the RDCs they all want to make sure there is an end user engagement process happening. You have to have a board of growers overseeing the research project. It's an interesting question – do you optimise the platform so much that it works specifically in that environment, knowing full well that if you broaden it a little bit more you could drive down the cost of the robot for the broader sector? And trying to figure out how much of that modularity you can work into a system so you can broaden it. At the end of the day it will be more cost-effective for the industry. The RIPPA robot was modified for an apple farm with the idea that if you can start to see what will happen across a broad spectrum of the industry, you'll reduce the cost.

Q: What advice would you give to growers to get more engaged in these kinds of developments?

Salah Sukkarieh: On our projects when we have field trials we have field days as well and we bring growers from the area to it. They have a look at the system. We partner with RMCG who then do a communications strategy and survey strategy that gives us the feedback into what we should be doing next. Every time we do a trial we're always updating what we show on the platform based on the previous user feedback.

Q: My question is about the adaptability of the technology. We as growers have got very good at employing engineers to build our own equipment. What you said about customising the farm – if we could use tomorrow a weeder that didn't have solar panels and could be charged up overnight and pretty much doing one or two tasks, as you said earlier, a lot of these technologies are off the shelf. How difficult is the driverless technology to actually do – do we need a lot of expert partners to get that going or can a group of growers get together to do that ourselves?

Salah Sukkarieh: A way of looking at it is that I could open source everything and you could look at the technical and software designs and hire engineers to build it just for me and do it every few years. Looking at it from a commercial perspective, to do that properly you can't open source it; you need to make it more broad in order to get the value proposition back. It comes back to what's the right thing for the industry. I don't think the technology is hard and it wouldn't be hard given the knowledge we have now. You could do that but it would be for a very select few.

Peyman Moghadam: Imagine building a smartphone yourself. We are more open to change. You can build robotics today but is it really viable?

Salah Sukkarieh: In your case I would have a software engineer who would do a whole bunch of software activity on my farm, in which case I would be a system integrator for a bot on my farm.

Jesse Reader: I would say to concentrate on what you're good at – your core business. Growers have less bandwidth that they have ever had to make decisions and process information. I would firmly advise you against bringing that sort of capability in-house to do a really specific thing. Technology changes quickly and there are companies doing things they haven't even announced yet.

Conclusion by Greg Fraser

The Chair closed the Seminar and reminded attendees to hand in their completed survey forms.

The Seminar finished at 12:35pm.

Appendix 18 – 2018 GIHS Media Release



Media Release

21 June 2018

For immediate release

Innovative seminar helps growers meet consumer needs

The Australian horticulture industry has been left inspired and excited by the 2018 Global Innovations in Horticulture Seminar, a strategic levy investment using the Hort Innovation Vegetable Fund, which was held on Wednesday 20 June in Brisbane alongside the Hort Connections 2018 conference.

Over 150 attendees heard from international experts about technologies and practices in global horticulture that can help local growers tackle production challenges and satisfy evolving consumer preferences.

This year's headline speaker was Erik Pekkeriet, from leading international agricultural university Wageningen University, speaking about new technologies in horticulture that are helping to feed the world. Mr Pekkeriet was joined by a collection of other speakers, including Nicolas Tsurukawa detailing innovations in vertical farming, Sandon Adams discussing scientific traceability in fresh produce, and a panel featuring robotics experts showcasing the latest developments in horticultural automation.

"Our industry is grappling with global changes and domestic issues that we need to manage to ensure we meet consumer expectations while scaling production to match a growing market," said AUSVEG CEO James Whiteside.

"This seminar brought together international experts to show our industry how innovative technology and practices can help us manage these issues – such as

using agricultural robots for weeding, spraying and harvesting to minimise labour costs while ensuring consistent delivery of high-quality produce.

“Sustainable resource use is becoming more and more important in a changing climate, and we’re selling to more environmentally conscious consumers. Connecting our industry with global efforts to grow more with less, including innovative techniques like vertical farming, helps our growers understand new methods of sustainable vegetable production.

“New technology is enabling better traceability for fresh produce, which means that our growers can provide consumers with peace of mind about food safety and quality, so it was great to hear about how traceability can help prove origin and protect reputations.”

AUSVEG is the leading body representing Australia’s vegetable and potato growers, and has joined other leading industry organisations to deliver Hort Connections 2018, the premier event in Australian horticulture.

“It was fantastic to see so many growers attend this year’s seminar – it’s a great reflection of our industry’s commitment to continuous improvement and growth, both on an individual level and as a whole sector,” said Mr Whiteside.

“We deliver this seminar every year to present growers with the latest information and fresh perspectives on our sector, and we’re proud that it continues to make its mark on our industry.”

ENDS

MEDIA CONTACT: Shaun Lindhe, AUSVEG Manager – Communications

Phone: [03 9882 0277](tel:0398820277), Mobile: [0405 977 789](tel:0405977789), Email:

shaun.lindhe@ausveg.com.au

Appendix 19 – 2018 GIHS Vegetables Australia article

HORT CONNECTIONS FEATURE R&D | GLOBAL INNOVATIONS

Photography by Andrew Beveridge



Erik Pekkeriet from Wageningen University

GROWERS TUNE IN FOR A GLOBAL PERSPECTIVE ON INNOVATION

The Global Innovations in Horticulture Seminar made a triumphant return to Hort Connections 2018, with more than 150 people in attendance. The Seminar welcomed nine speakers from across the globe, including a three-person agrobotics panel, to discuss the technologies and practices in global horticulture that can help local growers tackle production challenges and satisfy evolving consumer preferences.

Returning in June was the Global Innovations in Horticulture Seminar, an event held at Hort Connections 2018 that demonstrated the very latest in innovative research and technology from around the world.

A packed room tuned in to hear presentations from international innovation experts, with topics ranging from consumer trends to labour-saving traits, vertical indoor farming, machinery, traceability, and invention. This was followed by an agrobotics panel which examined the latest in on-farm robotics, and what this means for Australian vegetable growers.

Global Innovations in Horticulture Seminar (VG15032) was a strategic levy investment under the Hort Innovation Vegetable Fund.

FOOD FOR THOUGHT

Following an introduction from moderator and Plant Health Australia Executive Director and Chief Executive Officer Greg Fraser, the seminar began with Erik Pekkeriet from Wageningen University in the Netherlands. Mr Pekkeriet works as a Senior Project Manager in Agro Food Robotics at the leading agricultural university, and he spoke about the challenges in food production (such as mass production and labour costs) and how technology is assisting in addressing these issues.

Kevin Walsh from Monsanto then addressed the changing demands that shape the produce landscape. He spoke about labour and how its availability is at breaking point, and outlined the breeding techniques that have led to new varieties of fruits and vegetables and, ultimately, labour savings.

Attendees also heard Urban Crop Solutions – Japan Country Manager Nicolas Tsurukawa discuss the notion of vertical farming and what makes the practice profitable. He addressed the challenges that vertical farming aims to meet, and debunked the myth that crops grown from vertical farms aren't as robust as outdoor, conventional crops.

FRESH CONCEPTS

After a quick break, delegates returned to hear from Multi Tool Trac International Affairs Manager Maarten Van Ham. Multi Tool Trac is an electric tractor built to preserve soil quality, which can lead to more revenue for growers, with Mr Van Ham explaining how the innovative concept came about and the steps undertaken in its development.

Scientific traceability of fresh produce was also addressed, with Simon Adams from Ortain Global Limited discussing the expectations of consumers and the implications for producers, which include the need to develop brands and innovate as well as increase transparency. Mr Adams outlined the steps that Ortain takes to test a product in the supply chain to ensure this transparency and minimise risks for both retailers and the consumer.

Next up was Keon Research CEO and Founder Michael Manion, who explained what his business aims to achieve in terms of basic science and product development. He gave attendees an insight into how it invests technologies to meet economic demands and protect intellectual property rights.

ROBOTICS DISCUSSION

The final component of the 2018 Global Innovations in Horticulture Seminar was an agrobotics panel, which was moderated by Mr Pekkeriet, Professor Salah Sukkariyah, Director of Research and Innovation at the Australian Centre for Field Robotics, discussed agrobotics and intelligent systems for Australian horticulture, including the outcomes of *Using autonomous systems to guide vegetable decision making on-farm* (VG15003), a strategic levy investment under the Hort Innovation Vegetable Fund. Two of the outcomes of this project are the Ladybird robot and the Robot for Intelligent Perception and Precision Application (RIPPA), which have been used in both trial-farm and commercial-farm settings in Australia.

Jesse Reader from Bosch spoke about the company's developments in robotics, including the Swarm-Bot concept. This concept is designed to enable growers to explore new farming systems through the use of smart, mobile automated robots. Bosch has partnered with SwarmFarm to develop these agricultural robots, which are mobile enough to work in a paddock.

The third and final panel speaker was Dr Peyman Moghadam, Senior Research Scientist at CSIRO Data61, who focused on adding value to the farm without changing current practices. He touched on using three-dimensional scanning and crop condition monitoring, driverless autonomous ground vehicles and a hovermap (an autonomous drone used to collect data).

At the conclusion of these presentations, the three panelists remained on the stage to answer questions from the audience. There was robust discussion around the commercialisation of some of these agrobotic solutions, and when Australia was likely to see them available on the market. It was discussed that while the technology is there, the next step was to investigate the economic framework that could take this technology from the laboratory to a commercial application.

It was noted that grower engagement in agrobotics was high, with feedback received by growers taken into consideration in the future development of agrobotic technology. It was also mentioned that field trials and days are regularly undertaken, along with surveys which enable growers and other industry members to provide their comments.

INFO

Presentations at the 2018 Global Innovations in Horticulture Seminars are available to watch at youtube.com/vee69USV6G5j4yt.

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