

vegetables australia

May/June 2013

**Liam
Condon:**

**"It is time for a
new revolution
in agriculture"**

Desley Jackwitz:
**"There is always
knowledge to be
gained"**

Nathan Free:
**Tomorrow's leaders
in horticulture**

**Butler Market
Gardens:
Growing
sustainably**

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grow forward

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150 Years
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John Brent

AUSVEG Chairman

Australian vegetable produce is amongst the highest quality on Earth. However, like any industry, Australian horticulture faces important challenges to its future and 2013 calls for innovation. Currently in Australia, the supply of local produce is exceeding demand, and profit margins for growers are markedly low. It is therefore an important time for us to look elsewhere for the distribution of Australian produce. It is with excitement that I look towards the vegetable levy-funded Reverse Trade Mission, recently endorsed by the Vegetable IAC and approved by HAL. This is a first for the Australian vegetable industry and is designed to introduce Australian produce to international markets. The focus of the mission will be the Asian region, given its proximity, growing wealth and potential to be accessed by Australian goods producers.

AUSVEG, HAL and the Vegetable IAC are also introducing other initiatives to encourage positive trade relationships between Australian growers and Asian customers, including a booth showcasing Australian vegetable produce at the Asia Fruit Logistica trade exhibition. On the Sunday following this year's AUSVEG National Convention at Jupiters on the Gold Coast, we will also be hosting an Export Symposium, which is designed to inform growers of how to access the Chinese market. It is my hope that at these events, Australian growers will benefit from the opportunity to network with representatives of their potential destination markets. More information on the Reverse Trade Mission and Export Symposium can be found in this magazine (page 42), and I encourage you to

contact AUSVEG if you are interested in participating in these events.

This year, other innovative responses to industry issues have already been proposed, formulated and successfully executed. It is concerning to many of us in horticulture that there is a significant lack of interest in careers in the industry amongst young people. In February of this year, at the request of the IAC, AUSVEG devised a project that allowed representatives of the Australian vegetable industry's Consumer Alignment Design Team to participate in a series of meetings with agriculturally-focused universities in different areas of Australia.

The tour of these universities was designed to stimulate ideas about how the vegetable industry could increase enrolment in horticultural courses by Australian tertiary students, which has dropped significantly from those seen only 10 years ago. One output identified in the project brief was to investigate the feasibility of introducing a scholarship program that included paid work placement during courses, funded research opportunities and opportunities for employment upon graduation. The other focus of the project was to further develop the skill sets of individuals who were already working in the industry. A report on the project will be made available on the AUSVEG website once the approval process has been completed by HAL.

John Brent
Chairman
AUSVEG



Richard Mulcahy

AUSVEG Chief Executive Officer

The Australian horticulture industry has much to look forward to. Currently, the team at AUSVEG is excited to be reaching the final stages of organisation for the 2013 AUSVEG National Convention. The Convention this year will be held at Jupiters on the Gold Coast, and will provide the industry with the opportunity to reflect on its recent successes as well as upcoming challenges. Following the success of a similar event ahead of the 2012 Convention, 100 levy payers are also being invited to the Emerging Technologies Seminar, where researchers and industry representatives will present the latest advancements in farming technology and provide a forum of interaction between attendees and presenters. More information on the Convention can be found within this magazine (page 44) or by contacting AUSVEG.

Also, it is encouraging to read (page 34) how Queensland babyleaf grower, Desley Jackwitz, found her participation in the AUSVEG Growers' Tour of the United States last year so valuable, and that she has directly benefited from the educational opportunities it provided her. On tour, Ms Jackwitz met leading industry representatives from the United States and used these connections to source parts for her farming tools upon returning to Australia. Her story is illustrative of why AUSVEG and Horticulture Australia Limited organise international grower tours. It is with great anticipation that we look forward to the next tour, which will take young growers to Japan and Hong Kong in August 2013.

Country of Origin Labelling has been an issue that has concerned Australian growers and consumers for several

years, and often an issue addressed in this column. Last month, the Senate Rural and Regional Affairs and Transport Committee decided not to endorse amendments to the Australian Food Labelling Bill, which had been developed by AUSVEG, the Australian Greens Party, consumer groups, the manufacturing sector and other farming organisations but proposed further refinements. The Bill is designed to make clear Country of Origin Labelling on supermarket produce an Australian legal requirement and work is now underway to refine the Bill further to take into account the Committee's suggestions for improvements.

Country of Origin Labelling is important to Australian growers because Australian produce has met stringent production requirements and boasts the highest quality in the world. It is therefore crucial that Australian consumers are able to make informed decisions when selecting produce. AUSVEG pledges to continue to work with the Australian Greens Party and other political parties in responding to the Rural and Regional Affairs and Transport Committee's recommendations, so that the right of the Australian consumer to know the origin of their product is enshrined in law.

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**FRONT COVER:**

Liam Condon

Photograph supplied by Bayer
CropScience

Editorial

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The Marmalade Files



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Looking forward



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Butler Market Gardens



It is with optimism that this month's *Vegetables Australia* lends focus to the varying ways in which industry leaders are investing time and effort to ensure the future health of Australian horticulture. Nominated for the 2013 Young Grower of the Year Award, Nathan Free is a fourth generation farmer from Tresco, Victoria. In "Young Grower Q & A" (page 20), Mr Free discusses the need to promote horticultural careers as viable options for Australian students, and how he became involved in the 2012 parliamentary inquiry into attracting young people to the industry.

Also featured this month is Queensland babyleaf grower, Desley Jackwitz, who discusses the importance of the exchange of knowledge amongst industry professionals, in "You Never Stop Learning" (page 34). Ms Jackwitz participated in the 2012 Study Tour of the United States, and recounts the way in which meeting international industry manufacturers exposed her to new farming technologies, and allowed her to improve the functioning of her business back home.

Bayer CropScience is a leading global industry corporation that specialises in crop protection, and, this

month, newly-appointed CEO, Liam Condon, speaks to *Vegetables Australia* about the way in which his organisation is working to promote long-term sustainable farming practices in "Q & A Liam Condon" (page 13). Mr Condon discusses the importance of forging strong partnerships between manufacturers, research bodies, farmers, and other organisations, to facilitate the combining of resources and ideas in the face of global challenges.

In our regular EnviroVeg feature (page 40), Grayson White from Butler Market Gardens discusses the way his

business is reviewing its energy use to find new ways to cut down on costs.

This edition features several exciting R&D updates, including an investigation of the process of apomixis of seeds (page 27), and the management of *Pythium* root rot (page 18). The HAL soil health program is reviewed (page 16), and three projects that attempt to understand the attributes that inhibit the purchase and consumption of certain vegetables are previewed (page 22).

TOP SPEED

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Veggie bites

Facts & figures...

Top 10

The World Health Organisation (WHO) reports that low fruit and vegetable consumption is among the top 10 risk factors contributing to global mortality.

\$30.5 billion

According to the Federal Department of Agriculture, Fisheries and Forestry, Australia exported more than \$30.5 billion worth of food in 2011-12 - the highest food export value in a decade. However, in vegetables, only 7.7% of products are exported.

\$630,600

The average total cash costs per farm in 2010-11, according to the Federal Department of Agriculture, Fisheries and Forestry.

\$13.70

The amount Australian households spent per week on vegetables in 2010, according to the Australian Bureau of Statistics.

618 kg

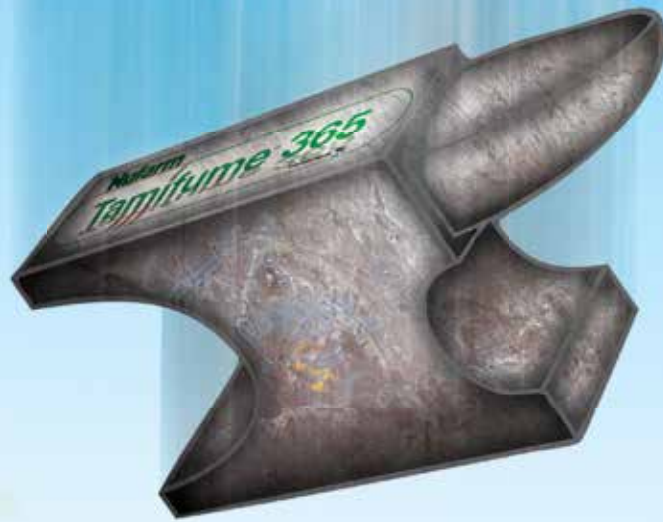
The weight of the largest ever pumpkin exhibited at this year's Royal Easter Show in Sydney.

8.3%

2011-12 data collected by the Australian Bureau of Statistics found 8.3% of Australians aged 18 years and over usually met the guideline for daily vegetable intake.

1.64 million

The number of people employed in the Australian food industry in 2011-12, as recorded in the latest *Australian Food Statistics* report.



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Looking forward: Emerging technologies in vegetable production



AUSVEG OFFERS GROWERS A GLIMPSE INTO THE FUTURE OF AUSTRALIAN HORTICULTURE THROUGH THE LENS OF THE 2013 EMERGING TECHNOLOGIES SEMINAR.

In the Australian horticultural industry, technology develops at an ever-increasing rate. Growers must remain informed of advancements if they are to operate businesses at maximum efficiency. It is with this notion that AUSVEG announces the 2013 Emerging Technologies Seminar, which

will take place on 30 May on the Gold Coast. The seminar will provide a forum of interaction between growers, industry representatives and researchers from around the world, who will provide an insight into the exciting future of vegetable production.

The Experts

Mr Yalman A Khan: Agricul Co-Founder and CEO, United Arab Emirates

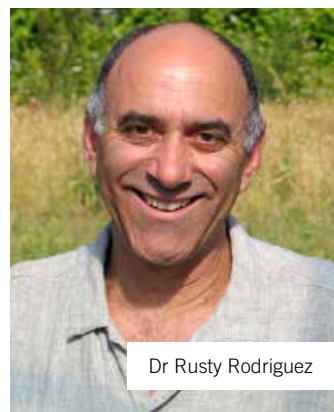
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Professor Lars Nielsen: Head of Systems and Synthetic Biology, Australian Institute for Bioengineering and Nanotechnology

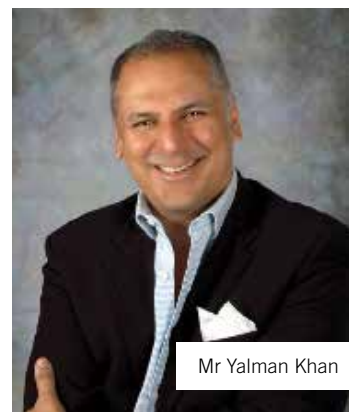
Professor Lars Nielsen heads the Systems and Synthetic Biology Group at the Australian Institute of Bioengineering and Nanotechnology. Professor Nielsen will be presenting his research on Synthetic Biology, which refers to the creation of new biological systems and devices through cataloguing useful genes then rewiring and combining them to perform a preordained function. The applications of synthetic biology in vegetable production are many, including with: plants that can utilise a greater spectrum of light during photosynthesis, plants which are especially tolerant to environmental stressors, and plants which produce medicines, plastics and other products. The Group's research varies from medical applications of synthetic biology to the modification of metabolic pathways in plants. At the seminar, Professor Nielsen will be discussing Synthetic Biology in the context of a Synthetic Farm, whereby its benefits are elucidated from a whole farm perspective.



Dr David Ball



Dr Rusty Rodriguez



Mr Yalman Khan

Dr Luke Alphey: Co-Founder and Chief Scientist, Oxited Ltd, United Kingdom

Pest management has undergone a series of paradigmatic shifts recently, from the development of chemical controls to the genetic modification of plants to increase pest resistance. Recently, pest insect sterilisation has become a possibility, though insects sterilised through conventional irradiative processes typically exhibit less fitness than unaffected individuals. They are thus less likely to reproduce, which negates the process entirely. This year, the Emerging Technologies Seminar welcomes Dr Luke Alphey, Co-founder and Chief Scientific Officer of UK start-up, Oxited Ltd, who will be presenting the solution he has devised to the problem of sterilised insect fitness. By inserting a heritable lethality gene into the target insect species, offspring that inherit the lethality gene die before reaching sexual maturity. Dr Alphey's approach is designed to improve the fitness of targeted individuals, making it more likely that they will reproduce and pass on the lethality gene.

Mr Richard Macchiesi: Insights and Innovation General Manager, VISY, United States

This year, the seminar will play host to an unveiling of the latest packaging technology devised by VISY. The details of the presentation to be given by Visy Insights and Innovation General Manager, Richard Macchiesi, are yet to be revealed, but he has stated that the technology is a world first, aimed at preserving produce quality.

Dr Rusty Rodriguez: CEO, Adaptive Symbiotic Technologies, United States

Symbiosis refers to a closed and long-term, mutually beneficial relationship between two or more biological species. Some plants enjoy a symbiotic relationship with beneficial fungi, which assist the plant in capturing phosphorus, sulphur, nitrogen and other micronutrients from the soil. Recent developments in mycorrhizal research have led to the developments of products that optimise plant symbiosis. This year, AUSVEG welcomes to the seminar, Dr Rusty Rodriguez, CEO of Seattle-based Adaptive Symbiotic Technologies, who is at the forefront of mycorrhizal research. Dr Rodriguez has researched plant-fungal symbiosis for over 20 years and operated many laboratories in academic and government institutions. He has worked with different industry affiliates and is considered an expert in the field.

Dr Dotan Peleg: COO, Morflora, Israel

Biotechnology encompasses an array of procedures for modifying organisms. Useful plant traits such as increased salt, heat, cold, drought and nutrient deficiency tolerance can, through biotechnological processes, be conferred to plants. Recent advancements in biotechnology research have the potential to increase the area in which vegetables can be grown, though biotechnology has also been criticised for the risks it poses to biosecurity. Israeli biotechnological innovator, Morflora, offers an alternative to conventional genetic modification processes, which seemingly minimises this threat. Morflora's patented TraitUP technology is a new, non-transgenic platform for trait introduction into seeds, enabling immediate expression of traits in plants. Through this process, traits can be applied to plant seeds and expressed within weeks. At the seminar, Dr Peleg, Morflora's COO, will discuss the potential of TraitUP technology in Australia.

Mr Royce Bell: Tactical Segment Manager, John Deere Australia

John Deere has been manufacturing farming machinery for 176 years. At the seminar, Royce Bell, Tactical Segment Manager at John Deere's Australian branch, will discuss John Deere's latest technological advancements, including Farmsight, their new farm management suite. Farmsight consists of several components, together providing a widely-encompassing management solution.

One component, Machine Optimisation, combines precision technology and wireless data networks to improve productivity and increase uptime. Logistics Optimisation enables the remote control of machinery through fleet management solutions and machine-to-machine communication. Finally, Ag Decision Support consists of user-friendly monitors, sensors, and wireless networks that provide easy access to machinery and agronomic data.

Dr David Ball: Research Fellow, CyPhy Labs, Queensland University of Technology

The field of agricultural robotics is constantly advancing in a variety of areas such as sensory technology, materials development and autonomous mechanisms. The automation of on-farm processes is likely to play a role in minimising input and maximising output in agriculture. Research Fellow, Dr David Ball, from CyPhy Labs at the Queensland University of Technology, is currently devising a group of small, cooperative, weed-killing robots with the goal of increasing crop production and reducing environmental impact, and will discuss this project at the seminar. Dr Ball's robots will operate with an advanced sensory capacity using low-cost components whilst cooperating with other robots in a robust system. CyPhy Labs' other projects include Persistent Robotic Navigation, vision-based Teleoperation, brain-based Sensor Fusion and Visual Navigation.

Mr Jeremy North: Founding Director, The Dearman Engine Company, United Kingdom

AUSVEG welcomes to the seminar Mr Jeremy North, Founding Director of the Dearman Engine Company in London, United Kingdom. Mr North will discuss his invention of a low-cost engine that runs on the decompression of liquid air that is cooled to -196 degrees Celsius. The engine is simple in design, mechanically similar to a convention combustion engine. Mr North's invention represents a paradigmatic shift in engine efficiency and sustainability. Engineering consultancy, Ricardo Engineering, recently performed a technology evaluation of the engine, and concluded that it was likely to compete with hydrogen fuel cell and battery electric systems in zero emissions applications.



Prof Lars Nielsen



Vegetable levy payers can apply to AUSVEG to attend this event, with some assistance to be provided. For further information contact Dean Schrieke via email: dean.schrieke@ausveg.com.au or phone: (03) 9822 0388.

This project was funded by HAL using the National Vegetable Levy and matched funds from the Australian Government.

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Q&A:

Mr Liam Condon

LIAM CONDON, NEWLY APPOINTED CEO OF GLOBAL CROP PROTECTION COMPANY, BAYER CROPSCIENCE, SPOKE TO *VEGETABLES AUSTRALIA* ABOUT THE CONTINUED IMPORTANCE OF SUSTAINABLE PRACTICES IN VEGETABLE PRODUCTION, THE GROWING ISSUE OF FOOD SECURITY, AND BAYER CROPSCIENCE'S PLANS FOR INVESTMENT IN RESEARCH AND DEVELOPMENT.

How can Bayer CropScience help to further the vegetable industry in 2013?

High quality vegetables are at the heart of wholesome nutrition. Consumers expect vegetables to look attractive, be convenient to process and prepare, to be affordable, to taste good, and contribute to health and wellness. As

demand for high quality food grows, vegetable production is challenged to meet demand in quantity, quality, diversity and reliable availability. And, of course, vegetables are an attractive, fundamentally growing business.

With our strong product portfolio, people and innovation pipeline – Bayer CropScience is the perfect partner with which to shape the future of the vegetables market. We are

able to offer growers integrated solutions – from vegetable seeds marketed under our brand name Nunhems, innovative chemical and biological crop protection solutions, to an extensive service backup – to help vegetable growers get the very best from their fields.

A strong and modern portfolio, including novel brands such as, Movento®, Belt® and Confidor® Guard, is constantly enhanced by an excellent

innovation pipeline. In addition, the biological control of pests and diseases holds significant potential.

Today, international trade channels and global sourcing are ensuring year-round supply of fresh vegetables for many consumers. On the farm, producers are increasingly applying sustainable agriculture principles to assure long-term growth. Bayer CropScience is committed to propel the

continued over page ►



industry's future, to benefit both the consumer at home as well as the grower in the field.

Our common main goal is the sustainable production and supply of high quality fruit and vegetable crops for nutritious food, underlined by long-term investments to ensure sustainable vegetable production. In 2012, Bayer CropScience acquired the watermelon and melon seed business of Abbott & Cobb, USA, and the US biological pest control company AgraQuest. In early 2013, we acquired the German biocidal supplier Prophyta. We also intend to launch several hundred new vegetable varieties under the Nunhems® brand.

Finally, we plan to expand our Food Chain Partnership activities to support the increasing international vegetable trade and to contribute to sustainable horticulture through long-term partnerships with the food industry.

What do you see as the current key issues affecting agriculture and

Bayer CropScience?

Food security and poverty are the biggest issues affecting not only agriculture but also our society. Around the world, some 870 million people are suffering from hunger. To us, that is a call for action. It is time for a "new revolution in agriculture" to help feed a hungry planet.

Our ambition at Bayer CropScience is to enhance food security, promote growth and help protect our environment. The following five strategic levers will help us achieve these goals: foster agricultural innovation with targeted investments; create lasting benefits for farmers; increase focus on solutions to protect our climate; enhance the nutritional value of our staple foods; and finally, promote agricultural partnerships.

Your career at Bayer to-date has seen you work throughout Asia and Europe. Does this position you well when dealing with the global issue of food security?

Meeting people in different Asian and European countries fosters an understanding of the variances of cultural demands on food requirements, as well as the commonality that dietary changes globally trend towards higher calorific diets. My experience is that better food quality and availability is a worldwide issue. And the global food value chain is faced with novel consumer demands which Bayer CropScience is well positioned to contribute towards.

The recent Vegetable Future Forum had a strong emphasis on collaboration as being central to the future sustainability of the industry. At what level can this be achieved and who needs to be involved?

We are committed to working in strong collaborations with partners from governments, the industry and non-governmental organisations. For example,

Bayer CropScience is a member of the World Economic Forum's New Vision for Agriculture (NVA). The NVA promotes market-based approaches to sustainably increase productivity and economic opportunities in the agricultural sector of developing countries.

Our comprehensive approach also comprises collaborations along the entire food value chain, from the seed to the consumer. They include regional and local projects to help millions of farmers improve food production. Among these projects are 240 food chain partnership business initiatives in 30 countries for major fruit and vegetable crops.

Furthermore, we forge partnerships around the globe to bring resources, ideas and people together. We collaborate with the best scientists at universities, research institutes and other companies to accelerate the development of innovative technologies. All these targeted partnerships are opening up new ways to sustainably feed the growing world population.

Bayer has a strong presence in Australia - where does the country figure in Bayer CropScience's global thinking?

Bayer shares a long tradition of innovation with Australian farmers that spans almost 90 years.

Fruit and vegetables are strategic focus areas for Bayer globally and in Australia and we aim to become a partner of choice in fruit and vegetable production by working together with partners to drive innovation forward.

The primary challenge for Australia in coming decades is to increase agricultural productivity while adapting to new resource availability constraints and climate variability.

The Bayer Bee Care Centres - both the Monheim facility and

that which is scheduled for opening later this year in North America - serve as examples of the R&D work Bayer CropScience is undertaking. What other R&D avenues will the organisation seek to invest in?

Bayer is committed to environmental stewardship and sustainable agricultural practices, including the protection of beneficial insects such as honey bees. The Bayer Bee Care Centres serve as a scientific and communication platform to consolidate existing and future bee health projects from Bayer companies in cooperation with external partners. They also foster information sharing and provide a platform for discussion and new ideas. We believe that collaboration is essential in order to find sustainable solutions that will improve honey

bee health.

More broadly speaking, one of the aims of Bayer CropScience is to offer its customers tailored and innovative solutions for selected crops along the entire value chain. To achieve this aim, we are investing heavily to research and develop new products, focusing increasingly on seeds and new growth areas such as plant health and stress tolerance.

Bayer CropScience plans to invest a total of EUR 7 billion between 2011 and 2016 in Research and Development (R&D) and an expansion of production capacities and seed processing facilities. As part of this program, Bayer CropScience is committing funds of EUR 5 billion for its R&D operations to develop new solutions for the farmer in seeds, novel chemical and biological crop protection.

As part of our integrated research approach, our scientists in the fields of seed technology, agricultural chemistry and biologics are working increasingly closely

to optimally pool the expertise acquired through chemical and biological research as well as field development, and align it to our long-term research objectives and business strategies for the various crops. We are also utilising our global network of partners from science and industry to drive growth through joint development projects.

What do you hope to bring to your role and achieve as Chairman and CEO of Bayer CropScience?

I'm convinced of the potential of the agricultural industry and our company in particular. I firmly believe in the people, portfolio and spirit of our organisation. I see my role as leading the company to become number one in our industry, and in so doing, playing our part in feeding a hungry planet in a responsible and sustainable way.



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Soil matters



A NEW PROJECT REVIEWS THE ADOPTION OF SOIL HEALTH INITIATIVES BY AUSTRALIAN VEGETABLE GROWERS, WRITES RACHEL WILLIAMS.

Soil health remains at the forefront of concerns for Australia's vegetable industry, with new research suggesting that farmers believe significant profit can be gained through better understanding and management practices.

Dr Gordon Rogers, from Applied Horticultural Research, recently completed a project, which reviewed the adoption of soil health practices by Australian vegetable growers. The project was funded by HAL using the National Vegetable Levy and matched funds from the Australian Government.

Key findings of the review were:

- Soil health research should continue;
- Growers prefer smaller projects, with a strong regional focus offering useful solutions to specific problems;
- Results of projects must be communicated effectively to growers.

"I am buoyed by the support for soils research and the

message the majority of farmers want this type of research to continue," Dr Rogers said.

"Growers want to learn more about soil biology. Most growers apply organic matter and some type of biological stimulator to their soils but what happens after that is not well understood."

Priority issues identified for more research and development were:

- Soil-borne diseases;
- Biofumigation;
- Nutrition, especially in relation to organic composts;
- Organic supplements and microbial activators;
- Controlled traffic;
- Minimum tillage.

Dr Rogers said that the project included on-farm surveys to benchmark the uptake of soil health initiatives by the Australian vegetable industry.

The surveys, conducted by AHR agronomist, Mike Titley, focused on the larger growers, who produce 80% of the nation's vegetable crops. Mr

Titley found that management of soil-borne diseases such as damping off and Sclerotinia were of highest concern to growers.

Other findings from the survey included:

- Improvements in soil management were judged successful by at least 90% of growers;
- 80% of growers test their soil at least annually;
- There is a low level of awareness among vegetable growers about subsoils, cation exchange capacity/nutrient-holding capacity and soil biology.

The findings of Dr Rogers and Mr Titley come six years after HAL identified soil health as a priority for the vegetable industry, following concerns about large losses in productivity, increased disease and long-term damage to catchments.

After those initial fears were raised, three separate projects were implemented. One project

focused on tropical vegetable production, one on temperate vegetable production and the third produced a Ute guide for better soil management.

Dr Rogers reviewed those programs and described them all as having made very useful contributions.

The first project, finished in December 2010, investigated the effects of common soil management practices on soil health and crops and examined the physical, chemical and biological changes in soil after different treatments.

It found that an increase in crop productivity of up to 15% and profits of up to \$3,000 per hectare were possible through better management of crop nutrition. It also found that 75% of growers were over-fertilising vegetable crops and that in some cases, up to 80% of fertiliser applied was wasted.

The second project involved a survey of vegetable farms to determine the main issues related to soil health





Gordon Rogers



Mike Titley

management and to measure the effects of various vegetable production systems on soil properties.

The outcome included a recommendation for the establishment of a national soil health program, run by a single national body, to manage soil health research and communication, as well as the development of a soil pest and disease risk assessment tool for growers.

The third project distributed 9500 copies of a Ute guide containing information such as how to sample soil, interpret soil tests, improve soil quality and prevent damage to the soil.

"The main feedback from

growers was that they highly valued soil health research, but thought it needed to be communicated more effectively," Dr Rogers said.

"Growers want fact sheets and field days. They also value web-based information and talking to other growers," he said.

A national soil database is now being setup. It will contain details about the physical, chemical and biological health of topsoil and subsoil on Australian vegetable farms, and will be relevant to the major vegetable crops grown in Australia.

"The database will also allow vegetable growers, researchers and agronomists

to take advantage of what other industries are doing. At the end of the day, most vegetable crops are grown in soil, and so it will be beneficial to have the research findings available to everyone," Dr Rogers said.

Dr Rogers said that the benefits to growers of more research into the key areas they identified in the survey were wide-ranging.

"I think the farmers would get better control of soil borne diseases, local soil-related problems addressed, and the results of this research effectively communicated back to the growers, who paid for the research in the first place," he said.

THE BOTTOM LINE

- Three recent soil projects have been peer-reviewed to benchmark their uptake, finding that soil health remains at the forefront of growers' concerns.
- Growers believe the key areas for future soil health research and development should focus on soil-borne diseases, biofumigation and nutrition.
- A new national soil database is being established to provide more information to farmers.



Dr Gordon Rogers
Applied Horticultural
Research Pty Ltd
Email: gordon@ahr.com.au
Project number: VG11034

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Canker culprit identified

A NEW AUSTRALIAN PROJECT DETERMINES BETTER CONTROL STRATEGIES FOR *PYTHIUM*-INDUCED ROOT ROT IN PARSNIPS, WRITES KAREN SHAW.

R&D
Farm Productivity,
Resource Use
& Management

Ground-breaking Australian research has found that a suite of *Pythium* species, soil-borne fungal-like organisms, are associated with root rot or canker in parsnips - a disease that causes about 80 per cent of crop losses in the \$20 million industry.

Plant pathologist and research team leader, Dr Liz Minchinton, believes that the research findings are very important.

"By understanding more about what causes canker in parsnips, growers can better manage the disease," she said.

"We found that crops treated with granular *Pythium*-specific fungicide, metalaxyl, had less canker. The exception was when the metalaxyl was applied to

very heavy soil," she said.

The national research focused on taking systematic monthly surveys of parsnip crops to isolate fungi - an Australian-first for parsnip crops.

Before this study, parsnip root rot had mainly been associated with *Itersonilia perplexan*.

"Significantly, we found *Pythium* spp. on parsnip roots in the first few months of growth. But when the temperatures warmed, we isolated other pathogens including *Itersonilia* as well as *Phoma*. Some of the *Pythium* species hadn't previously been found on Australian parsnip crops," Dr Minchinton said.

What was really surprising was learning about the order in

which fungi were discovered, she said. This gave growers valuable insight into potential management strategies. For example, early in the season, growers could use a *Pythium*-specific fungicide on parsnip crops, and later opt for a broader-spectrum fungicide.

Growing parsnips

Parsnips are considered a high-value crop, but are notoriously difficult to grow. Victoria produces more than 80 per cent of the nation's crops, with a handful of growers in Western Australia and Tasmania.

Canker causes roots to blacken, crack and rot. Growers reported that in 40 years, there

had been little research done on a disease that had the potential, in severe cases, to destroy an entire crop. They said the canker was worse in parsnips sown in February and grown through winter for harvest eight months later, from September to November.

This project was funded by HAL using the National Vegetable Levy and matched funds from the Australian Government.

Canker control strategies

Dr Minchinton said parsnip growers often selected and planted their own seed. Most selected white-fleshed vegetables, which sold better

on supermarket shelves, but varieties with cream flesh were often more resistant to canker.

Growers might be better selecting seed that is resistant to root rot, in addition to characteristics such as shape and colour. Seed cultivars that had performed well for these characteristics in field trials included Javelin and another listed as 302-9, but which was now sold through South Pacific Seeds as Moonshine.



Parsnip with canker

“Our results showed that Javelin had the highest proportion of healthy, marketable yield of the varieties we tested. It really stood out and would be a good variety for farmers to try,” Dr Minchinton suggested.

Soil was also important.

“We found it was much easier to control canker in light, rather than heavy soils. In fact, we didn’t find any suitable controls for canker in heavy soil,” she said. “We also lost field trial crops because of water logging.”

“We found that granular metalaxyl, applied to the soil where it was closer to the roots, was a more effective control than foliar sprays,” she said.

She suggested adding the fungicide at planting time or early in the growing cycle for best results.

Cultural controls



Soil moisture measurement probe

Dr Minchinton said the research found that covering parsnip crowns with mulch or soil did not help prevent canker. In fact, adding mulch encouraged lateral root growth and forking, which was what most farmers wanted to avoid. Hilling the plants did not seem to prevent the disease either, she said, and suggested that more work could be undertaken in this area.

Work done by researchers in the WA Department of Agriculture and Food had found that crop rotation, and in particular, growing broccoli before planting carrots, was effective. Carrots are also attacked by *Pythium* and are in the same family as parsnips.

“We found this research translated well,” Dr Minchinton said.

Broccoli was not a host of *Pythium* and helped break the disease cycle. Growers should

also avoid planting lettuce before parsnips because it was a host of both *Pythium* and *Phoma*.

Dr Minchinton recommended that more research be undertaken into finding other chemical and cultural methods to better understand how to control canker in parsnips.

THE BOTTOM LINE

New research has found that *Pythium* species are associated with canker in parsnips. To better control the disease, the study also recommended growers:

- Plant parsnips in light, sandy soil and avoid heavy, clay soils or those prone to water logging.
- Apply a granular form of metalaxyl to parsnips either at planting, or early in the growth cycle, to help control *Pythium*. The APVMA permit for use of metalaxyl to control *Pythium* and *Phytophthora* in parsnips is permit 12354, which is effective until 30.04.2014 and accessed via <http://www.apvma.gov.au/permits/search.php>
- Practise crop rotation. Be sure to plant parsnip crops after harvesting broccoli. Broccoli helps break the *Pythium* disease cycle because it’s not a host of the pathogen.



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Project Number: VG08026



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Age: 24

Location: Lake Boga, Victoria

Grows: Chilli, organic melon, organic zucchini, organic pumpkin, organic beans, organic tomato and organic broccoli

Q&A Young grower profile



Lake Boga,
Victoria

How did you first get involved in the vegetable industry?

Throughout my childhood, I had a passion for the farm. I was 15 when I planted my first big vegetable patch, where I sold the produce to a roadside stall near the farm. Then around the age of 18-19, I was planting a hectare at a time of rockmelon, establishing a premium melon brand sold in the wholesale market.

What is your role in the business?

Vegetable production and pack house manager are my two major roles on our family property. During winter and early spring, I use my time to organise the coming season's production with field preparation, seed purchasing and scheduling planting times to organise the most consistent supply to our customers. I then manage the packaging and distribution of our properties' organic and conventional fruit and vegetable production from late spring through to autumn. There is also some contract packing for other organic growers during this period. In addition to this, I also have a certificate in fabrication that helps with maintenance and construction of farm machinery throughout the year.

Describe your average day at work.

During the summer production months, a normal day starts at 6am where I travel around the vegetable blocks, identifying any issues and checking progression and maturity of the produce. I use this information to aid market development and predict coming supply targets. Before the packing team starts at 8am, I organise the day's packing plan and lubricate the packing equipment so the day has the best ability to run smoothly. During the day, my role requires me to organise product dispatch to all capital cities along the east coast, undertake packaging inventories and maintain market relationships, which allow me to gain knowledge on price and upcoming demand of new and key lines.

What do you most enjoy about working in the vegetable industry?

The organic vegetable industry is interesting at the moment. Keeping up the integrity of Certified Organic with the challenges of production, harvest and packaging, so that the consumer gets the full benefit of certified organic production is very important to me. I enjoy the fact that every day at work, I am able to work within a team that will one day produce a 100% renewable product with an all-natural flavour and the quality that the consumer expects.

What are the biggest challenges you face as a grower?

Balancing nutrition in the soil, the management of pest and disease, and water manipulation to increase plant strength are a few of the challenges that we face in producing a nutritionally rich product that can keep fresh through the cold chain and be as good as it was in the field days later while it is on the shelf.

Last year you were involved in a parliamentary inquiry into attracting young people into the industry. What was the nature of your involvement and what do you think was achieved?

I was able to give my opinion on why there are not equal amounts of young people

entering the agriculture sector to the amount of experienced older farmers who would like to leave to enjoy their retirement. The inquiry gave the opportunity to invited participants to explain their opinion on the agriculture industry and how it can attract new young blood. This avenue achieved what it set out to, but there is still a lot of work to do so that young people can see that agriculture can give them a rewarding career.

How do you think more young people could be encouraged to take up jobs in horticulture and the vegetable industry in particular?

Currently in the horticultural industry, I don't see any extra capacity for young people to take up jobs as the industry is already able to supply (and in some circumstance, over supply) the consumer's needs. With predictions of population growth and extra demand on primary production, I see there will be a need for an innovative and structured skilling program. I would like to see prospective young people entering into an internship-style course where they would work for and receive the necessary education from an industry professional. Industry leaders are the only people that are actually dealing with the current industry issues and market-place trends compared to education institutions that are not at the coal face of the industry. My proposed structure to this internship would include an industry-specific course with modules on soil science,

plant management, quality assurance, marketing, business management and customer requirements. This system could be rolled out now to develop the program and solve skilling issues, and be implemented in businesses requiring innovative young people.

In addition to providing young people with the knowledge to run a farm, there will have to be a system of financing which enables young people entering this field to purchase and develop properties to an efficient and economical size.

If you weren't working in the vegetable industry, what would you be doing?

I have a passion for farming, but if it was not possible anymore, I enjoy trading and investments so money markets and shares would be interesting.

Where do you see yourself in 5 years?

Having an organic production system where all inputs are 100% renewable. I would like to have developed a reliable production system in organic vegetables so that the production is efficient and cost effective; not reliant on manufactured inputs like a conventional system. I would also like to be a part of the horticultural industry where my opinion can aid development and help bring more young people into the industry so that the necessary progression can take place.





Investigating inhibitions to fresh produce purchase



THREE PROJECTS HAVE RECENTLY COMMENCED UNDER THE COMMON THEME OF ATTEMPTING TO UNDERSTAND THE ATTRIBUTES THAT INHIBIT PURCHASE AND CONSUMPTION OF VEGETABLES. KAREN SHAW SPEAKS TO RESEARCHERS FROM EACH PROJECT TO FIND OUT MORE.

Why do people buy vegetables, what stops them and importantly, how can the industry increase consumer demand for a specific product? These questions formed the focus of major studies into the consumer buying patterns of six specific vegetables - capsicums, Asian greens, cauliflower, green beans, broccoli and pumpkin.

The research, funded by HAL using the National Vegetable Levy and matched funds from the Australian Government, has only recently begun, but early statistics already reveal some interesting consumer purchasing patterns.

Asian greens and capsicums

Queensland-based Sprout Research has been examining capsicums and Asian greens, and has found that 79 per cent of Australians buy fresh vegetables at least weekly.

Breaking down these figures

further, 42 per cent or four out of 10 consumers say they buy capsicums at least once a week. In comparison, the consumer surveys show that four out of 10 consumers never buy Asian greens.

For Research Director, Heath Adams, the exciting part of this research is extending it further to get a better understanding of these figures. This means extrapolating details about what consumers use capsicums for and what barriers exist to buying more.

"We might also discover other uses or occasions that would increase demand for capsicums," said Mr Adams.

"We've found that 42 per cent of consumers never buy Asian greens, but now we want to know why. It could be that people don't know how to use Asian greens. If that's the case, the next strategy is a consumer education program that promotes the versatility of Asian greens. There's a

huge opportunity to increase consumer purchases of this vegetable," he said. "Each vegetable has its own triggers. People buy Asian greens for different reasons than they might buy potatoes. Each vegetable has a unique place in a consumer's life and fulfills a unique need. One of the key project goals is to advise growers and give them a better understanding of how consumers are buying their vegetables and using them at home. The bottom line is to increase consumption of vegetables."

Cauliflowers and green beans

Dr David Cox of CSIRO is the project leader of the cauliflower and green beans study. Recent Nielsen data suggests that more than a third of shoppers never buy cauliflower and almost half never buy green beans.

"We want to examine some of the barriers to purchases and consumption of these vegetables," said Dr Cox.

For example, a barrier to buying cauliflower might be size-related.

"It's a large item and we know that household size is becoming smaller," he said.

Therefore, growing and supplying smaller cauliflowers or selling pre-packaged florets may help to navigate around the issue. Most cauliflowers on the market are white, but growing other varieties such as purple, green or orange-coloured cauliflowers might also help to increase consumption.

"There might also be opportunities to develop a cauliflower snack food," he suggested. "It might be more difficult to promote beans as a snack food, but our early research found that preparation, or trimming beans, before cooking was a barrier to some consumers. People want convenience. We might find that



selling pre-packaged beans already cut and trimmed [could] encourage more sales.”

The next step would be to undertake consumer trials to find out what people were looking for when buying these vegetables.

“We are looking to see what we can do to optimise consumer demand for these products, including their sensory attributes and health associations,” said Dr Cox. “We aim to provide growers and industry stakeholders with action plans that encourage eating more vegetables because this also promotes healthy eating, which long term is a win-win situation.”

Pumpkin and broccoli

John Shannon, from vegetablesWA, is researching public consumption of broccoli

and pumpkin.

“So far, we have undertaken literature reviews and completed interviews with industry stakeholders. The next step is to complete consumer research and find out exactly what people want,” said Mr Shannon. “It’s exciting because for the first time, we will have a deeper understanding of what the consumer really wants. We will be able to pass this onto growers so they can use this knowledge to better target consumer needs and improve their bottom line.”

Interviews with pumpkin growers suggested that most understood the triggers for buying, which included taste and tradition, as well as pumpkin’s attractive colour. Growers also observed that pumpkin popularity had grown over the past five years, but

didn’t understand why.

“As a grower, I would be interested in finding out,” read one quote featured in the report. Early work examining inhibitors of purchase included the available portion or product size, which was deemed to be too large, as well as preparation convenience. There was also some misunderstanding about its association with weight gain, the report said.

Innovation and encouraging new varieties might improve market share, Mr Shannon said. For example, overseas the broccoliflower - a hybrid between cauliflower and broccoli - had been developed.

“As well as looking at these innovations, we will examine what else might attract Australian consumers to buy more broccoli and pumpkin,” said Mr Shannon.

Once the consumer-based research is completed, a report containing the results and recommendations will be released to growers and industry stakeholders later in the year.

THE BOTTOM LINE

- Understanding consumer demand for vegetables including capsicums, Asian greens, green beans, pumpkin, broccoli and cauliflower is the focus of three separate research projects.
- Once growers and industry have better knowledge about consumer preferences, they can better supply demand, increase market share and improve growers’ bottom line.
- Findings and recommendations from the HAL-funded research projects will be released to growers and industry stakeholders later in the year.

i Project number: Understanding the attributes that inhibit purchase and consumption of vegetables: Capsicums and Asian Greens (VG12069) Pumpkin and Broccoli (VG12045) Cauliflower and Green Beans (VG12070)

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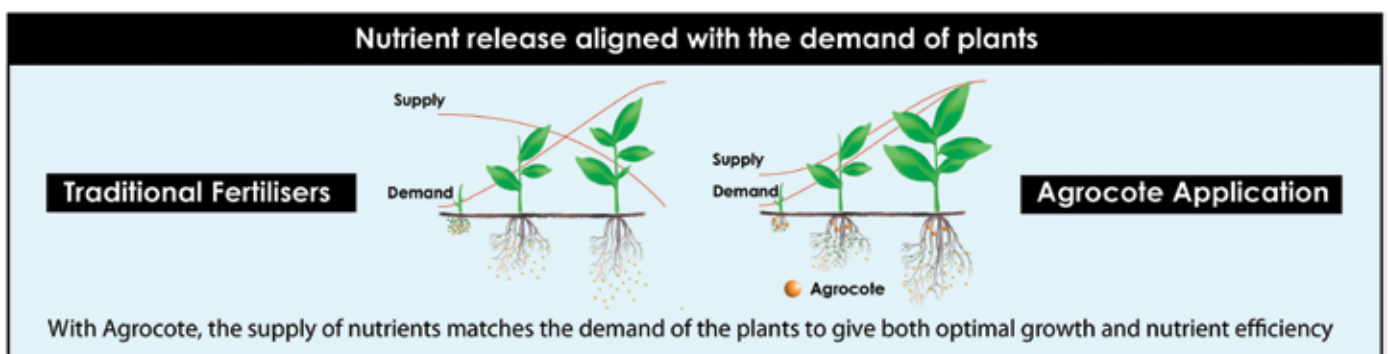
Horticultural growers in Australia have refined their crop nutrient delivery strategies over time using granular, soluble and liquid fertilisers. This has been required to maximise the efficiency of nutrient applied

available in amenity horticulture, such as nurseries and turf, for decades. The grower's returns in these industries have allowed the use of exotic polymers to provide nutrient that releases over time. These products are expensive in nature due to the cost of manufacture and high-quality fertiliser base products that are utilised. Another factor limiting their introduction into commercial horticulture is that many are fixed N: P: K: S blends, requiring a multitude of products to meet a farmer's requirements. A further downside is that these products are highly dependent on soil temperatures, and hence release rates change dramatically depending upon

at planting and have the ability to replace sidedressing/fertigation for periods of up to three months. These Controlled Release programs are providing nutrient programs, similar to the fine-tuning that is available from hydroponics.

Horticultural crops benefit particularly from small daily doses of nutrient. Disorders such as poor Calcium uptake are not as prevalent in the plant tissue, compared to slug doses of Ammonium and Nitrates from sidedressing and fertigation applications.

Environmental benefits also are very real with a reduction of nutrient movement off the field, resulting in less impact on



and, importantly, the yield and quality of crops grown.

Strategies such as splitting applications, fertigation of solubles and foliar liquids have been useful, but not entirely satisfactory. The efficiency of nutrient uptake into the crop can be poor due to loss mechanisms in the field such as leaching, denitrification (the removal of nitrogen) and volatilisation (the evaporation of a volatile herbicide). Extra nutrient must be applied to counteract these losses, with the high cost of labour and nutrients compounding the problem.

Slow release fertilisers have been

when the crop is grown.

Recently, Controlled Release products from commercial agriculture in the Americas have become available at a cost that makes them viable in Australian horticulture. They are known as Controlled Release due to the fact that soil temperature does not greatly affect the release rate. Importantly, they are base Nitrogen and Potassium granules and hence can be easily blended into existing grower programs, replacing a component of conventional nutrient applied.

Controlled release allows a portion of the Nitrogen and or Potassium to be applied

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The future is bright for Controlled Release fertilisers because they can greatly improve fertiliser use efficiency in horticulture.

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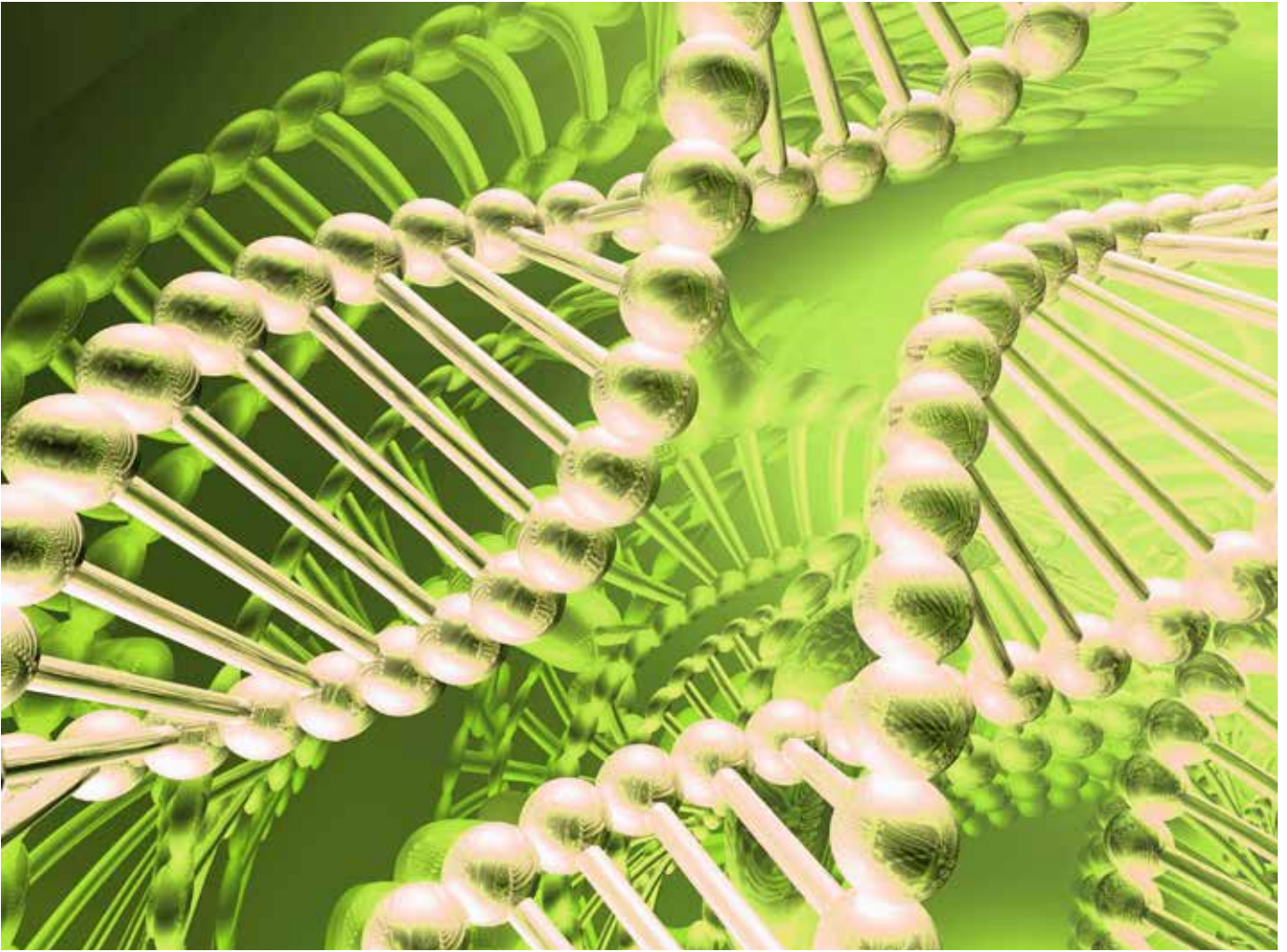
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- Weed control
- Nutrition
- Post harvest
- Seed / genetic selection
- Protected cropping
- Other on-farm technical issues



Seeds without sex

A TEAM OF MONASH UNIVERSITY SCIENTISTS HAS DISCOVERED A PROCESS BY WHICH PLANTS CAN BE CLONED, THEREBY POTENTIALLY ALLOWING FOR THE SELECTIVE CONTINUATION OF FAVOURABLE TRAITS, WRITES RACHEL WILLIAMS.

Growers are set to benefit from groundbreaking research which could lead to the production of seeds without traditional “sex”.

Scientists at Monash University have referred to the discovery as one of the holy grails of agricultural research, because producing seeds without sex would make new, high-yielding and drought-resistant crop varieties cheaper and more widely available.

“From a global agricultural perspective, this could have really positive impacts on cropping,” said Professor John Bowman.

Professor Bowman and his team at Monash University

collaborated with Japanese post doctorate student Keiko Sakakibara to investigate the genetic reproduction of moss.

“My laboratory tries to understand how plants develop and evolve so it is very curiosity-driven research, which can lead you to places you don’t think you are going,” Professor Bowman said. “We had no idea what the result would be so it is always very exciting when you discover something much more interesting than what you plan to find.”

That discovery was a process called apospory, in which plants propagate without sex, which tends to recombine traits. An analogous process,

apomixis allows plants to clone themselves through their seeds.

It’s a complex science, described by Professor Bowman through a comparison to human reproduction.

“In humans, each cell in the body has two sets of DNA. This is called a diploid state,” he said.

“The tiny single-cell sperm and eggs that we produce contain only one set of DNA. This is called the haploid state,” he said. “In contrast, plants have large complex bodies in both haploid and diploid generations.”

“In one generation they have a single set of genes (haploid), in the next they have two

sets (diploid), and these two generates alternate during the life cycle,” he said.

“By removing a gene, known as KNOX2, from moss, the Monash team discovered that the diploid generation would develop as if it were a haploid, meaning that the offspring only contain chromosomes from the mother plant,” he said.

It’s a transformative form of technology, according to Professor Bowman.

“Modern, highly productive farming relies on crossing crop variants to produce crops with superior qualities to either parent. This carefully-orchestrated hybrid vigour is lost if the crop is allowed to do its own thing, mixing and

matching genes via sex to create the next generation.

“Apomixis would allow traits such as yield and drought-resistance to be preserved generation after generation, potentially reducing the cost of producing hybrid seeds, and the farmer’s need to purchase seeds anew each planting season,” he said.

Professor Bowman said growers of rice and wheat in developing nations were likely to be big winners from the discovery.

“Crops grown from seeds produced by big, international companies do not produce seeds themselves and a lot of Third World farmers can’t afford to buy new seed each year,” he said.

“This is like a return to the olden days of farming where you would harvest your crop and leave ‘x’ per cent of crop to go to seed to plant again next year,” he said. “From a science point of view, it is very cool. This phenomenon was first described in the 1850s, well before Charles Darwin’s (theory of evolution) discovery so it is a remarkable achievement to

reach these conclusions now.”

While the term “genetically modified” has, in the past, created fear among some farmers and consumers, Professor Bowman said he did not think that there would be any concern if apomixis became a commonly-used tool.

But he is realistic about when there might be obvious financial

benefits for growers.

Bowman’s team has started new scientific research to ensure what they achieved with moss could be applied to commercial-scale crops by first testing the idea in the model laboratory plant, Arabidopsis, a diminutive flowering plant that is a model for studying many aspects of plant biology.

“Ten years is very optimistic. Research is slow in comparison to life, which seems to get faster and faster with an expectation that you can get information instantaneously. Twenty years at the minimum will be how long it will take to really have a better grip on these things,” he said.


“Our discovery is another small advance in the big scheme of things,” he said.



Professor John Bowman

THE BOTTOM LINE

- Monash University has made a breakthrough in the production of seeds without traditional ‘sex’.
- Rather than have cells mixing their genetic contents to create new plants via pollen and ovule, seeds could be produced with the same genes as the parent.
- It could be 20 years before the research translates into a commercially available agricultural tool.

 Professor John Bowman
 Email: john.bowman@monash.edu
 Australian Research Council



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Diploid generation; two sets of chromosomes (like human bodies)

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Summing up

R&D

Drive Train

ABARES' ECONOMIC GROWER SURVEY INDICATES THAT FAIR WEATHER PROVIDED THE RIGHT CONDITIONS FOR GREATER YIELD AND LOWER VEGETABLE PRICES DURING 2011-12, WRITES AUSVEG ECONOMIST, BEN LOE.

The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) conducts an annual survey of Australian vegetable growers, funded by Horticulture Australia Limited (HAL) using the National Vegetable Levy and matched funds from the Australian Government. The latest survey was conducted from February to August 2012 and released in December 2012, covering farm data collected in 2010-11 and 2011-12. In this article, I examine the study's findings in relation to farm financial performance and the future of vegetable growing.

Farm financial performance

Farm financial performance is dependent on vegetable production and the prices received for vegetables, both of which can vary widely from year to year.

As shown in Figure 1, the average quantity of vegetables produced fell and the average price received for vegetables rose in 2010-11. This mainly reflected production losses from heavy rain, flood damage, and an associated increase in pest and disease activity in a number of vegetable growing regions. In 2011-12, the average total quantity of vegetables produced is estimated to have risen and the average price received for vegetables fell, driven by an improvement in vegetable yield thanks to more favourable seasonal conditions.

On average, farm financial performance improved over the past two years (see Table 1). However, conditions remain tough in the midst of a climate of rising costs. While average farm cash income for vegetable farms was estimated to have increased to \$179,000 in 2011-12, many growers are struggling

Figure 1: Quantity sold and price received of all vegetables, 2009-10 to 2011-12 (average per farm)

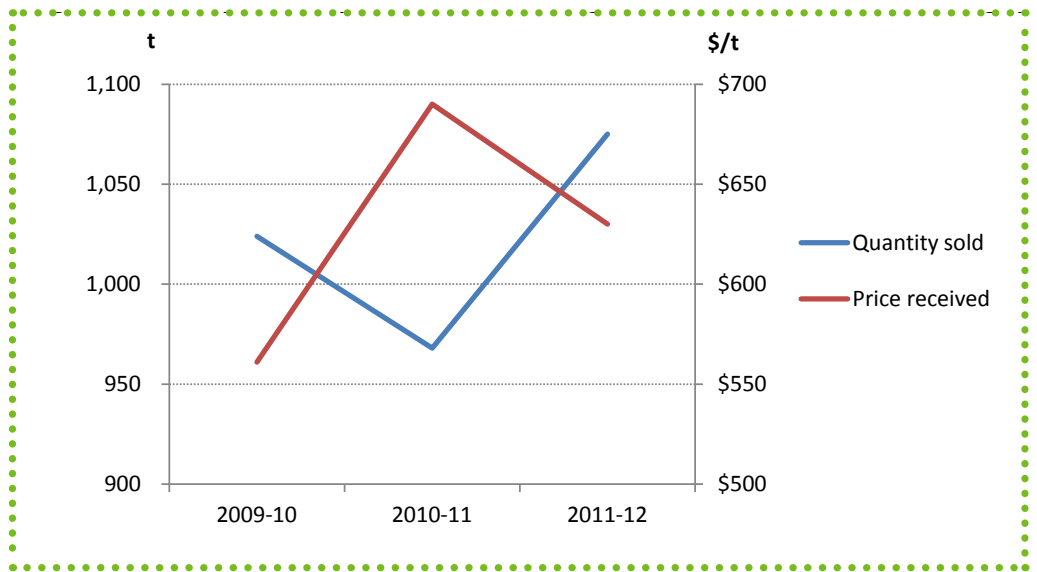
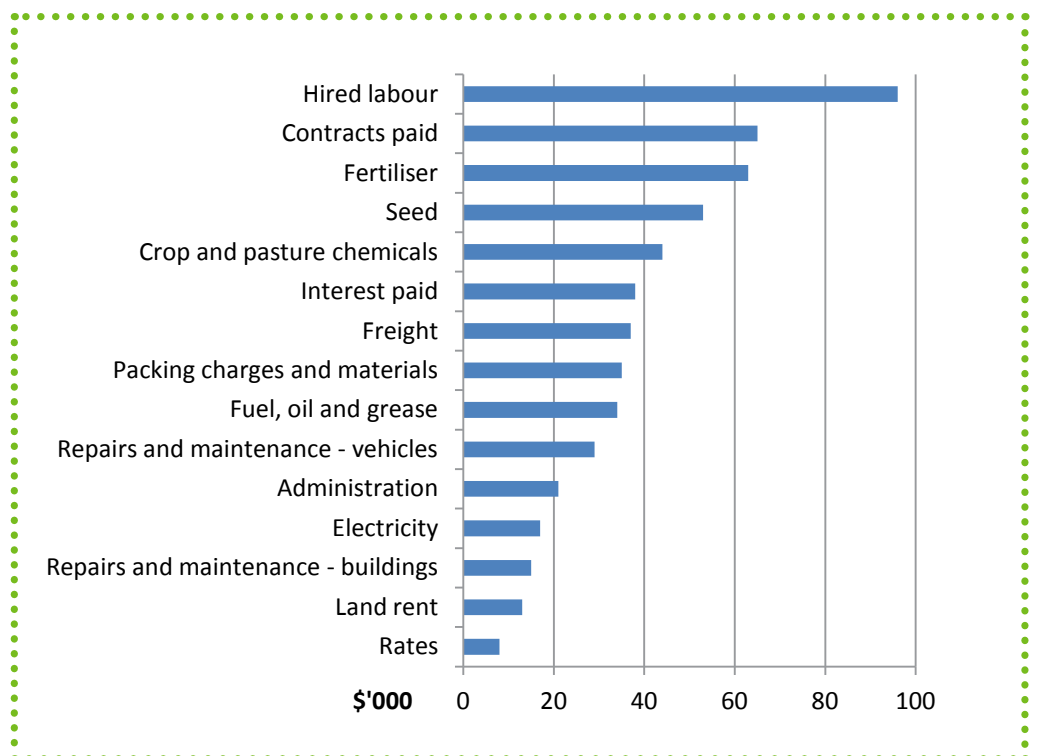


Figure 2: Composition of cash costs of vegetable farms, 2011-12



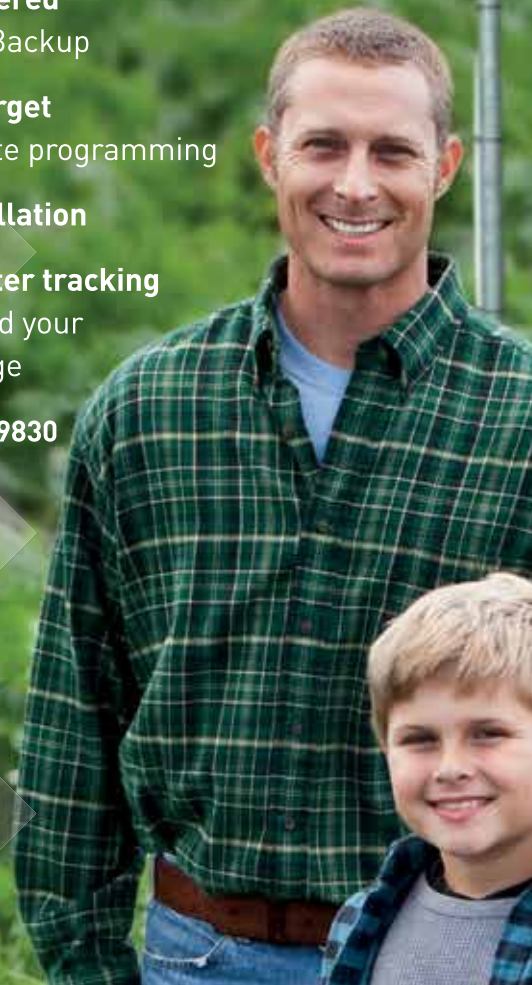


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Table 1: Financial performance of vegetable farms (average per farm)

	2009-10	2010-11	2011-12
Total cash receipts	\$707,670	\$792,200	\$810,000
Total cash costs	\$565,580	\$630,600	\$632,000
Farm cash income	\$142,090	\$161,600	\$179,000

Note: 2010-11 and 2011-12 figures are ABARES survey estimates.

to make a profit. The middle 50 per cent of vegetable farms based on financial performance earned farm cash income of \$72,900 and 17 per cent of vegetable farms realised negative farm cash income.

Total cash receipts for Australian vegetables increased over the past two years, largely driven by higher vegetable prices in 2010-11, followed by an increase in vegetable production in 2011-12. Total cash costs for vegetable growing farms also increased, largely due to a rise in expenditure on contracts paid, fertiliser and seed, and electricity and rates.

Of the cash costs for vegetable farms, hired labour made up the largest share at 15 per cent (see Figure 2). Other major costs include contracts paid (10 per cent), fertiliser (10 per cent), and seed (8 per cent). The average total capital value of vegetable farms in Australia is estimated to be around \$3.5 million per farm in 2010-11. Average farm debt of vegetable growers at 30 June 2011 was \$565,100 per farm, up by around 2 per cent from average debt at 1 July 2010. The increase in debt was mainly a result of financing additional on-farm investments. However, some farms experienced an increase in working capital debt as a result of losses due to a

range of weather conditions, including flood and hail.

Future in vegetable growing

At the time of the survey, 72 per cent of vegetable growers expected to remain in vegetable production in five years' time. An estimated 13 per cent expected to focus on other agricultural production and around 15 per cent expected to leave agriculture.

On average, producers that indicated an intention to leave agriculture in five years' time operated a smaller holding of land and had a smaller area planted to vegetables than the average.

In terms of future impediments, 72 per cent of vegetable growers reported that increased farm input costs were an impediment to the future viability of vegetable farms. Farm input costs include water, energy, and fertiliser costs. Other impediments reported included increased marketing costs and low vegetable prices. Urban expansion was seen to be a concern in New South Wales and the closure of local processing plants was a concern in Victoria and Tasmania.



AUSVEG Economist Ben Loe (03) 9822 0388
Project Number: VG12071

This project has been funded using the National Vegetable Levy and matched funds from the Australian Government.

Biosecurity brief

Dr Kevin Clayton-Greene



IN THIS INSTALMENT OF *VEGETABLES AUSTRALIA'S* RECURRING SERIES ON BIOSECURITY, AUSVEG BIOSECURITY ADVISOR, DR KEVIN CLAYTON-GREENE, EXPLAINS THE BIOSECURITY FUNDING "VACUUM" AND REFLECTS ON THE FUTURE OF BIOSECURITY IN AUSTRALIA.

What is the biosecurity funding vacuum?

The biosecurity funding vacuum refers to the relationship between those who stand to benefit from the observation of stringent biosecurity measures in Australia and, by consequence, who should be financially responsible for their implementation.

Who stands to benefit from biosecurity?

Everyone benefits from biosecurity. Of course, biosecurity is important to the horticulture industry. A pest or disease can pose a significant threat to growers, and if biosecurity measures are not implemented to prevent these becoming established, the results could be devastating.

Unfortunately, the implementation of these control measures increases growers' production costs. Rises in costs of production may be passed on to consumers in the form of price rises, which may make production uneconomic. Australian consumers therefore also benefit from biosecurity.

Home gardeners and the general environment can also be affected by incursions and pests becoming established. Consider tomato-potato psyllid, which has a big impact on the

ability to grow tomatoes in the back garden. Fruit flies can turn your home-grown fruit into compost before it even falls from the tree.

The Australian Federal Government also has an interest in biosecurity in that it is important for international trade relations. The less pests and diseases in a country, the easier it is to establish these relations, and the production and distribution of quality pest and disease-free Australian produce overseas encourages trust in our product. Anything which facilitates exports should be of interest to a government.

So who should be responsible for funding biosecurity?

Biosecurity in Australia is a joint national issue. Both the Australian Federal Government and the horticulture industry should be responsible for funding biosecurity matters.

Unfortunately, there appears to have been a dramatic decrease in resources allocated to biosecurity in Australia. This is apparent in the changes made to the Victorian proposal of fruit fly and Potato Cyst Nematode (PCN) management. Governments are also better at measuring the financial cost of managing biosecurity than

industry. Industry participation in this sphere is often voluntary or part-time and spread across many diverse industries. The amount that is contributed by industry is thus very hard to quantify but is very significant.

It is difficult to say how to get the most value from biosecurity funding. Unfortunately, the horticulture industry is under a lot of financial pressure at the moment, which means that these kinds of investments are difficult to make. Small industries do not have the capacity to fund this work and, in this situation, I believe that these industries need to look at how they might get involved through partnerships with other industries.

Rather than produce funds for separate teams from each individual industry, who are then responsible for ensuring biosecurity, a case could be made for sharing resources. However, this is only going to be effective provided every industry does their part and shares their resources evenly or on a quid pro quo basis.

How can we expand on our capacity to prevent biosecurity incursions?

Everyone in Australia, from growers to home gardeners, has a role to play. Restrictions

on moving plants, fruits and vegetables across the country are there for good reason, as it can be dangerous. It is important for all of us to remember that just because you can't see the pest or disease, that doesn't mean it isn't there.

An important issue for biosecurity at the moment is that many specialists are approaching retirement age, and it is difficult to say from where the next generation of biosecurity experts are likely to come. It's an issue we need to address at all levels of the supply chain. In my opinion, the single biggest threat to a viable horticulture industry in Australia is skills shortages. If we had a major incursion, I suspect we would not have the infrastructure to handle it effectively. This issue needs to be addressed across the board at state, federal and industry level.



Biosecurity manuals are available through the Plant Health Australia website: www.planthealthaustralia.com.au. Email: info@ausveg.com.au Project Number: VG11013

This project has been funded by HAL using the National Vegetable Levy and matched funds from the Australian Government.

Minor-use permits

Permit Number	Permit Description (pesticide/crop/pest)	Date Issued	Expiry Date	Comments	Permit Holder
PER11855	Betanal (phenmedipham) / lettuce, chicory, endive, radicchio, spinach, baby spinach / weeds	28-Jun-11	30-Jun-14	Permit update (Version 3) - rate change for baby spinach. Issued for all states (excl Vic).	Growcom
PER12392	Basagran (bentazone) / processing peas / weeds	5-Nov-10	30-Sep-14	Permit renewed. APVMA requires residue data - in progress. Issued for Tas only.	Growcom
PER12999	Amistar (azoxystrobin) / alliums (except onions) / White rot	26-Oct-11	30-Sep-13	Permit renewed. Issued for all states.	Growcom
PER13123	Amistar (azoxystrobin) / brassicas, brassica leafy vegetables, beans / various diseases	2-Feb-12	30-Sep-13	Permit renewed. Issued for all states.	Growcom
PER13539	Switch (cyprodinil + fludioxonil) / strawberries / various diseases	8-Jun-12	30-Sep-13	Permit renewed. Issued for NSW, Qld & WA only.	Strawberries Aust.
PER13540	Amistar (azoxystrobin) / citrus / Emperor brown spot & Citrus black spot	1-Aug-12	30-Sep-13	Permit renewed. Issued for NSW & Qld only.	Citrus Aust.
PER13841 Ver 2	Lebaycid (fenthion) / specific fruits, capsicum and ornamentals (in-crop) and tropical fruits (inedible peel), melons, watermelon and chilli (hollow fruit) (post-harvest) / various pests including fruit flies	31-Oct-12	30-Oct-13	Permit update (Version 2) - crops and states added. Issued for all states (excl WA).	APVMA
PER13901	Glyphosate (shielded sprayer) / Capsicums - Snow Peas - Sugar Snap Peas / Annual and Perennial Grass and Broadleaf Weeds	06-Apr-13	30-Jun-19	Permit renewed. Issued for NSW and Qld only.	Growcom
PER14045	Mancozeb + Metalaxyl / Brassica leafy vegetables, brassicas, chicory, endive, radicchio, rocket, carrot, parsnip / Various fungal diseases	1-Apr-13	31-Mar-18	Permit renewed. Issued for all states (excl Vic).	Growcom
PER14073	Diazinon / Spring onions and shallots / Thrips (excluding WFT) and onion seedling maggot	1-Jul-13	30-Jun-18	Permit renewal. Issued for all states (excl Vic).	Growcom
PER14074	Chlorpyrifos / swede, turnip, brassica leafy vegetables, silverbeet, spinach, celery, beans, snow peas, sugar snap peas, parsley / Various insect pests	01-Jul-13	31-Mar-14	Permit renewed. Issued for all states (excl Vic).	Growcom
PER14080	Lannate L (methomyl) / Spring onions and Shallots / Western Flower Thrips	1-Apr-13	30-Sep-14	Permit renewal. Issued for all states (excl Vic).	Growcom
PER14081	Tramat 500 SC Selective Herbicide (ethofumesate) / Spinach (Spinacia oleracea only), Silverbeet / Various Weeds	1-Aug-13	31-Jul-14	Permit renewal. APVMA requires residue data - in progress. Issued for all states (excl Vic).	Growcom
PER14144	Pirimor (pirimicarb) / Peppers, Chilli / Aphids	05-Apr-13	31-Mar-16	New permit. Issued for Qld only.	Growcom

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“You never stop learning”

QUEENSLAND GROWER DESLEY JACKWITZ BOASTS A SUCCESSFUL CAREER AS A BABYLEAF GROWER AND A LIFETIME OF FARMING EDUCATION. NEVERTHELESS, SHE BELIEVES THAT THE EFFICIENCY OF HER BUSINESS CAN ALWAYS BE IMPROVED AND SHE RETAINS A HEALTHY APPETITE FOR NEW IDEAS. JACKWITZ SPOKE TO WILLIAM GREGORY ABOUT HER PARTICIPATION IN A GROWER TOUR OF THE UNITED STATES, WHERE SHE EXPLORED EMERGING MECHANISATION POSSIBILITIES AND MET INTERNATIONAL INDUSTRY LEADERS.



A great deal of Desley Jackwitz's life has been spent on farms in Queensland's Lockyer Valley. It is where she grew up, where her parents worked on farms, and where today, she operates her babyleaf business. The Lockyer Valley is also where she met her husband, who in his lifetime was a grower.

"That was how I really got involved in the farming side of things," she said. "We were traditional farmers –cauliflowers, broccoli, those sorts of things."

"When we got married and started having children, we started running the farm ourselves," she said.

Six years ago, Jackwitz lost her husband and business partner, and was forced to reassess not only the way her business was managed but whether she was to remain in the area she had always called home.

"There were times when I did consider...what my options were," she said. "They tell you not to make major decisions straight away so it was better for me to stay on the farm and be surrounded by the support of my family, and have the time to grieve and be with my children."

"We had just started with baby leaf when he passed away," she said. "Now I share-farm with my in-laws...My father-in-law went back to selling real-estate and doing semi-retired things, but when my husband passed away, he came back to the farm to help me."

Over the following six years, the business Jackwitz shares with her in-laws grew, as did her knowledge of babyleaf. This was aided by her efforts to research new technology and approaches to its cultivation and harvest as they emerged. In recent years, representatives of Jackwitz's farm have travelled to

other parts of the world in order to further their education. Not long ago, her father-in-law went to Italy.

"Those guys have grown babyleaf for a lot longer than we have," Jackwitz said. "He went to that Trade Show and looked around at some farms there...It was from that that we made the decision to purchase the seeder that I now have."

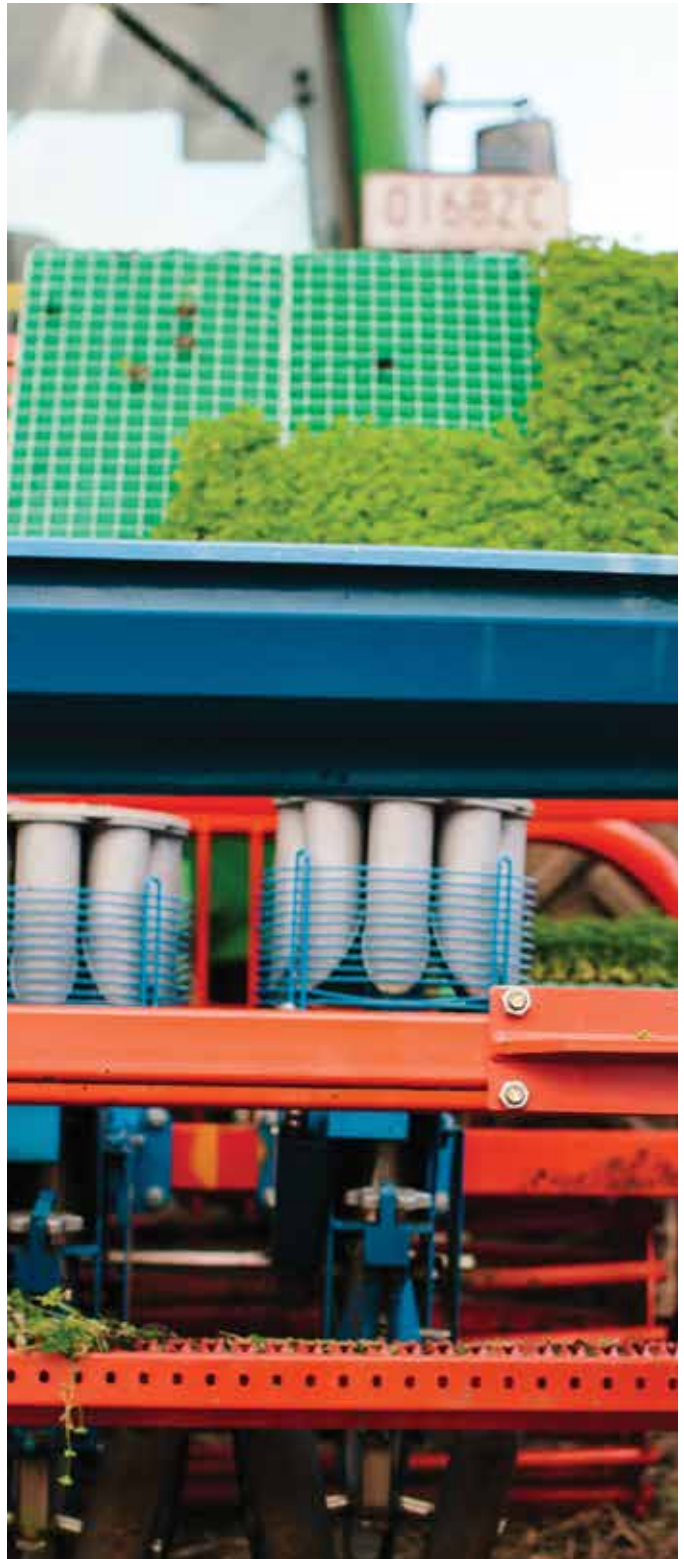
The prospect of expanding her knowledge of mechanisation was what motivated Jackwitz to sign up for the February 2012 Study Tour of the United States. Funded through Horticulture Australia Limited, using the Vegetable Levy with matched funds from the Australian Government, the tour gave growers the chance to investigate some of the leading vegetable growing and processing operations in America.

"I wanted to see the biggest harvesting companies," said Jackwitz.

During the tour, Jackwitz visited a diverse range of commercial farms in the Salinas Valley and broader California area, selected for their reputation as leaders in their field. The Salinas Valley was chosen as it is widely regarded to be the centre of horticultural activity in the country.

A tour highlight for Jackwitz was the opportunity to meet representatives of major farming equipment producers. Jackwitz was delighted to be able to chat with the CEO of Ramsay Highlander, a specialised harvesting aid manufacturer based in California, with whom she developed a rapport that she hopes to foster. This contact was helpful to her when she returned to Australia and was seeking an upgrade to her harvesters.

"They showed us everything.



continued over page ►

They were really open,” she said. “We were looking for the technology. I rang the guy from Ramsay Highlander. I spoke to him, and he told me where they got different parts of their harvesters they don’t actually make themselves.”

Following this, Jackwitz was able to source a part for one of her harvesters, which she then imported.

“I could not have called up [the Ramsay Highlander CEO], if it wasn’t for that tour,” she said.

Jackwitz and other participants on the tour were also given the opportunity to visit acclaimed agricultural expositions such as the World Ag Expo in Tulare, which is the largest agricultural exposition in the world. The World Ag Expo featured over 1400 exhibitors, who demonstrated the latest in farming equipment, chemicals, communications and technology.

For Jackwitz, one of the most rewarding opportunities that the tour provided her was to establish meaningful friendships with other professionals in her industry.

“I don’t think you could have picked a better group of people for the tour. The group dynamics were fantastic,” she said. “We had similar backgrounds, so we were all on the same wavelength. Everyone got along really well.”

“I met some really nice people who I am still in contact with,” she said.

Following the tour, Jackwitz returned to her farm in Australia, not only with the excitement to introduce new technology to better her business, but with optimism for the future of her industry. It is fitting that she partakes in the spirit of shared wisdom cultivated by the tour.

“I will keep looking for better technology, better ways of running my farm,” she said, “and potentially passing that information on to others.”

“It is my plan to stay here and grow my operations, keep supporting my customers, and keep trying to make the public realise how important Australian farmers are.”



2012 Growers Study Tour
report available on the
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Project Number: VG11708

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Q&A: Mr Jack Milbank

JACK MILBANK OF HORTUS TECHNICAL SERVICES SPOKE TO VEGETABLES AUSTRALIA ABOUT MANAGING SOILS AND PLANTS FOR HEALTHY CROPS.

What are some steps growers can take to best manage crop nutrition?

Annual pre-plant soil tests are an essential tool to calculate the total elemental requirements of a crop to achieve a specific target yield. There is also great benefit in closely monitoring plant response to applied nutrients throughout the crop growing season.

Monitoring the rate of solubilisation of cations is an important tool in managing the changes in nutrients that are available to plants. A standard soil test, which usually uses a range of acids (one of which is ammonium acetate) to extract nutrient from the soil, is one way of assessing your soil's nutritional status.

What are the benefits of monitoring nutrients that are applied throughout the season?

Testing a soil solution once the crop is planted enables you to track the transition of nutrients on exchange sites, which are locations for charged elements to be stored. The concentration of said charged elements is identified in your pre-plant soil test.

The concentration of this soil solution will be affected by a combination of the irrigation water quality, fertigated solution, and the rate of transition of cations from exchange to solution. This rate of transition is influenced by bulk density, buffering capacity, cation exchange capacity (CEC), and the rate of nutrient uptake by the crop through different growth stages.

Measuring actual crop nutrition status by testing both soil solution and sap growth throughout a crop cycle is more reliable than simply getting an indication of nutrition status by testing soil against a single point of reference.

What can you tell us about nutrient monitoring programs?

Plants have cyclical growth patterns, where optimal levels of nutrients are not necessarily constant throughout the season. Nutrient monitoring programs compare the plant's actual nutrient status to the optimum for that particular stage of growth. As an example, nitrate and calcium levels change from the vegetative growing stage to flowering/fruit-setting and the maturing fruit stage.

Nutrient monitoring programs

are designed to collect data by regularly monitoring nutrient levels in the plant sap and soil solution to analyse the plant's physiological reaction to the environment, existing horticultural management, and the nutrition that is needed by the plant at that stage. This testing provides an indication of the rate of plant metabolism and can help with overall crop management. As an example, monitoring nutrient status could result in a specific chelated foliar micronutrient being needed as an additional requirement.

The nutrient uptake potential of crops is affected greatly by the concentration of various salts and pH in the soil solution. Many elements depend on uptake against the osmotic gradient between the soil solution and the root solution, and the rate of uptake is affected by the size of the gradient, as well as the ratios of competing ions in the soil solution.

Laboratories measure this concentration of salts as a way of assessing soil nutrient status. As an example, many tests measure dissolved or readily dissolved and available ions in the soil solution. This is then interpreted to estimate the potential for actual uptake by the plant.

By monitoring the dynamics of the nutrient forms throughout the season, you can get a live picture of your crop's changing nutritional requirements in a time frame that enables a response to be implemented quickly enough to improve the yield and quality outcome. For a complete picture, it is important that this information be combined with weather and crop management factors.

Progressive growers are quickly realising the ecological and economic importance of using some basic technology to manage all or at least part of their farming businesses, using computer-based or internet remote access software from smart devices.

There are a few great applications and cloud-based farm management systems such as *AgPro*, *Smart!* and *SST* that enable much of this to be done. This functionality is linked to laboratories so that analysis requests and the delivery of results can be collected from, and sent to, the client quickly and easily, with the added advantage of the sample site being geo-tagged.



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AUSVEG attends Fruit and Vegetable Waste Innovation Clinic

The considerable levels of waste produced in the fruit and vegetable supply chain is an ongoing concern for industry, and an area where there is potential to turn waste into useful products.

The AUSVEG Environment Coordinator recently attended a Fruit and Vegetable Waste Innovation Clinic in Toowoomba, Queensland, on April 17th, run by the Queensland Government. The event was an opportunity for

South East Queensland growers, industry and supply chain members to meet and discuss potential opportunities to divert waste product to alternative uses.

The key opportunities discussed included the use of vegetable waste in biogas energy generation facilities and in nutraceuticals. Biogas energy generation involves turning vegetable waste into gas such as methane by digesting it and

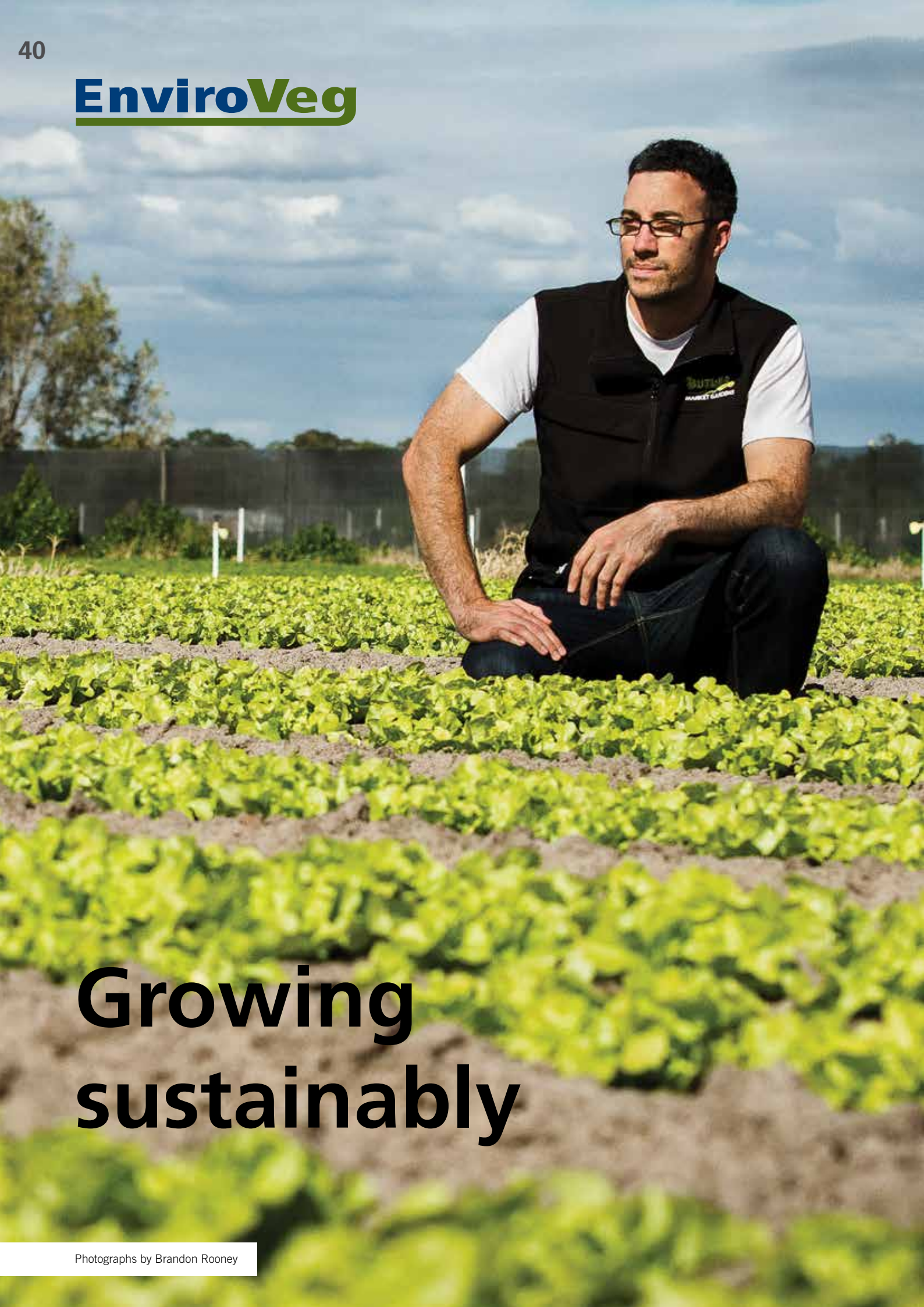
then using it to produce energy. Many nutraceuticals are vitamin products, and vegetables can be used as a feedstock in manufacturing processes that produce vitamins and supplements, as they contain many of the desired vitamins and minerals.

As an opportunity for industry, vegetable waste innovations are only just beginning to be explored so are not at the stage to be rolled out commercially.

There may be opportunities in the future, however, as these technologies are further developed to benefit both the grower and environment by diverting waste in the supply chain to more productive uses.



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Growing sustainably

THE BUTLER FAMILY HAS WITNESSED MUCH CHANGE TAKE PLACE IN THE SUBURB OF HEATHERTON, WHERE THEY HAVE OPERATED THEIR GROWING BUSINESS FOR GENERATIONS. DURING THIS TIME, THEY HAVE LEARNT THAT THE SECRET TO SURVIVAL LIES IN ADAPTATION.

The Butler family has a growing tradition stretching back 80 years, and specialises in the sustainable production of bunch lines. In recent times, a challenging domestic market has pushed growing operations like the Butler family's business to review and improve the efficiency of their practices.

Rising energy costs is one of the biggest issues for growers from both an environmental and commercial perspective. Recently, the Butler family's business, Butler Market Gardens, has engaged a consultant to assist them in conducting a comprehensive review of the efficiency of their post-harvest processes, as well as ways they can minimise their general energy use.

"Energy management is an important area of focus for our business and an area where investment today can help insulate against rising costs in the future," said Butler Market Gardens Business Manager, Grayson White.

Butler Market Gardens employs machinery that captures, sanitises and re-uses the majority of water used in washing and packing, and, in recent years, their business has developed a new washing system for its whole-head lettuce and Asian vegetables. This has reduced their water consumption by nearly 95 per cent.

"At present, we recycle a lot of water through our post-harvest processes," said Mr White.

The energy review also incorporated an investigation of strategies that could lower Butler Market Gardens' carbon footprint, which could then be reported by the business to key customers and stakeholders. This week, the business is receiving the first delivery of electric forklifts to replace their existing fleet and reduce energy consumption.

According to Butler Market Gardens' energy consultant, there are several areas that

can be improved. Time-of-use pricing, which provides discounts based on the time of day at which the business uses the most energy, should be negotiated with the business' energy supplier. In addition, the energy consultant is currently evaluating the best rates for energy on wholesale energy markets for the business, which will be finalised shortly.

"We would ultimately like to invest in on-site [energy] generation, such as solar, to ensure we are able to maintain our margins well into the future," said Mr White.

Post-harvest processing plans include the implementation of electrochemical sanitation machinery, which is able to increase the water recycling capabilities of the business and eliminate the requirement of chemicals. New machinery would work with current developments, such as settling ponds, which are already in place.

Living close to residential properties presents its own challenges, and Butler Market Gardens has been able to work effectively with the local community over the years. Buffer zones have been implemented, and natural fencing such as hedges is used strategically in order to prevent spray drift.

In addition, regular MRL testing ensures that residue levels are constantly monitored in crops and the environment. This extends to the pack-house, where any second-grade produce is recycled through Second Bite, a program which provides food and assistance to homeless people.

Butler Market Gardens has continually adapted to a changing marketplace and environment. A commitment to improving processes and a willingness to engage external expertise such as energy auditors will ensure that this remains the case for years to come.





Jeff McSpedden

Global Horizons: Growing for the future

BATHURST SWEETCORN GROWER AND CHAIR OF THE VEGETABLE INDUSTRY ADVISORY COMMITTEE (IAC), JEFF MCSPEDDEN, OUTLINES RECENTLY APPROVED R&D PROJECTS AND HOW THEY WILL EXPAND AUSTRALIAN GROWERS' HORIZONS.

My fellow IAC members are probably sick of the pie analogy that I use to describe our industry, but I feel it highlights the issues currently facing Australian growers.

At the moment, almost all Australian growers are contributing vegetables to the same pie, and on the whole this means that supply is often higher than demand, and, as a result, we're forced to accept the prices we're offered.

Projects recently endorsed by the IAC are seeking to bake a bigger pie by opening up market opportunities overseas and increasing international demand. If we are able to grow the pie sufficiently, to a point where supply and demand are equal, or demand is greater than supply, then growers will be able to more easily grow their business. I am incredibly excited to see these projects take shape, as I feel that this direction is important for the security of the Australian

industry in the long-term. While exporting may not be an option for all vegetable operations, taking produce overseas will ultimately assist growers in the domestic market.

One of the projects to drive this overseas market development is a Reverse Trade Mission, which will see up to 20 representatives from markets such as Japan, South Korea and Hong Kong travel to Australia to witness first-hand the high standards of quality and safety which define the Australian vegetable industry. This delegation, made up of leading buyers, providers and restaurateurs, will visit leading Australian vegetable growing operations. This project aims to facilitate connections on the ground which will lay a foundation for future Australian vegetable export projects into Asia. Similar strategies have proven successful for other Australian agricultural commodities.

As well as bringing buyers in from Asia, the Exporting to China Symposium, to be held Sunday 2 June 2013, will seek to inform Australian growers about the Chinese market. This symposium will outline how the Chinese food industry operates and the best ways for Australian growers to get a foot-in-the-door with what is the largest developing market in the world today. The presentations from the Symposium will be recorded and be made available to Australian levy payers, to ensure that even if you can't attend, you will be able to access the insight of the experts taking part in this event.

While not directly seeking to develop and better understand overseas markets, another project that has recently passed through the IAC has been the Coordinated Knowledge and Industry Development Program. This project will provide tangible outcomes to vegetable levy payers, ensuring that growers

have access to vital new knowledge which results from R&D commissioned using the National Vegetable Levy. One of the most exciting things emerging from this project is the national vegetable agronomy "hotline", where vegetable levy paying growers will be able to call a number and speak directly to a qualified agronomist for free. This service will be operational shortly.

This is indeed a very exciting time for the Australian vegetable industry and the projects we are seeing move through the IAC will assist Australian growers in "growing the pie," and ensuring a long and prosperous future.

I recently visited many of Australia's major growing regions as part of a vegetable levy payers' tour, and on behalf of the IAC, I wish the growers in these regions suffering production challenges all the best with getting their operations back online as soon as possible.

Ask the industry



with Scott Mathew

WITH PRESSURE ON INPUT COSTS AND A NEED FOR GROWERS TO CONSERVE BOTH LABOUR AND MONEY, THE QUESTION OF MIXING VARIOUS PESTICIDES TOGETHER IN THE SPRAY TANK FOR A "SINGLE PASS" APPLICATION IS BECOMING AN IMPORTANT ONE. OF ALL OF THE QUESTIONS WE RECEIVE AT SYNGENTA, TANK MIX COMPATIBILITY QUESTIONS ARE BY FAR THE MOST COMMON.

Question: Why are some chemicals unable to be mixed together for single pass application?

When products are mixed outside of what is recommended, or simply too many different products are mixed at once, we have an



A blocked spray nozzle (left) and an unblocked spray nozzle (right)

increased chance of compatibility problems occurring. This may lead to efficacy problems or perhaps physical problems where the tank mix resembles lumpy sludge more than the original products you were hoping to apply.

Question: Some people mention physical or biological incompatibility, what does this refer to?

Biological incompatibility is when two or more products may be antagonistic to the activity of each other and hence may reduce effectiveness of one or all of the products in the tank mix. The problem here is that such incompatibility does not usually show up as a mixing or spraying problem, but as a poor result in the field.

Physical incompatibility is when two or more products react adversely and cause a resultant settling out of a precipitate (the spray mix is lumpy) that causes blockages in the spray tank, filters or spray nozzles (see pictures). There are a number of reasons for this problem and including incompatibility between formulations or a chemical reaction.



A blocked nozzle

Question: What is the correct mixing order for the various formulations of agricultural chemicals?

Most labels have details specific to mixing their products and these should be followed at all times, however, the general mixing order for products should be as follows:

1. Water conditioners or buffers
2. Water dispersible granules (WGs)
3. Wettable powders (WPs)
4. Flowable or suspension concentrates (SCs)
5. Emulsifiable concentrates (ECs)
6. Water based or soluble concentrates
7. Oils and wetters

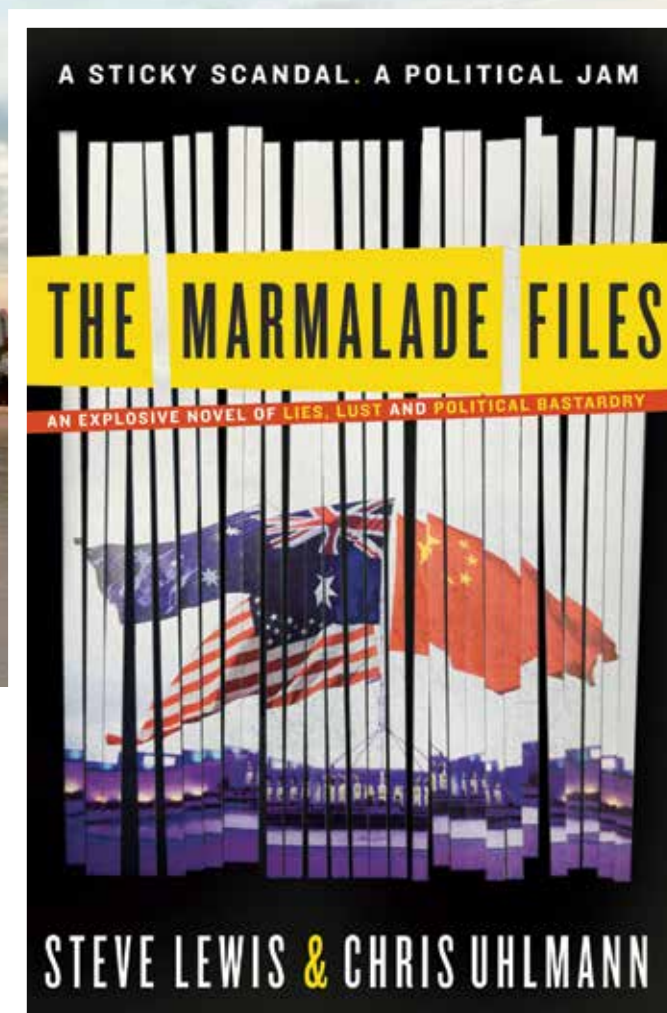
Apart from the order of mixing, it is critical that each individual component of the tank mix be fully dissolved and in solution before the next product is added, otherwise problems can and usually do occur.

The bottom line with product compatibility is that you must always read the label for mixing instructions and to determine if two products can be mixed together, and check for incompatibility warnings. If in doubt, the safest method of determining compatibility is to ask the manufacturer.

Q For more information or to ask a question, please contact your local Syngenta Territory Manager, the Syngenta Advice Line on 1800 067 108, visit www.syngenta.com.au or email VegetablesAustralia:info@ausveg.com.au. Please note that your questions may be published.



Breakfast and a book-signing: Australian journalists Chris Uhlmann and Steve Lewis to present *The Marmalade Files* at the 2013 AUSVEG National Convention



Running from 30 May to 1 June, the 2013 AUSVEG National Convention provides the Australian horticulture industry with an opportunity to acknowledge the successes of individuals working in the industry, address current industry issues, and showcase emerging technology in the field. This year, attendees will be treated to a number of presentations by a variety of industry representatives and other notable guests.

The Agribusiness Leaders Panel, one of the 2012 Convention's most popular events, will be held over breakfast on Friday 31 May. The Panel will include guests from leading international

agribusinesses, who will address the most important challenges facing the industry in Australia, as well as exciting opportunities for companies to see growth.

This year, AUSVEG welcomes to the panel, Mr Mark Geraghty, General Manager for Strategy and Marketing for iconic reseller and agronomy consultancy, Elders; Dr Jacqueline Applegate from Bayer Cropscience, which specialises in crop protection and integrated pest management; Mr Paul Luxton from crop protection company, Syngenta; and Mr Jeremy Cocks from Dupont, which also specialises in crop protection.

Attendees will again be treated to breakfast on Saturday morning, during which

Australian journalists, Chris Uhlmann and Steve Lewis, will provide some light-hearted entertainment to kick off the day's proceedings. Mr Uhlmann and Mr Lewis will be discussing *The Marmalade Files*, the satirical political thriller which they co-wrote and released last year, as well as their personal

background stories.

Later that day, the heat will be turned up as AUSVEG welcomes the return of the Great Debate. This year, the debate will be moderated by Chris Uhlmann. Details of the polarising topic and guest speakers will be released closer to the event.

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Industry in the media

AUSVEG continues to maintain a high media profile in Australia. Over the first quarter of this year, AUSVEG used the media to reach audiences all over the country, in order to increase the public's awareness of the needs and goals of the horticulture industry.

These media reports addressed a range of issues affecting Australian horticulture. One such issue of particular relevance to Australian growers has been the recent debate between AUSVEG and its New Zealand equivalent, Horticulture New Zealand, over the distribution of New Zealand vegetables to Australia.

In the media, AUSVEG has stated that much produce that comes to Australia from New Zealand, labelled as "Made in New Zealand from imported and local ingredients" is originally sourced from China. Therefore, it has not necessarily met Australian or New Zealand standards of quality or safety and exploits loopholes in labelling laws. AUSVEG CEO, Richard Mulcahy, was quoted in

several newspapers stating that such practices were designed to mislead consumers about the origin of their food.

Horticulture New Zealand CEO, Peter Silcock, later admitted that companies may have been repackaging Chinese vegetables for export to Australia.

Country of Origin Labelling was not the only controversy between AUSVEG and New Zealand that played out in the media during 2013's first quarter. The findings from the Senate Inquiry into the importation of fresh potatoes from New Zealand were due to be released on 20 March 2013, however, this process has been delayed, and the findings are now due in June.

AUSVEG opposed this importation on the grounds that it posed a biosecurity risk to the

Australian horticulture industry due to the prevalence of the Zebra Chip disease complex in New Zealand – a disease that has not yet reached Australia, but has caused hundreds of millions of dollars in damages to the New Zealand industry. This action by AUSVEG was instrumental in the launch of the Senate Inquiry and AUSVEG Public Affairs Manager, William Churchill, welcomed the delay, stating that it highlighted that the Senate was reviewing issues regarding the importation of potatoes, and taking the matter seriously.

Another issue about which AUSVEG has been vocal in the media during the first quarter is the closure of Windsor Farms in Cowra, New South Wales – the last wholly-owned Australian cannery. The cannery went into voluntary administration

in March. The closure was likely the consequence of an unsupportive retail environment, and AUSVEG said that it would come as a crushing blow to the processing sector.

70 workers were sacked from the cannery without pay, with vegetable growers also losing contracts. AUSVEG said on ABC Radio that the move was another nail in the coffin of the Australian vegetable processing industry. In that interview, AUSVEG spoke about government assistance for the automotive industry, and questioned why the same sort of support had not been extended to the agriculture sector.

During the months of January, February and March, a total number of 1,591 media reports in Australia mentioned AUSVEG. The majority of AUSVEG's press mentions were on metropolitan and regional radio, followed by newspaper and television reports. The total audience that read or tuned into the reports initiated by AUSVEG during this period was 6,629,826.



Key issues for the first quarter:

- Horticulture New Zealand admits that New Zealand companies may have been repackaging Chinese produce for distribution to Australia, marketed as "Made in New Zealand from local and imported ingredients".
- The Senate Inquiry into the importation of fresh potatoes from New Zealand continues, while the Senate investigates the science behind the Tomato-Potato Psyllid.
- Windsor Farms in NSW, the last wholly Australian-owned vegetable cannery closes, leaving vegetable growers without contracts for their produce.



1800 Agronomist hotline to be launched in May

R&D
Farm Productivity,
Resource Use
& Management

In May, AUSVEG will be launching an agronomist hotline for vegetable growers, aimed at providing technical support and addressing knowledge gaps across the vegetable industry.

The 1800 Agronomist service will be accessible to growers in all areas of the country, and is being funded by Horticulture Australia using the National Vegetable Levy, with matched funds from the Australian Government.

AUSVEG spokesperson, Andrew White, said that the hotline would provide vegetable

growers with unparalleled access to technical agronomy information.

"This is a unique and innovative initiative for the Australian vegetable industry that will be particularly useful for those growers that cannot afford to employ a full-time technical agronomist on staff, or are unable to easily access technical information relevant to their circumstances due to the remoteness of their farm," Mr White said.

Mr White said that technical advice would be provided through the service by a leading

Australian agronomy service provider.

"The hotline will provide a useful resource for growers to obtain technical advice in a range of areas, including pest control and identification of pest problems, weed control, nutrition, post-harvest, seed/genetic selection, protected cropping and other on-farm technical issues," he said.

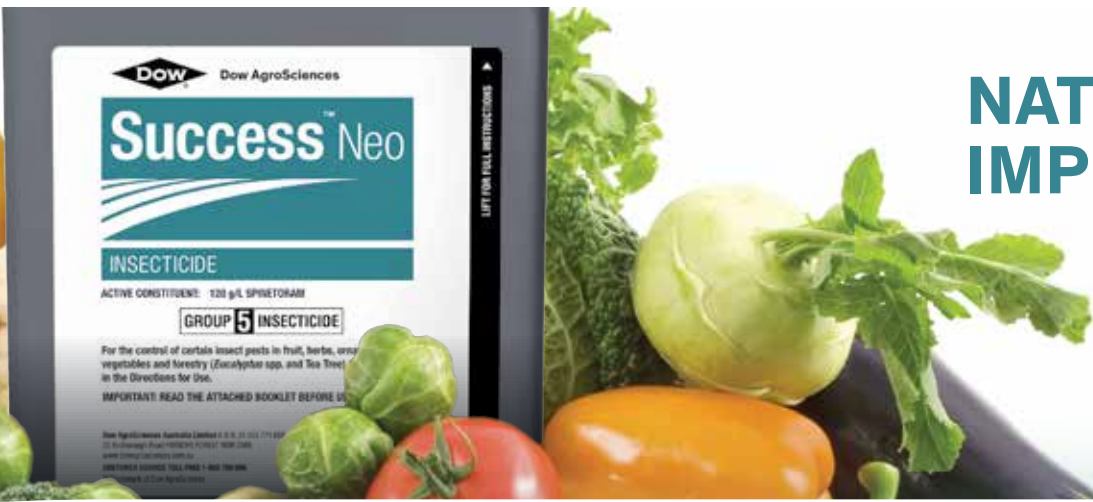
Mr White said that the service would provide growers with current information relevant to their particular circumstances.

"The industry felt that a 1800 hotline was the easiest

and most cost-effective way to address potential lack of access to technical information on a national basis," he said. "The service provides an avenue to access technical information that will assist those growers who would otherwise be unable to access such information."



For technical information and R&D findings, growers can access the industry's Knowledge Management R&D database, which is located on the AUSVEG website:
www.ausveg.com.au



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Queensland



Australia's premier information source on registered agricultural and veterinary chemicals has become a free online website. Infopest is a user-friendly, easily searchable database of all nationally registered agricultural and veterinary (Agvet) chemical products, approved Australian Pesticides and Veterinary Medicines Authority (APVMA) off-label permits and their uses.

It is owned and managed by Growcom for the benefit of anyone interested in finding Agvet solutions to their pest problems. By using the powerful Infopest search engine, users can easily locate Australian registered agricultural and veterinary products which:

- Can be used on a particular host (crop, animal or other)
- Can be used to control a particular pest (weed, disease, insect or other)
- Are registered by a particular company (dealer)
- Contain a certain active constituent
- Have a particular product name (phonetic spellings can be used for both constituents or products)
- Or any combination of these.

Infopest was originally developed and distributed by the Queensland Department of Agriculture Fisheries and Forestry (formerly DEEDI) and supplied on DVD as a paid subscription service. This was continued when Growcom took over ownership of the product last year. Over many years Infopest has been recognised as the go-to tried and trusted resource for helping Australia's primary industries and other agencies achieve disease and pest free produce and animals.

However, modern work practices and tools have dictated the need for a more convenient format. The new, free online web version is accessible from a wider array of devices including desktops, laptops, tablets and

smartphones. The website also helps employers to meet their requirements under Workplace Health and Safety regulations. Material Safety Data Sheets (MSDSs) are included in the Infopest resource. Users wishing to try out Infopest need simply register on the website at www.infopest.com.au.

Alex Livingstone

Growcom
Chief Executive Officer
68 Anderson Street,
Fortitude Valley, Q 4006
Telephone: (07) 3620 3844
Fax: (07) 3620 3880

Western Australia



When people talk to our state industry organisation, the conversation usually centres around production, marketing or financial issues. Indeed, most of our staff is engaged on these issues all the year round.

Over the past 15 years, my role as an Executive Officer has changed considerably, reflecting the difficult times our industry is experiencing. Social, financial and the results of political decisions are occupying my time far more now than three years ago. Therefore, the question is, what is more important today when considering any issue? The answer to me is: "How will the outcome affect the people involved and did I listen to the people?"

We have all witnessed detrimental behaviour by some of our national government politicians in 2013. Their actions brought it home to me how very

important it is, particularly when you are in a senior position, to consider the consequences for people affected by your actions.

How often do we hear, as an industry, that the price of power, fuel or labour will rise by 10% on July 1st. Nobody appears to care. Well, I do. I have been telling the state and national governments for the past three years that unless they help our industry in this regard, our people may not continue, because it will not be viable to do so.

In our industry of producing fresh food for the community and helping to reduce the state's ever increasing health bill, people are important.

Fortunately the vegetablesWA Field Extension Officers continue their good work for our people, the growers. Recently, they have been up to a number of specific activities, in addition to their constant on-farm meetings. These have included:

- Assisting growers to implement best practice for controlling Stable Fly, and assisting with various community meetings;
- Myalup road safety measures, including visits and discussions with growers

regarding signs and lights, was required to help with increased road safety and collecting feedback from growers, including action required by main roads to help the situation, not just growers putting up signage;

- Getting growers involved in the initial stage of the More Dollars Per Drop irrigation efficiency project, as well as assisting with further development of decision support tools beyond the Vegetable Irrigation Scheduling System (VISS);
- Assisting with Manjimup IPM trials in collaboration with Dr Paul Horne, Bayer CropScience and DAFWA;
- Attending and promoting Plan Prepare Prosper business workshops, as well as assisting with the development of future roll-out, which is a continuation of the original drought pilot business workshops. This has included translation services with Vietnamese-specific workshops;
- Helping growers with the Minor Use Permit system;
- Research and develop articles for the quarterly WA Grower magazine on topics

relevant to growers; and

- Assisting growers to implement the VISS system.

If you want any assistance on any topic please contact Sarah Houston on 0427 373 037 or Vio The Truyen on 0457 457 559.

Our vegetablesWA "Fresh from WA Farms" marketing campaign has continued raising the profile of vegetable consumption with another portion of our people - the consumers. As well as quarterly advertisements in the Fresh section of The West Australian newspaper, we have been actively building our profile in social media at <https://www.facebook.com/WAVEgies>. We have a significant and growing number of followers with daily updates on the availability and benefits of seasonal vegetable lines. We will continue leveraging this exposure in future. Please "Like" our page too!

Jim Turley

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Victoria



It is of great concern that recent media releases have stated that intake of fruit and vegetables per capita is on the decline and that Australians are struggling to eat the minimum healthy 2 + 5 daily serves of fresh fruit and vegetables. It is further alarming that the younger generation is not seeing the importance of fresh produce as part of a healthy diet.

For over 12 years, the Melbourne Market Authority has been operating a Market Fresh Schools Programme. Sessions in Victorian schools cover areas such as the seasonality of produce, how produce is grown, its uses and most importantly, the health benefits of eating fresh seasonal produce. During this time, many children have

been introduced to the flavours and textures of previously unknown fruits and vegetables. This programme integrates with other areas of learning and its popularity with teachers and children is such that the forward diary for 2013 is presently fully booked.

Our President David Wallace recently attended two schools in Keilor to join the teachers and children in the MMA's Market Fresh Schools Programme sessions. David took the opportunity of contributing his own vegetable growing knowledge and highlighting the qualities of coloured capsicums. He was most impressed by the skills of the two presenters, Teisha Dower and Carolyn Creed in their conduct of the programmes, involving the children and providing information and stories relating to fruit and vegetables in a most engaging way.

VGA Vic commends the MMA for providing this educational programme for children and raising their awareness of the importance of consuming fresh fruits and vegetables on a daily basis. We trust that this very

popular educational programme for school children will remain a major feature of the Melbourne Market Authority and many more children will have the benefit of attending sessions well into the future. For further details, visit: www.marketfresh.com.au.

Property Identification Codes (PIC) and vegetable grower registration has been on the VGA Vic. agenda, with representation over the years to the Victorian DPI. PIC registration is now available to the horticulture industry but only on a voluntary basis to the vegetable industry. VGA Vic encourages all vegetable growers to register and list their range of produce grown to ensure that traceability is covered by an allocated number for your farm property. VGA Vic is also keen to see that non-registered vegetable growers are prevented from obtaining farm supplies such as chemicals without a property number identification. Website information regarding PIC is available on the Victorian DPI website.

The 2013 National Vegetable

Expo was recently held on 2 and 3 May 2013 at the Expo Site in Sneydes Road, Werribee. This year marked the 50th year of this event since the first 'Field and Gadget Day' in 1963. The Expo provided a one-stop-shop for vegetable growers, seed companies and industry displays of new vegetable varieties offered by seed companies. It is a valuable link between vegetable growers and those who provide new products and technologies. Exhibits included machinery, chemicals, fertilisers, irrigation, filtration, packaging, computer software and material handling equipment. With over 50 trade displays, there were many sites for growers to visit.

Tony Imeson

VGA Victoria
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New South Wales



NSW Farmers has continued to represent its membership as the NSW Government shapes its reforms to the Department of Primary Industries and the creation of Local Land Services.

During this period of consultation, we have been the sole farming representative body upon the Minister's LLS Reference Panel. Key positions that NSW Farmers has advocated on behalf of its membership include:

- Governance: ensuring local boards are accountable to ratepayers through elected

board members and providing local boards with appropriate delegation to implement locally relevant services for land holders.

- Boundaries: seeking boundaries be set on the principle of clustering agricultural and horticultural production systems, and seeking to place farmers in the region that includes their main regional service hub.
- Funding: seeking government commitment to long-term funding of LLS. This includes the full funding of extension positions transferred from DPI and ensuring that government continues to pay for all public good that is created as a result of the LLS' operation. NSW Farmers has also promoted the need for all properties larger than 2 Ha to pay a rate to the LLS.

With concerns over the restructure of DPI, the NSW Farmers' Horticulture Committee has also confirmed that the very valuable horticulture crop protection guides will continue to be made available to growers after its restructure.

Through our membership with the NFF, NSW Farmers has been at the front of shaping industry policy on the regulation of supermarkets which seeks a mandatory code of conduct and support for a review of federal competition legislation. We believe these to be essential to ensuring that the use of market power by supermarkets does not threaten the sustainability of growers.

NSW Farmers also believes that the development of any supermarket code of conduct must strengthen, not weaken, the horticulture code. I have personally met with the ACCC

Chairman, Rod Sims, to relay this concern. At the meeting the need for coordinated compliance activities from the ACCC to ensure a transparent and fair wholesale market for horticulture produce was reinforced.

Finally, I would like to remind producers that NSW Farmers' Horticulture Section Conference and AGM will be held on 16 July at the Chatswood Concourse. The Conference will feature a panel of speakers led by Leader of the Australian Greens, Senator Christine Milne, and Deputy ACCC Commissioner, Dr Michael Schaper, discussing "Brand Australia".

Peter Darley

NSW Farmers' Association
Horticulture Committee
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Fax: (02) 8251 1750

Tasmania



Recently, the Institute for Public Affairs proposed cuts to a range of different Australian government departments and programs. One of the recommendations is de-funding all of the Department of Agriculture, Fisheries and Forestry, including the rural research and development corporations.

Australia has a long history of investment in rural R&D. The strength and productivity of our sector has been built on the back of this investment. However, it should be

remembered that the return period on such investments can be quite long, so today we are benefitting from the investments made by past generations, notably in the 60s and 70s.

Over recent years, government investment in rural research and development has been declining. In 1984, agricultural R&D investment represented around 17% of the total investment in R&D in Australia. By 2006, this had fallen to just 5%. The government's own analysis shows rural and production-based CRC research is being left behind in the race for a share of taxpayers' dollars. Rural research has stagnated at about \$240m pa since 2007.

Yet, as world food demand increases and food security becomes a significant public policy issue, improved productivity is important if we are to retain (or even increase) our ability to both feed Australians and make a continued contribution to the world's requirements.

It has been calculated that Australia's agricultural exports

feed 60 million people overseas. Australia's Chief Scientist said in a report last year that, if you include all the spin-offs from Australian agricultural knowledge and expertise, then that number is more like 400 million people. That's really punching above our weight.

All the evidence shows that in these parlous economic times, our economy is largely being carried by Australia's primary industries. All the experts are as one in saying that, if we are to achieve the productivity increases necessary to ensure we can meet world food demands in coming decades, we need to increase investment in agricultural R&D. Analysis of R&D programs has demonstrated that every dollar invested in rural research and development generates, on average, a further \$11 to the Australian community.

Clearly, the IPA's comments are ill-informed and reflect the fact that they have little expertise and even less understanding of our agriculture sector. In the overall scheme

of things, Australia is not a large player in the international agricultural scene. We are, however, recognised for our innovation, adaptability and expertise. If we are to continue to deliver outcomes supporting Australia's future growth and security, there is a need for more investment in rural R&D - not less.

Jan Davis

Tasmanian Farmers & Graziers Association Policy & Advocacy Chief Executive Officer
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Fax: (03) 6331 4344

CALENDAR



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Emerging Technologies Seminar

Where: Jupiters Gold Coast, Queensland
When: Thursday 30 May, from 10.00am-4.30pm
Further information: info@ausveg.com.au

30 May - 1 June 2013

AUSVEG National Convention, Trade Show and Awards for Excellence 2013

Where: Jupiters Gold Coast, Queensland
Further information: AUSVEG (03) 9822 0388 or convention@ausveg.com.au

1 June 2013

Annual Levy Payers Meeting

Where: Jupiters Gold Coast, Queensland
When: Saturday 1 June, 2013 from 2.00-2.30pm
Further information: info@ausveg.com.au

2 June 2013

Exporting to China - A Symposium for Vegetable Growers

Where: Jupiters Gold Coast, Queensland
When: Sunday 2 June, from 10.00am-4.00pm
Further information: info@ausveg.com.au

4 - 6 September 2013

Asia Fruit Logistica

Where: AsiaWorld-Expo Centre, Hong Kong
When: 4 - 6 September 2013
Further information: www.asiafruitlogistica.com/en/



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For further information on this tour, or for expressions of interest, please contact AUSVEG on (03) 9822 0388, or e-mail william.gregory@ausveg.com.au.

AUSVEG

This project is funded by HAL using the National Vegetable Levy, voluntary contributions from industry and matched funds from the Australian Government. This project is subject to HAL approval.

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