

| May/June - 2017 |

vegetables

australia



| TIM CARNELL - COVER STORY | PROJECT HARVEST - CONSUMER RESEARCH HIGHLIGHTS |
| FAIR FARMS INITIATIVE - A FAIR GO FOR WORKERS AND GROWERS |

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10



12



42

CONTENTS

REGULARS

- 05 Editorial
- 06 Messages from the Chairman and CEO
- 56 Around the states

FEATURES

- 10 Young grower profile: Chris Musolino
- 34 Women in Horticulture: From Paddock to Plate
- 42 Grower profile: Tim Carnell

INDUSTRY NEWS

- 18 What's on at Hort Connections 2017
- 40 Innovation in leaves drives evolution in salads
- 46 Biological solution proves beneficial for gourmet salad grower
- 49 Providing food relief to communities after a natural disaster
- 50 Growers reap long-term rewards from solar

R&D

- 08 Veggie Bites
- 12 Harvesting consumer attitudes towards fresh vegetables
- 14 New initiative to provide a fair go for workers and growers
- 15 The National Vegetable Levy at work
- 16 Investigating cavity spot and forking in carrots
- 20 Strengthening ties between the European and Australian vegetable industry
- 22 VegNET celebrates a successful first year
- 23 Biosecurity brief
- 24 The Front Line: Developing an on-farm biosecurity plan
- 26 Understanding the net benefits for fruit flies
- 28 Ask the industry
- 29 Veggie Stats: Broccoli
- 32 Cover crops: A special edition
- 36 Developing a strategic approach to managing weeds
- 38 Australia's fresh produce performs on the world stage
- 41 A fresh start for environmental sustainability in the vegetable industry
- 44 Extending the shelf life of vegetables through smart packaging
- 45 Harmonising Australian food safety standards
- 47 Industry in the media
- 48 VegPRO initiative welcomes industry feedback
- 52 Growers' ongoing trade surplus adds to national prosperity
- 54 Minor use permits

EDITORIAL

Knowing what a consumer is looking for when buying fresh fruit and vegetables can provide invaluable information to growers at the farm gate. A simple change to how produce is cut, packaged and presented on the shelf can go a long way in attracting a shopper's attention.

If you walk into any supermarket or fruit shop, there are countless examples of growers who have already put some serious thought and investment into innovative packaging and product options – from pre-cut stir-fry packs to carrot sticks for snacking.

Despite these advancements in the packaging and presentation of fresh produce, Australian consumers are still falling short when it comes to their daily vegetable consumption. The CSIRO's recent *Fruit, Vegetable and Diet Score* report was a testament to this fact – it found that four out of five Australian adults are not eating enough fruit and vegetables to meet the Australian Dietary Guidelines.

This highlights one of the major challenges that continues to face the Australian vegetable industry: how can growers help consumers to eat more fresh produce?

One of the most successful examples of a vegetable levy-funded project that targets this space is Project Harvest, a consumer

tracking study commissioned by Horticulture Innovation Australia and produced by market researcher Colmar Brunton. In this edition, we take a look at the highlights of the three-year Project Harvest study on page 12, which includes consumers' desire for convenient packaging of fresh produce and useful information about the vegetables they are buying, such as cooking tips and nutritional information.

While Project Harvest has already contributed some interesting insights into consumer trends and preferences when they are shopping for fruit and veg, clearly there is still more that can be done to entice consumers to eat more vegetables.

This is an opportunity for growers to step up and meet that challenge. There is already a wealth of levy-funded information out there to get you started – you can look at the InfoVeg database (ausveg.com.au/infoveg) as well as previous Project Harvest reports and Veggycation (veggycation.com.au). If you search through these existing resources, you may come across a new idea that was previously overlooked.

After all, increasing the consumption of Australian vegetables will not only benefit the overall health of the Australian public, it will also heighten the profitability of the industry as a whole.

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TORO Count on it.

After many months of hard work and planning, AUSVEG and the Produce Marketing Association Australia-New Zealand (PMA A-NZ) are excited to welcome delegates and the wider horticulture industry to Hort Connections 2017, which is being held from 15-17 May at the Adelaide Convention Centre.

This joint event is supported by eight industry co-hosts and their inclusion makes Hort Connections a truly unified horticultural event. We would like to thank Fresh Markets Australia, the Central Markets Association of Australia, Potatoes South Australia, Growcom, Irrigation Australia, Australian Organic, Onions Australia and Nursery and Garden Industry Australia for their assistance in organising this event.

I am confident that many delegates from the vegetable industry will make the most of the opportunity to attend two thought-provoking, levy-funded seminars which are being held during Hort Connections. The Exporting Vegetables Symposium on 15 May will provide a detailed insight into the key considerations for growers who are looking to export produce to international markets. Meanwhile, the Global Innovations in Horticulture Seminar on 16 May will bring together a range of local and international speakers who will share the up-and-coming technologies making their mark in global horticulture.

Another highlight of Hort Connections is the Women in Horticulture event, which will take place at the InterContinental Adelaide on 17 May. This year's theme focuses on getting involved and adding value to your business, and will be headlined by Assistant Minister for Agriculture and Water Resources, Senator the Hon. Anne Ruston. Celebrity chef Geoff Jansz will also perform a cooking demonstration using fresh local produce sourced from the South Australian Produce Market, while Horticulture Innovation Australia Relationship Manager Christian Patterson will also discuss levy-funded projects.

Hort Connections will conclude with the National Awards for Excellence Gala Dinner, where we recognise the best of the best in the horticulture industry. I wish all of the nominees, particularly those in the vegetable industry, good luck and congratulate them on their achievements and contribution to the industry so far.

In other news, the National Management Group (NMG) for tomato-potato psyllid (TPP) – comprising all Australian governments, affected industries and Plant Health Australia – has agreed that TPP is no longer technically feasible to eradicate.

Fortunately, surveillance has not shown any evidence of *Candidatus Liberibacter solanacearum* (CLso), which causes the serious exotic disease 'zebra chip' in potatoes.

At the time of writing, a transition to management plan was being prepared, and AUSVEG will continue to keep industry informed of any further updates as they come to light.

As TPP holds the potential to cause significant damage to Australia's vegetable and potato industries, it is imperative that industry and community members remain on alert and report any suspected detections of TPP to the Exotic Plant Pest Hotline on 1800 084 881.



Geoff Moar

Geoff Moar
Chairman
AUSVEG



James Whiteside

James Whiteside
CEO
AUSVEG

AUSVEG has been working closely with our state members Growcom and NSW Farmers, and other grower groups including the Bowen Gumlu Growers Association and Lockyer Valley Growers, to get the best outcome for growers affected by Cyclone Debbie, which caused significant damage and flooding to key agricultural areas in Queensland and New South Wales in March.

Members of the local agriculture, mining and grazing communities in Queensland are facing a long road to recovery after the storm flattened crops and caused major damage to buildings, transport and infrastructure. This also resulted in subsequent floods further south, extending as far as northern New South Wales.

It is an extremely difficult time for growers and the wider agricultural industry, and this was evident when I witnessed the damage first-hand at Kalbar and Logan, west of Brisbane, last month. These areas are key vegetable growing regions and experienced extensive flooding following Cyclone Debbie.

Given the extent of the damage, we were pleased that Category C assistance was made available to affected primary producers in Queensland under the National Disaster Relief and Recovery Arrangements. It is imperative that both the federal and state governments provide the maximum level of assistance to those primary producers and communities that have been devastated by this storm to help them clean up, rebuild and recover.

AUSVEG and our state members will continue to advocate on behalf of those affected – many Queensland growers have already submitted estimations of the damage caused to their businesses, which will help Growcom to identify the level of funding needed in those regions affected by Cyclone Debbie.

Meanwhile, AUSVEG has called on the Federal Government to ensure that Australia's rural and regional industries are not neglected by the recent announcement to abolish the 457 skilled migration visa and replace it with a new multi-stream temporary visa.

Skilled foreign workers play a critical role in regional industries, including the vegetable and broader horticulture industries. It is vital that growers continue to have reliable access to skilled and unskilled labour throughout the year to cater for the peaks and troughs in seasonal workforce demand. This will ensure that Australia's regional industries can remain productive, profitable and internationally competitive in an increasingly globalised market.

There has never been a more important time for collaboration in the Australian horticulture sector, and this is evident with the staging of the inaugural Hort Connections 2017 at the Adelaide Convention Centre. Hosted by AUSVEG and the Produce Marketing Association Australia-New Zealand (PMA A-NZ) from 15-17 May, this cross-sector collaboration will benefit delegates as all sectors of the industry come together to exchange ideas and network.

I am very much looking forward to attending Hort Connections, and meeting both our industry members as well as delegates from the vast array of industries that have joined as co-hosts, making this the biggest event in Australian horticulture.



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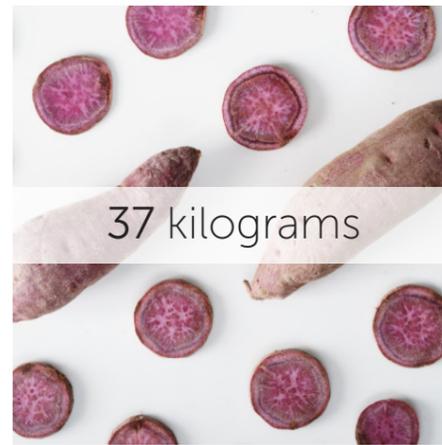
\$19 million

In the year ending June 2015, the wholesale value of fresh eggplant supply was \$19 million. *Source: Australian Horticulture Statistics Handbook – Vegetables 2014/15.*



95 per cent

The Better Health Channel states that cucumbers have high water content – more than 95 per cent (by weight).



37 kilograms

Manuel Pérez Pérez of Spain holds the Guinness World Record for growing the heaviest sweetpotato. The vegetable weighed 37 kilograms on 8 March 2004.

25 per cent

Veggycation® states that one serve of button squash provides 25 per cent of the Recommended Dietary Intake of vitamin C, and recommends consumers enjoy the vegetable steamed, stir-fried or raw.

\$11 million

Government health expenditure would reduce by \$11 million if the average consumption of vegetables by males was equal to that of females, according to the Deloitte Access Economics 2016 report, *The impact of increasing vegetable consumption on health expenditure.*

8 days

Project Harvest Wave 42 revealed that consumers expect sweet corn to remain fresh for approximately eight days, and this longevity is likely to be met most of the time.



16th century

Cauliflower was cultivated from wild cabbage that grew in Asia and parts of the Mediterranean. It became part of the European diet in the 16th century. *Source: betterhealth.vic.gov.au.*



10 per cent

One serve of kale provides 10 per cent of the Recommended Dietary Intake of magnesium, which plays important roles in the structure and function of your body. *Source: Veggycation®.*



62 per cent

According to Wave 43 of Project Harvest, 62 per cent of consumers eat celery raw.



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R&D

Drive Train

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BUSINESS GROWTH FOR A SUSTAINABLE FUTURE



NAME: Chris Musolino
AGE: 32
LOCATION: Virginia, South Australia
WORKS: T Musolino & Co
GROWS: Broccoli, cabbage, lettuce and cauliflower

HOW DID YOU FIRST BECOME INVOLVED IN THE VEGETABLE INDUSTRY?

I am a third generation market gardener. It all started on weekends, school holidays and any spare time we had. My father would take us out on the farm to help with tractor work from about the age of 10. As we got older, the jobs became more important. At the age of 16 (against my parents' advice) I left school to take up my role in the family business,

where I now work alongside my father, two brothers, uncles and cousins.

WHAT DOES YOUR ROLE IN THE BUSINESS INVOLVE, AND WHAT ARE YOUR RESPONSIBILITIES?

My role in this business is Farm Manager. This job entails full responsibility of broccoli and cabbage, from planting right through until harvest. We also grow cauliflower and iceberg lettuce, which is managed by my cousin Paul.

WHAT DO YOU ENJOY MOST ABOUT WORKING IN THE VEGETABLE INDUSTRY AND HOW DO YOU MAINTAIN YOUR ENTHUSIASM?

I enjoy watching the progression of the plants – you see it start from a seedling to a full grown product. I also enjoy

watching the change of the vegetable through the growing cycle. I maintain my enthusiasm by continuously trying to have the highest quality vegetables around.

WHAT ARE THE BIGGEST CHALLENGES YOU FACE WORKING IN THE INDUSTRY, AND HOW DO YOU OVERCOME THEM?

Our biggest challenge is labour – not just the cost of labour, but finding people that are willing to do the hard work required for vegetable picking. We are always looking for ways to make production less labour intensive.

IN YOUR OPINION, WHAT AREAS OF RESEARCH ARE IMPORTANT TO THE VEGETABLE INDUSTRY AND YOUR BUSINESS?

For our business, the research we require are the development of new varieties with more tolerance and uniformity to minimise labour, and we also need varieties that will tolerate fluctuating temperatures and still maintain the highest quality produce. I also believe that, for the industry, there should be easier streams for export.

WHERE DO YOU SEE OPPORTUNITIES FOR GROWTH IN THE AUSTRALIAN VEGETABLE INDUSTRY?

I see more opportunities for growth through value-adding and export.

WHERE DO YOU SEE YOURSELF IN FIVE YEARS?

In five years' time, hopefully we have been able to double the size of production and be able to track exactly where all our produce is sold. We need to find a way to label our fresh produce.

HOW DO YOU THINK MORE YOUNG PEOPLE COULD BE ENCOURAGED TO STUDY AND TAKE UP JOBS IN THE VEGETABLE INDUSTRY?

One important factor to encourage young people to consider a future in the vegetable industry would be job security, as the food industry is always in demand and sustainable.



Photography by Andrew Beveridge.



HARVESTING CONSUMER ATTITUDES TOWARDS FRESH VEGETABLES

For over three and a half years, Project Harvest has delivered monthly insights into how Australian consumers think and feel about fresh vegetables. With the last report now delivered, Jarrod Strauch spoke with service provider Colmar Brunton about the roadmap that its findings have laid out for the industry.

Over two million tonnes of fresh vegetables are sold in Australian supermarkets, greengrocers and produce markets every year, at a value of over \$3.9 billion – but Australian consumers still aren't eating enough.

According to the Australian Bureau of Statistics, only seven per cent of Australians meet the guidelines for the recommended daily serves of vegetables (5-6 or more serves for men depending on age, and five or more for women), despite research showing that they also understand vegetables are generally the healthiest food available.

To help the Australian vegetable industry bridge the gap between intent and action, Horticulture Innovation Australia funded the Project Harvest study to research consumers' attitudes towards fresh vegetable purchases.

For over three and a half years, Colmar Brunton delivered monthly reports containing in-depth research on a roster of 28 vegetables, as well as a collection of ad hoc studies on emerging trends or areas of interest.

The project has now concluded, leaving the industry with a wealth of insights into how consumers think and feel about fresh vegetables – from preferred cooking styles to freshness expectations and everything in between.

WAVE OF THE FUTURE

"The objective back in the early days was around better understanding consumer attitudes," Colmar Brunton Research Director Dr Denise Hamblin explained.

"It really focused on the 'now'."

However, over the life of the project, the focus evolved from 'now' to 'then' – looking at consumers' future purchase intent, their desires for innovation and other examinations of emerging trends.

Colmar Brunton found that a key demographic for the industry's future actions was the band of Australians aged 18 to 35 years old – sometimes called "millennials".

"These are our main grocery buyers of the future, and looking at how these younger consumers differ to the main or to an average consumer gives us an idea as to the future and what we need to do," Dr Hamblin said.

One key finding from the project was the concerning pre-occupation among millennials with the expense of vegetables.

"When we ran the online forum with millennials, they really over-indexed in terms of the barrier of expense around vegetables," Dr Hamblin said.

"There's very little understanding of the process, and therefore the value, that's attached to vegetables that are harvested.

"So I think from the grower level, and throughout the industry, there's a need for everyone to contribute to the stories around

the process and benefits of vegetables, and the versatility of particular vegetables – on which the growers are the experts."

WASTE NOT, WANT NOT

Over the 44 waves of the Project Harvest study, waste also emerged as a key player in how consumers think about their vegetable purchases.

"We know about a third of consumers don't know how to reduce their wastage, even though they're really concerned about it, and many – about a fifth – are saying they really want more knowledge about how to use parts of vegetables that they typically discard," Dr Hamblin said.

Combined with the ongoing trend towards convenient product formats, this paints an interesting picture of how consumers want their vegetables to fit into their lives.

Whether it's pre-cut celery sticks, pre-bagged lettuce or ready-to-fry vegetable mixes, there is a clear trend: consumers not only want to spend less time preparing their vegetables, they also want to have less left over when they're done.

"Even though the freshness expectations for these formats are generally lower than buying a whole or uncut vegetable, we saw that convenience was really a major driver for consumers, and that this was also a big increase – we saw it increase from nine per cent through to 17 per cent last year," Dr Hamblin said.

RIPE FOR REVOLUTION

Dr Hamblin's key message to the industry is simple: things are looking up.

"From day one through to our last wave, what we did see is a

steady positive improvement in consumer attitudes towards fresh vegetables," she said.

Colmar Brunton tracked the same category health measures for all vegetable categories: the importance to consumers of having a particular vegetable available; consumers' satisfaction with that vegetable; how much they would recommend it to someone else; their interest in innovations; and their future purchase intent.

"So over all of that time we saw an average three per cent increase across all vegetables, which we see as a very promising sign," Dr Hamblin said.

This movement reflects a shifting landscape for vegetable retail to consumers in general, with a huge potential for growth in increasing consumer understanding about vegetables, offering innovative new products, and breaking new ground in the ways that produce gets to consumers.

"We saw movement in terms of Aldi, we saw increases in perceptions of freshness for Coles over Woolworths, and the desire to have more channels in general," Dr Hamblin said.

"It's painting the picture that the retail space is one that's going to be quite revolutionary in the coming years."

R&D ■ Consumer Alignment

INFO

The final report for this project will be made available on the InfoVeg database at ausveg.com.au/infoveg.

Consumer and market program for the vegetable industry has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

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NEW INITIATIVE TO PROVIDE A FAIR GO FOR WORKERS AND GROWERS

Growcom's Fair Farms Initiative is set to be rolled out nationally in an effort to improve the reputation of the horticulture industry in relation to the treatment of workers, and give growers the tools to prove they are good employers. The launch of this initiative will take place at Hort Connections 2017.

While the majority of growers do treat their workers fairly and are compliant with workplace legislation, sadly, the actions of a few have attracted significant media coverage, tarnishing the reputation of the industry as a whole.

To combat this, Growcom will launch its Fair Farms Initiative at Hort Connections 2017 during the Workplace Relations Symposium, to be held on 17 May at the Adelaide Convention Centre.

"The focus of the Fair Farms Initiative is to ensure that growers not only have the tools and knowledge to treat their workers fairly, but can also demonstrate that to their customers and the wider community," Growcom Chief Advocate Rachel Mackenzie said.

"The initiative is significantly funded through the Fair Work Ombudsman's Community Engagement Grants Program and has a focus on vulnerable workers, however it is our goal that the program will benefit all workers and growers in the longer term."

INITIATIVE FOCUS

The Fair Farms Initiative has five main components:

- A series of informative articles on key workplace relations issues for publication in an array of industry magazines including *Fruit and Vegetable News*, *Vegetables Australia*, *Potatoes Australia* and other regional and industry publications.
- The rollout of the Hort360 Workplace Relations best management practice (BMP) module nationally over the next four years, to enable growers to conduct a confidential risk assessment of their current practice and identify areas for improvement.
- Targeted regional seminars throughout Australia focusing on key areas of non-compliance.
- The development, through Freshcare, of a voluntary third-party audited certification for growers to enable them to demonstrate compliance.
- Development of a pathway to qualifications in Human Resources for interested growers.

"These activities will be supported by a strong presence at Hort Connections 2017 in May. Come and visit us at the Workplace Relations Hub at the Trade Show or come along to the Workplace Relations Workshop," Ms Mackenzie said.

"The workshop will cover issues such as the Horticulture Award, the proposed ethical employment certification under Freshcare, and outline the essential steps and records growers must have in place to comply with IR legislation."

The Workplace Relations Workshop will be held on Wednesday 17 May from 11:30am-2:00pm at the Adelaide Convention Centre.

INTRODUCING THE FAIR FARMS INITIATIVE TEAM

- Donna Mogg – Horticulture Workplace Relations Specialist
 - Annabel Hutch – Growcom Workplace Relations Advisor
 - Rachel Mackenzie – Growcom Chief Advocate
 - Clare Hamilton-Bate – Freshcare Executive Officer
 - Jane Muller – Growcom Senior Project and Policy Officer
- Keep an eye out for articles on the Fair Farms Initiative in future editions of *Vegetables Australia*. For more information, please contact Workplace Relations Advisor Annabel Hutch on 07 3620 3844 or email wrtteam@growcom.com.au.

R&D 

INFO

For more information about the Fair Farms Initiative Workplace Relations Symposium, please visit bit.ly/FairFarmsInitiative.

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

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THE NATIONAL VEGETABLE LEVY AT WORK

POOL 1



WHO PAYS THE NATIONAL VEGETABLE LEVY?

The levy is paid by growers who produce vegetables in Australia.

- The charge is set at half of one per cent at the first point of sale.

The Federal Government also provides funding in addition to grower levy payments. Once paid, these funds are managed by Horticulture Innovation Australia.

HOW IS LEVY MONEY INVESTED?

There are now two pools with different funding priorities. Pool 1 is funded by grower levies with contributions from the Federal Government. This pool has a one to five year scope and will invest in applied R&D designed to directly benefit growers. This includes pest and disease management and biosecurity matters, with findings communicated through a variety of channels including *Vegetables Australia*.

POOL 2



Pool 2 has a one to 15 year scope and matches strategic co-investment funds with at least \$20 million, at the Pool's maturity, of government seed funds annually. This pool aims to address multi- and cross-industry challenges and opportunities of strategic and long-term importance to Australia's horticulture industries.

Six 'Foundation Funds' have so far been established in Pool 2 and will work with an expert panel to direct strategic projects. They are:

- The Leadership and People Development Fund
- The Fruit Fly Fund
- The Asian Markets Fund
- The Green Cities Fund
- The Health, Nutrition and Food Safety Fund
- Pollination Fund

HOW CAN GROWERS GET INVOLVED?

Vegetable growers play a fundamental role in advising on the allocation of both levy and co-investment funds, and will be engaged in extensive consultation with Hort Innovation in regional grower meetings, industry-specific consultation programs and individual grower and grower group consultation. Growers can also submit ideas for R&D projects via Hort Innovation's Concept Portal at horticulture.com.au/concept-proposal-form.

For more information about the National Vegetable Levy, visit ausveg.com.au/rnd/thelevysystem/vegetablelevy.htm.

This communication has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government. Project Number: VG15027





Pythium in carrots can cause the roots to fork or develop black lesion or 'craters'. Image courtesy of RMCg.

INVESTIGATING CAVITY SPOT AND FORKING IN CARROTS

In this edition of *Vegetables Australia*, researchers Dr Doris Blaesing and Dr Len Tesoriero discuss the *Pythium* species that cause cavity spot and forking in carrots. This is one of several soil borne diseases under the microscope in a vegetable levy-funded project that aims to assist growers in the management of these diseases.

Two main *Pythium* species have been identified to cause forking and cavity spot of carrots in Australia. In most cases, *P. sulcatum* causes the symptoms while *P. violae* has only been identified in South Australia to date. Further research is happening to its spread.

P. sulcatum, the main pathogen causing cavity spot of carrots in Australia, mostly affects the carrot family of plants. It also causes severe root rot diseases of parsley and coriander. *P. violae* is the main cause of cavity spot of carrots in most other countries and has a much wider host range.

The primary sources of *Pythium* inoculum are dormant resting spores formed during colonisation of plant tissue, and can survive in the soil for several years.

Cavity spot caused by *P. sulcatum* is most severe in summer and autumn harvested crops. In wet soils, this species also produces mobile spores (zoospores), which are attracted to roots where they encyst and cause infection. Although zoospores only survive for a day or so, they can significantly increase the population concentration of this pathogen, which can lead to multiple infection sites on any one carrot.

P. violae does not produce mobile spores; it produces spherical swellings that spread with irrigation water. Cavity spot caused by this species is most severe in winter harvested crops.

CAVITY SPOT DEVELOPMENT AND MANAGEMENT

The main factors affecting cavity spot development are soil temperature, soil pH and soil moisture. While temperatures

can be controlled to a degree via site selection and scheduling planting times, other factors can be controlled by crop management approaches.

Temperature: The prime growth temperatures for *P. sulcatum* are minimum 2-3°C, optimum 20-28°C and maximum 36-37°C. Temperatures of 30°C and above are lethal for *P. violae*.

Soil moisture: High soil moisture leads to greater incidence and higher severity of *Pythium* infections. However, at the critical crop growth stages, the threshold soil moisture and the period required at that threshold to cause infection with both species is still unknown for Australian production regions.

Variety selection: This can greatly help in minimising the occurrence of cavity spot, as some varieties are more susceptible than others. It is worth asking seed suppliers.

Crop protection options: Metalaxyl-M can reduce the incidence and severity of cavity spot disease when applied at or shortly after seeding. However, if it is used too frequently it can lose its effectiveness because of an increase in its rate of breakdown in soil. While metham sodium is used commercially for carrot production to manage the disease, enhanced breakdown with repeated use has been implicated and it has failed to control cavity spot in trials in Western Australia.

Soil pH: In Western Australia, it has been shown that liming soil to increase pH reduces the incidence and severity of cavity spot. The recommended pH range is pH 6.5-7.5 with a target pH of 7.2 or higher (measured in calcium chloride).

Nutrition: UK research found that increasing the level of exchangeable calcium above 8 meq/100g soil decreased the

incidence of cavity spot. High inputs of available calcium pre-planting (e.g. 15 t/ha of a product called Limex) also decreased cavity spot incidence. In both cases, *P. violae* was the target organism.

Rotation: Research has shown that rotation with broccoli, lettuce or onions has produced promising results where the primary pathogen was *P. sulcatum*. As *P. violae* can attack broccoli and may exacerbate cavity spot, rotation with onions, corn, potatoes or beans may be more beneficial.

Cover crops/biofumigation: Reports on the benefits of cover crops and biofumigants vary. The conclusion is that the effect of cover crops on *P. sulcatum* and *P. violae* is currently not well enough understood to make general or regional recommendations.

Other: Cultural practices that reduce the impact of root diseases include crop hygiene, selection of planting date and crop density, tillage approaches that ensure good soil structure and drainage, crop residue management to foster their breakdown, and timely harvest. Integrated crop protection (ICP) strategies to reduce the likelihood of infection using management practices listed above are recommended.

THE BOTTOM LINE

While some general rules apply, especially the need for managing soil moisture, pH, soil calcium and crop maturity, carrot producers should find their own optimum combination of additional management strategies that fit their production systems and growing conditions.

A substantial research effort has been made to predict *Pythium* inoculum levels and disease risks in vegetable crops, including carrots. Most research had a focus on identifying threshold levels of inoculum rather than identifying conditions (e.g. temperature, soil moisture, soil nutrient levels, levels of other diseases or pests) that cause infections to occur in different commercial production systems.

Researchers at the South Australian Research and Development Institute (SARDI) are currently developing soil DNA tests for detecting soil populations of *P. sulcatum* and *P. violae* (VG15009). Once these have been developed and tested, the next step is to understand the relationship between soil inoculum levels and production factors, both environmental and cultural practices.

R&D ■ Farm Productivity, Resource Use & Management

INFO

For more information, please contact Dr Doris Blaesing on 0438 546 487 or dorisb@rmcg.com.au or Dr Len Tesoriero on 0447 623 487 or len.tesoriero@dpi.nsw.gov.au.

A multifaceted approach to soil borne disease management has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Number: VG15010

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WHAT'S ON AT HORT CONNECTIONS 2017

After many months of planning, the ground-breaking event in Australian horticulture, Hort Connections 2017, will arrive at the Adelaide Convention Centre. Growers, supply chain members, government stakeholders and industry service providers are set to gather for three days of presentations, social and networking events plus an expansive Trade Show.

AUSVEG, together with the Produce Marketing Association Australia-New Zealand (PMA A-NZ), is proud to be hosting the largest event in Australian horticulture, Hort Connections 2017, from 15-17 May.

Combining the National Horticulture Convention and PMA Fresh Connections, Hort Connections will build on the success of the two previous events, incorporating a thought-provoking speaker line-up, an expansive Trade Show and unparalleled networking opportunities.

DAY ONE

Preceding Hort Connections is the annual Horticulture Field Day on Monday 15 May. This year, the field day will focus on pest and disease detection and management and will include a tour of the TORO factory, the South Australian Research and Development Institute and a local Soil Wealth and Integrated Crop Protection field trial site at Eastbrook Farms.

Hort Connections will officially open with the Welcome Reception at 6:00pm, before delegates take their first look at the Trade Show, sponsored by Fresh Markets Australia and the Central Markets Association of Australia, from 6:30pm until 9:00pm.

DAY TWO

The speaker program on day two of Hort Connections features an exciting array of industry experts from Australia and overseas who will discuss a range of important issues within the horticulture industry.

Leading the plenary sessions on Tuesday 16 May is Assistant Minister for Agriculture and Water Resources, Senator the Hon. Anne Ruston, who will provide an insight into the Federal Government's priorities for Australian horticulture in the coming months. She will be joined by Bega Cheese Executive Chairman Barry Irvin who has led his team through a period of business growth while at the same time chairing Sydney-based charity Giant Steps, which provides services to children and young adults with autism.

The Global Innovations in Horticulture Seminar will return again in 2017, providing a valuable opportunity for levy-paying growers to gain an insight into leading technologies overseas. Held on Tuesday from 12:40pm-5:00pm, the seminar will feature world-leading speakers in farming technology, including AgFunder co-founder and Chief Investment Officer Michael Dean, who will discuss the San Francisco-based online investment platform for global agriculture and food technology.

Capping off day two is the popular DuPont Theme Night, which will provide the perfect setting for delegates to unwind and network with other industry members. This year's 'Australiana' theme night will commence at 6:00pm and is not to be missed.

DAY THREE

On Wednesday 17 May, Hort Connections will host a Mental Health Panel, led by beyondblue Chairman the Hon. Jeff Kennett AC. It also includes 'Talk to a Mate' employee and qualified mental health, alcohol and drug support worker Mal Coutts, Young Potato People founder Stuart Jennings and South Australian Country Women's Association State President Linda Bertram. The discussion, running from 9:00am-9:50am, is set to focus on addressing mental health in regional and rural areas.

Following this will be a one-hour 'State of the Industry' presentation from AUSVEG CEO James Whiteside and PMA A-NZ CEO Darren Keating, who will discuss the current issues impacting their respective industries.

There are seven speaker streams scheduled on day three, which includes the Workplace Relations Symposium and the launch of Growcom's Fair Farms Initiative (see page 14 for more information).

Another highlight of the day is the Women in Horticulture event, which is open to all delegates and will take place at the InterContinental Adelaide from 2:30pm-4:00pm. Speakers include Senator Ruston, Eat.Drink.Innovate Pty Ltd founder Susie White and ABC presenter Tonya Roberts, who will emcee the event. Celebrity chef Geoff Jansz will perform a cooking demonstration with local produce while Horticulture Innovation Australia Relationship Manager Christian Patterson will discuss levy-funded projects. The event will conclude with the announcement of the 2017 Women in Horticulture award winner.

The annual Awards for Excellence Gala Dinner will provide the perfect close to the event, celebrating the achievements of leading growers in the horticulture industry.

INFO

For more information about speakers and events taking place at Hort Connections 2017, please visit hortconnections.com.au.



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L-R: Ged Sipple, Matt Hood and Yuri Wolfert at Berlin Fruit Logistica.



Fresh produce in the KaDeWe food hall.



Delegates at Berlin's fresh produce market.

STRENGTHENING TIES BETWEEN THE EUROPEAN AND AUSTRALIAN VEGETABLE INDUSTRY

In February, eight levy-paying vegetable growers braved a cold European winter to attend the 2017 European Industry Leadership and Development Mission, where they visited the Berlin Fruit Logistica trade show as well as leading agribusinesses and wholesale markets in Germany.

Saying goodbye to the summer sunshine for nine days, eight leading producers in the Australian vegetable industry travelled to Germany for the 2017 European Industry Leadership and Development Mission, which took place from 4-13 February.

Participants attended Berlin Fruit Logistica, the world's largest trade show for the fresh produce sector and one of the most highly anticipated events on the global agricultural calendar. They also met with leading agribusinesses in Germany.

The main objective of the mission was to ensure that participants gained a greater understanding of the global vegetable industry, while also developing relationships with their international counterparts and other participants on the mission.

It aimed to educate and inspire growers by providing an insight into current and emerging trends in global horticulture growing and supply chain practices, which could help to develop the Australian vegetable industry.

GLOBAL R&D INSIGHT

In the lead-up to Berlin Fruit Logistica, the group visited Bayer's Global Headquarters in Monheim, near Cologne. Participants were given an overview of Bayer's fruit and vegetable strategy, which included information on the company's investment in R&D and contribution to sustainable agriculture. Participants met with Dr Johannes Glaubitz from the Residue Analysis team, who gave a presentation on the sector. Bayer invests heavily in R&D, with the CropScience division responsible for investing hundreds of millions of Euros and employing approximately 5,000 staff dedicated to R&D.

The group also visited several important R&D facilities during a site tour, including the Substance Library and Biological Research Disease Control Centre, where participants gained a greater

understanding of the intricate tests that take place to develop new products.

Delegates departed the facility with a greater appreciation of the production processes employed to create new chemistries for seeds, chemical and biological crop protection and pest control. Many of the participants noted that it was interesting to get an insight into how a global agribusiness operates.

A TRULY INTERNATIONAL EVENT

Berlin Fruit Logistica, which was held from 8-10 February, gave participants the opportunity to forge strong networking connections with leading researchers, growers and business professionals in the global fresh produce industry. More than 3,000 stands were on show and seemingly covered every aspect of the fresh produce trade.

Throughout the trade show, participants were able to explore new machinery and equipment on display that might generate efficiencies or improve production practices on their farms. Machinery exhibits make up an entire floor at Berlin Fruit Logistica, with growers stunned by the size and scale of the exhibition space, particularly as some stalls featured fully functioning machines to demonstrate how the technology worked.

The delegation was treated to further presentations from Bayer, Plant & Food Research New Zealand and leading international seed supplier Rijk Zwaan. These presentations were organised by AUSVEG and were highly regarded by delegates, who were appreciative for the opportunity to form valuable business networks with the world's leading agribusinesses which were keen to speak with each delegate to understand their business needs and how their company can help them be more productive and profitable. Participants also attended a networking dinner with head

managers of Syngenta as well as networking functions with employees from Syngenta, Bayer, Rijk Zwaan and Plant & Food Research.

MARKET VISIT

The delegation woke early on a frosty Friday morning to make their way to the Berliner Großmarkt, Berlin's fresh produce market located 20 minutes from the city centre. The market's convenient location allows for easy accessibility for buyers from central Berlin.

The total floor space of the market is 85,000 square metres, with 50 fruit and vegetable wholesalers stocking more than 500 varieties of fruit and vegetables. The market handles 220,000 tonnes of produce per year through its 80 undercover loading docks, using 120 forklifts onsite.

The delegation was shown through the market by Berliner Großmarkt CEO Dieter Krauss. During the visit, the delegation compared the size and quantity of produce in the Berlin market to Australian fresh produce markets. The participants were impressed with the packaging and quality of numerous lines they had not encountered before.

Delegates also had the opportunity to visit a range of local supermarkets, including the most extravagant fresh produce food hall in the KaDeWe shopping mall. Delegates seized the opportunity to see what vegetables were on German supermarket shelves, and they compared size, quality and quantities on display.

At the end of the mission, each delegate was looking forward to returning to their growing operation to implement their new ideas and share their experiences with local growers, which will undoubtedly contribute to the future sustainability of the Australian vegetable industry.

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R&D ■ Drive Train

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The final report for this project will be made available on the InfoVeg database at ausveg.com.au/infoveg.

The 2017 European Industry Leadership and Development Mission was funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy, contributions from Australian vegetable growing businesses and funds from the Australian Government.

Project Number: VG15701



Integrated Pest Management site in the Northern Territory.

VEGNET CELEBRATES A SUCCESSFUL FIRST YEAR

As VegNET approaches the end of its first year, vegetable growers continue to benefit from 10 regionally-based extension projects. VegNET Industry Development Officers will share some of their success stories at Hort Connections 2017 on 17 May, while delegates can also find more VegNET information at the Trade Show. In the meantime, VegNET has provided some recent highlights from South Australia and the Northern Territory.

FLOOD RECOVERY ASSISTANCE AND DUTCH TECHNOLOGY ON SHOW IN SA

South Australian vegetable growers are being kept up-to-date with the latest R&D following the rollout of VegNET in South Australia. AUSVEG SA Industry Development Officer Hannah McArdle has been busy communicating with growers through newsletters, workshops and farm visits.

Soil recovery and soil borne disease management workshops were held after flooding devastated the Adelaide Plains in September 2016. The workshops were presented by RM Consulting Group's Dr Doris Blaesing, and have enabled growers to identify how to best manage their farms following the flood.

Dutch technologies in horticulture were also showcased during a visit from the Dutch Government in November. The technologies included irrigation, protected cropping and harvesting machinery. As a result of the workshop, some protected cropping growers are looking to invest further in capital that can improve their production systems.

This year, the South Australian VegNET team is focusing on the delivery of events and resources to assist grower needs in post-harvest management, weed control and biosecurity. Starting in late May, a series of grower meetings on weed management will be held with Chris Fyfe from the University of New England. These meetings are part of the project, *Strategic approach to weed management for the Australian Vegetable Industry*, which includes multiple trial sites in South Australia (see page 36 for more information).

Two workshops on post-harvest management of vegetables will be held in July and will be presented by Dr Jenny Ekman and Adam Goldwater from Applied Horticultural Research.

Project updates, upcoming events and summaries of the latest R&D can be found in the AUSVEG SA newsletter. To hear more about VegNET in South Australia or to sign up for events, please contact Industry Development Officer Hannah McArdle.

- Phone: 0408 475 995
- Email: hannah.mcardle@ausveg.com.au
- Twitter: @AUSVEG_SA

NT GROWERS GET SET FOR THE 2017 DRY SEASON

Northern Territory vegetable growers, melon growers and horticulture industry representatives met at the NT Department of Primary Industry and Resources (NT DPIR) Coastal Plains Research Farm (CPRF) to hear the latest on the cucumber green mottle mosaic virus (CGMMV) incursions across Australia. The group heard the latest NT regulatory

requirements for cucurbit production and the progress of the national CGMMV research and development project that is being led by the NT DPIR plant pathology molecular biology unit. Printed workshop materials were available in English, Vietnamese and Cambodian.

The meeting was held at CPRF to introduce growers to the Integrated Pest Management (IPM) demonstration site. Insect resistance to chemical-only management programs has been increasing over the last 10 years, which is why the VegNET team has developed the IPM demonstration site. There is now increased enthusiasm by okra and snake bean growers to embrace IPM.

Growers visited a green manure crop of forage sorghum and were able to identify a number of pest and beneficial insects already at the site. Growers were encouraged to use the recently developed *Field Guide to Pests, Beneficials, Diseases and Disorders of Vegetables in Northern Australia* to identify different insects during the field walk and to consider how the use of a refuge area of sorghum or tall grasses can keep the existing beneficial insects on farm and ready to protect the vegetable crops. This field guide is available in English and Vietnamese and can be requested from the NT Industry Development Officers (details below).

The demonstration site will be used to further improve pest identification and monitoring skills, which will form the basis of a grower's own IPM program. Upcoming field activities at the site will include demonstrations of improved fertigation systems and soil moisture monitoring. Follow NT Farmers on Facebook to keep up-to-date with these future events.

To hear more about VegNET in the Northern Territory, please contact Industry Development Officers Greg Owens and Samantha Tocknell or follow them on Twitter and Facebook:

- Phone: 0437 092 551
- Email: greg@ntfarmers.org.au
- Twitter: @NTFarmers
- Facebook: @NTFarmersAssociation

R&D ■ Drive Train

INFO

For more information on the National Vegetable Extension Network and upcoming events, please contact Adam Goldwater on 02 8627 1040 or adam.goldwater@ahr.com.au.

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

Project Number: VG15049



FOCUS ON TOMATO-POTATO PSYLLID INCURSION

In February, the destructive tomato-potato psyllid was discovered in a Perth backyard. After an incident definition phase lasting six weeks, this incursion is now in the response phase. AUSVEG Biosecurity Adviser Dr Kevin Clayton-Greene explains.

Much has been written about the tomato-potato psyllid (TPP; *Bactericera cockerelli*) and the threat that it poses to Australian horticulture. At the time of writing, a short-term Response Plan has been enacted by the National Management Group (NMG) following the detection of TPP in Western Australia.

The purpose of this Response Plan was to allow more time to gather critical information to determine the extent of the incursion and enable a more informed decision about eradication feasibility.

Importantly, it also allowed owner reimbursement costs to flow to those properties affected, however it needs to be kept in mind that this will only be to growers who are covered by a Plant Health Levy (for example, potato and capsicum). Tomato producers are excluded as they are not signatories to the Emergency Plant Pest Response Deed and do not have a levy.

At the conclusion of this Response Plan, the NMG decided that eradication was not feasible due to the widespread distribution of TPP in the Perth metropolitan area; that available treatments cannot guarantee eradication; and the difficulty in detecting TPP on crops when they exist in only small numbers.

As a consequence, a 12-month Transition to Management Program is being developed so that the impact of the pest can be both managed and minimised. This plan will be put together by the Department of Agriculture and Food, Western Australia with the involvement of all parties, both government and industry. Once developed, the Plan will be put through the Consultative Committee on Emergency Plant Pests and NMG process for approval.

ZEBRA CHIP UPDATE

At the time of writing, we have still not detected *Candidatus Liberibacter solanacearum*, the organism which causes zebra chip in potatoes, and plant death. However the organism

only occurs in a low percentage of psyllids, therefore proving absence may take some time.

We do know that the type of TPP is the same as the one detected in New Zealand and in the western states of the United States (there are four known biotypes). However, it is not known how it arrived in Western Australia – and we probably never will know. It either arrived on produce, on clothing or was carried there naturally by wind.

TPP TRAPPING

Noting the seriousness of this pest and its multi-million dollar impact upon the vegetable and potato industries, it is incumbent for everyone to be especially vigilant for any sign of an unusual insect in crops.

Adult TPP is black with a white stripe on its back. It resembles a small winged cicada and is about three millimetres long. The adult psyllids are relatively easy to identify once caught, although catching them usually requires sticky traps as the adults fly a short distance as soon as foliage is disturbed.

Sticky traps can be purchased from outlets such as Bunnings or other nurseries. They should be erected about 30 centimetres above the crop and checked regularly – at least weekly – and if anything unusual is spotted, contact the Exotic Plant Pest Hotline (1800 084 881) and seek advice immediately.

R&D ■ Farm Productivity, Resource Use & Management

INFO

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

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

Project Number: VG15023



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DEVELOPING AN ON-FARM BIOSECURITY PLAN

The recent incursion of tomato-potato psyllid in Western Australia and the continued infestation of vegetable leafminer at Cape York Peninsula – both priority exotic pests for the vegetable industry – has highlighted the importance of allocating time towards farm biosecurity planning. AUSVEG National Manager – Science and Extension Dr Jessica Lye explains.

While biosecurity practices reduce the likelihood of the introduction and spread of new pests on your farm, they can also reduce the impact of endemic pests, such as various wilts and viruses.

Most farm biosecurity plans contain several common practices. However, it is also important to undertake an assessment of your farm and its risks to determine the priority areas that require immediate attention.

Tools that will aid in the effective development of a Farm Biosecurity Plan are risk matrices, checklists and risk management plan templates, all of which can be obtained from AUSVEG. A procedure for developing a full Farm Biosecurity Plan is outlined below.

1. CONDUCT A RISK ASSESSMENT

- Identify risks.
- Assess likelihood and impact.
- Prioritise risks.
- *Tool: Risk matrix.*

2. CONDUCT A GAP ANALYSIS

- Identify measures for implementation or improvement.
- Prioritise measures based on risk assessment outcomes.
- *Tool: Checklist.*

3. DEVELOP A RISK MANAGEMENT PLAN

- Populate a plan template.
- Consider scope, time and budget.
- Integrate measures into farm management plan.
- *Tool: Biosecurity plan template.*

FOLLOWING PLAN DEVELOPMENT:

1. Ensure farm employees are familiar with the plan.
2. Implement policies and infrastructure to support the plan.
3. Review and update the plan on an annual basis.

Routine checking of crops is an important aspect of maintaining crop health and gives you the best chance of identifying a new pest before it becomes established. It is important to be aware of major pests, diseases and weeds in your region and especially those that are often found on your property.

During routine monitoring, record the date and all observations such as pests identified, growing area affected, the level of infestation and proposed treatment plans. If no detections of pests are made, this observation should also be recorded.

To obtain a Farm Biosecurity Plan Work Booklet (a step-by-step educational guide for developing a plan) and an AUSVEG Farm Biosecurity Planner, which includes an extended checklist and additional information about biosecurity practices and biosecurity risks, please contact AUSVEG.

A list of exotic pests that may impact vegetable growers can be found in the Vegetable Industry Biosecurity Plan at ausveg.com.au/biosecurity. Further resources for improving your biosecurity practices can be found on the AUSVEG website at ausveg.com.au or the farm biosecurity website at farmbiosecurity.com.au.

In the meantime, complete the checklist on page 25 to identify some areas where biosecurity practices are required on your farm. As well as aiding in the planning process, you may use this checklist to benchmark your farm against future assessments.

R&D ■ Farm Productivity, Resource Use & Management

INFO

Any unusual plant pest should be reported immediately to the relevant state or territory agriculture agency through the Exotic Plant Pest Hotline (1800 084 881). For further information, contact AUSVEG National Manager – Science and Extension Dr Jessica Lye at jessica.lye@ausveg.com.au or 03 9882 0277.

The Vegetable and Potato Biosecurity Program is funded by the Plant Health Levy. This communication has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Number: VG15027



BIOSECURITY PRACTICE	YES	NO
Wash down facilities are provided on site for machinery, equipment and vehicles	<input type="checkbox"/>	<input type="checkbox"/>
Clean down facilities are located near farm entrances and away from growing areas	<input type="checkbox"/>	<input type="checkbox"/>
Visitor vehicle access is restricted to designated parking areas	<input type="checkbox"/>	<input type="checkbox"/>
Only on-site vehicles are used to transport equipment and visitors around the farm	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle movement is kept to a minimum in growing areas	<input type="checkbox"/>	<input type="checkbox"/>
Designated tracks are used to limit vehicle movement on growing areas	<input type="checkbox"/>	<input type="checkbox"/>
Machinery and vehicles are cleaned before moving off the property	<input type="checkbox"/>	<input type="checkbox"/>
Footbaths and brushes are easily accessible and used	<input type="checkbox"/>	<input type="checkbox"/>
Visitor clothing, footwear and tools are checked for soil and organic matter before entering the farm	<input type="checkbox"/>	<input type="checkbox"/>
Staff are trained in biosecurity and farm hygiene practices	<input type="checkbox"/>	<input type="checkbox"/>
Visitors are inducted in biosecurity expectations prior to moving around the farm	<input type="checkbox"/>	<input type="checkbox"/>
Visitors sign a register to monitor on-farm movements	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate hygiene supplies are available to staff and visitors (hand sanitiser, gloves, foot baths, overalls)	<input type="checkbox"/>	<input type="checkbox"/>
Contractor entry is conditional to a biosecurity induction and hygiene protocols	<input type="checkbox"/>	<input type="checkbox"/>
Gate signs requesting phone check in and providing owner/manager contact numbers are visible at main entrances	<input type="checkbox"/>	<input type="checkbox"/>
Farm is divided into 'zones' with restricted or minimised people, machinery and equipment movement between zones	<input type="checkbox"/>	<input type="checkbox"/>
Planting material for all crops grown are sourced from reputable suppliers	<input type="checkbox"/>	<input type="checkbox"/>
Imported seed has been tested as per BICON conditions	<input type="checkbox"/>	<input type="checkbox"/>
Symptom monitoring is regularly conducted in crops	<input type="checkbox"/>	<input type="checkbox"/>
Staff are trained to recognise symptoms of disease infection	<input type="checkbox"/>	<input type="checkbox"/>
Activities and results of pest monitoring are recorded, including lack of observations	<input type="checkbox"/>	<input type="checkbox"/>
A farm management plan is maintained for endemic pests	<input type="checkbox"/>	<input type="checkbox"/>
Pallets are clean of organic material and soil	<input type="checkbox"/>	<input type="checkbox"/>

COMMON BIOSECURITY OR 'FARM HYGIENE' PRACTICES

Farm gate biosecurity signage sends a strong message to visitors that you expect them to abide by biosecurity procedures in place. Signage becomes especially important when growing areas are located in peri-urban spaces where traffic may enter the farm more often. A major reason for installing farm biosecurity signage is to make sure that visitors do not inadvertently access growing areas.

Ancillary signage may be used to give clear directions to visitor parking, direct visitors to the property office where they can sign a visitor register and undergo a farm induction, indicate when visitors are entering restricted areas, direct visitors to **foot washes**, and show the location of **vehicle or machinery clean-down facilities**. It is important that the biosecurity messages in front gate signs are reinforced by these additional on-farm biosecurity measures.

Biosecurity induction sessions are especially important when hosting school groups, tourist groups or when there is regular staff change over. Induction sessions should outline biosecurity measures on-farm, using your farm biosecurity action plan as a guide, and emphasise the risks posed by pests to commercial growers.

Importantly, **ensure visitor, contractor and farm worker footwear and clothing is free from soil and plant material** before they enter or leave your farm. Where necessary, provide scrubbing brushes, footbaths, boot covers and protective clothing to prevent the dispersal of foreign soil and plant material.

A **clean-down facility** is an area where growers, farm workers, extension officers and contractors can clean and disinfect all vehicles and machinery entering or leaving growing areas. Regular use of the facility will go a long way towards reducing the chance of introducing pests to a property and spreading pests to other regions.

Dividing growing regions into zones allows greater access control to growing sites and minimises the risks of pest and disease introduction or spread. Regularly inspecting and **maintaining boundary fences** and **managing feral animal and weed populations** are also part of good biosecurity practices.

Regular surveillance of growing areas, neighbouring vegetation, wash down areas and water sources will give you the best chance of identifying a new pest before it becomes established. It is important that **farm staff are aware of what pests to look for** when carrying out these inspections and that records of all surveillance are well organised. These records can be important for retaining market access.



Male flies, attracted by the cue lure wafer, pictured unsuccessfully trying to get through the VegeNet. Image courtesy of AHR.

UNDERSTANDING THE NET BENEFITS FOR FRUIT FLIES

Fruit flies can breed rapidly, disperse widely and successfully infest many fruiting vegetables. They not only destroy fruit, but are a market access barrier in domestic and international markets. Dr Jenny Ekman from Applied Horticultural Research provides an update on a vegetable levy-funded project that focuses on in-treatment solutions to control fruit flies.

Fruit flies used to be effectively controlled with pre-harvest cover sprays, however de-registration of dimethoate and fenthion (Lebaycid) means vegetable growers have had to find other ways to manage these pests.

One option is to replace the chemical barriers with physical barriers. According to Applied Horticultural Research (AHR) scientist Dr Jenny Ekman, flies rarely – if ever – enter greenhouses.

“Theoretically, they could get in through open roof vents or doors, but they rarely do. If they can’t see or smell the plants inside, they have no reason to try,” Dr Ekman said.

“Also, fruit flies are forest dwellers that tend to fly close to the ground, or dart from tree to tree, rather than venturing into the open sky looking for a roof vent.”

NETTING SOLUTIONS

Net houses are a potential solution – they can protect crops from rain, hail, wind and sunburn, and keep out many pests. White hail netting that includes sidewalls is surprisingly good at keeping flies out of orchards. However, net houses are expensive to erect and can be inconvenient. Unlike apple trees, vegetables are not necessarily grown in the same place all the time.

Many of the benefits of net houses are achieved using simple ‘floating row covers’. Netting or frost protection fleece is simply draped over plants and secured at the base with soil.

A recent AHR project, led by Dr Ekman, has been testing how well floating row covers work.

“We used to think that keeping fruit flies out required fine mesh with no holes or gaps. However, even fairly coarse netting has achieved great results, despite there being holes that the flies could wriggle through if they really wanted to,” Dr Ekman said.

“Flies use a lot of visual cues to find host fruit and netting obscures the crop surprisingly well. It also offers many of the advantages of

net houses – it reduces irrigation requirements and gives plants some protection from extreme weather and other pests.”

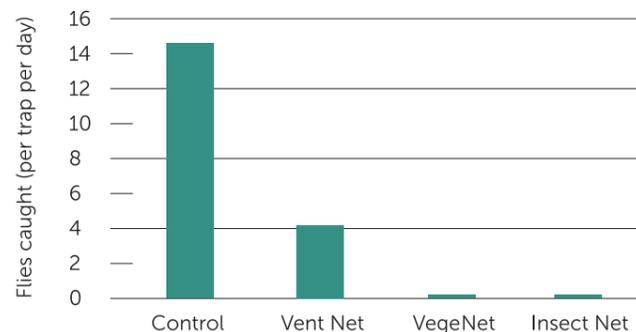
FIELD TRIALS

In the Sydney-based trials, large numbers of mature fruit flies were deliberately released into sacrificial crops of capsicums and chillies. Monitoring traps were placed under different types of netting to see how readily the flies could get under the covers. In addition, samples of fruit were harvested weekly to check for larvae.

The trials tested Vent Net (5mm x 4mm mesh, which is really a windbreak material) as well as VegeNet (1mm x 3mm mesh) and a fine Insect Net (0.8mm x 0.8mm mesh) as floating covers.

“Insect Net worked well at excluding flies, but was a bit heavy for the plants and also excluded the predatory insects we were relying on to control aphids. VegeNet weighed only 45g/m², and also proved very effective at keeping fruit flies away from the plants,” Dr Ekman said.

FIGURE 1



Flies caught per day in monitoring traps (Biotrap baited with FT Mallett CL wafer). Source: AHR.

“Even though some flies got through the Vent Net, these were mainly males attracted by cue lures in the traps, with infestation in the fruit remaining extremely low.”

Meanwhile, trials in Bundaberg focused on the effect of netting on capsicum plants.

“It’s hard to quantify, but the plants under the netting just looked healthier,” Dr Ekman said.

“There was less wind damage, and sunburn was avoided in fruit under netting. The result was a moderate, but potentially important, improvement in yield and quality that was consistent across all the trials we did.”

FURTHER CONSIDERATIONS

The best results were achieved when netting was applied to young plants. However, even applying nets only two weeks before harvest still provided significant benefits for fruit quality.

The research also found that fruit grown under nets tended to have more consistent colour, as there was a smaller range of fruit colour on each plant.

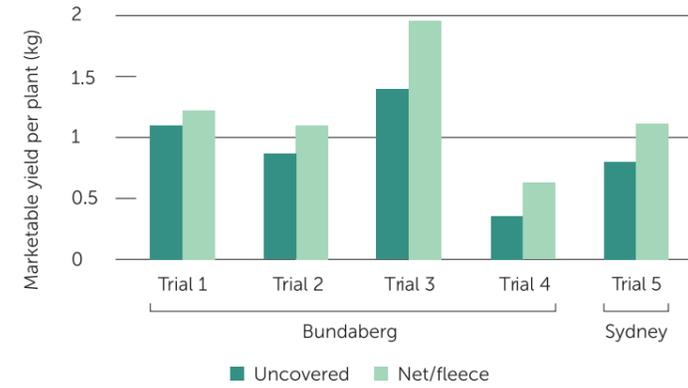
Although nets can be used many times, re-use creates potential issues with weed and disease management. Cleaning large nets is no simple matter.

“We thought one solution would be to use disposable frost protection fleece,” Dr Ekman explained.

“This material is cheap, presents an excellent barrier to fruit flies and could potentially help plants grow faster during cooler months. However, it is easily damaged by wind. In the end, we decided it just isn’t suited to use on upright plants such as capsicums.

“Nets aren’t going to suit every producer of fruiting vegetables, but they are definitely good for managing fruit fly, and can have other benefits as well.”

FIGURE 2



Effect of floating covers on marketable yield of capsicum plants. Yield was assessed at the start of commercial harvest of each trial by stripping all fruit from 10 plants in three replicate areas per treatment. Note: Trial 4 was strongly rain-affected. Source: AHR.

R&D Farm Productivity, Resource Use & Management

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For more information, please contact Dr Jenny Ekman on 0407 384 285 or jenny.ekman@ahr.com.au.

New in-field treatment solutions to control fruit fly has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Number: VG13042



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GAINING AN INSIGHT INTO HERBICIDE SELECTIVITY

Growers have experienced extreme conditions this summer, which may impact herbicide application on crops. In this edition, Syngenta Technical Services Lead Scott Mathew explains herbicide selectivity, how it is achieved and its effect on a crop under stress.

Recently, a couple of growers have mentioned to me that they have found it particularly difficult to manage their crops this summer due to the extreme climatic conditions experienced. The common example provided was where herbicide use appeared to have set the crop back mildly at times compared to normal. This raised a few questions.

WHAT MAKES A HERBICIDE 'SELECTIVE'?

When a herbicide is referred to as being selective, it means that the herbicide can be applied to your crop and will control or suppress the targeted weed species without affecting the growth of your crop.

HOW IS HERBICIDE SELECTIVITY ACHIEVED?

Herbicide selectivity is generally achieved broadly by either:
Selectivity by placement

- By applying the herbicide in your crop in such a way that you minimise any contact between the herbicide applied and your crop. For example, where you might apply a pre-emergent herbicide to soil at, or immediately after planting, but before crops and weeds emerge. Weeds germinating in the chemical band in the soil will be controlled, whereas the crop germinates at a different depth that is not in contact with the herbicide, which ensures herbicide selectivity or crop safety.

True selectivity

- This is when the herbicide can be applied to the foliage of the crop or to the soil in which the crop is growing without concern of injury or damage to the crop. The crop can achieve this generally by one of three ways.

1. Morphological, which refers to the plant characteristics such as the leaf orientation, waxiness or pubescence (hairiness) etc. For example, a hairy leaf surface makes it more difficult for the herbicide to reach the leaf surface and affect the crop.
2. Physiological differences refers to the different processes that affect the activity and/or the breakdown of the herbicide. For example, your crop plant may translocate the herbicide at a slower rate than the weeds, resulting in the herbicide controlling the weeds and not affecting the crop. Your crop may have the ability to integrate the herbicide with something in the

- cell cytoplasm, or channel the herbicide into 'sinks' where the herbicide will have no effect on your crop, but controls the weeds.
3. Deactivation or metabolism, which is ability of some plants to slow or prevent the activity of the herbicide so the plant is tolerant to a particular product. For example, sweet corn plants metabolise and convert atrazine to an innocuous metabolite within the plant so rapidly that the herbicide does not have time to inhibit photosynthesis, which provides crop tolerance. Metabolic insensitivity and/or the ability to metabolise the herbicide usually are the best types of crop selectivity.

WHY DOES THE SELECTIVE HERBICIDE SOMETIMES CAUSE A YELLOWING OF MY CROP?

Commonly, herbicide selectivity is achieved through the ability of the crop to metabolise the herbicide into a form that has no herbicidal impact on the crop. Anything that places the crop under stress, such as environmental stresses (waterlogging, frost, drought etc.), can affect the crop's ability to effectively metabolise the selective herbicide that you have applied.

As a result, a herbicide that typically doesn't cause any crop effects may in fact cause some symptoms if the crop is under stress and consequently can't metabolise the herbicide as efficiently as it otherwise would. Fortunately, most times these symptoms are transient and the crop quickly recovers from the herbicide effects – which results in no impact on the final yield.

R&D ■ Drive Train

INFO

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

The R&D content for this article has been provided to *Vegetables Australia* to educate Australian vegetable growers about the most relevant and practical information on crop protection technologies and their on-farm applications. This communication has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Number: VG15027



VEGGIE STATS: BROCCOLI

To enable deeper insights into the production and trade performance of key Australian vegetable products, we have developed a series of crop-specific Veggie Stats profiles. The next instalment of this series provides an update on broccoli production.

The following Veggie Stats article has been developed specifically to give readers a detailed snapshot of the key facts and figures on broccoli. Veggie Stats utilises data from the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

It is important to note the data itself provides a broad indication of the performance of broccoli growers and should be interpreted carefully. The data is presented at the national level and therefore does not account for differences among jurisdictions.

In addition to this, the information provided is not specific to every Australian grower since each enterprise operates differently from one another.

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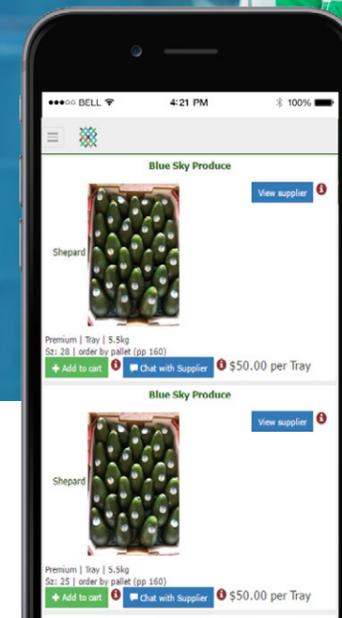
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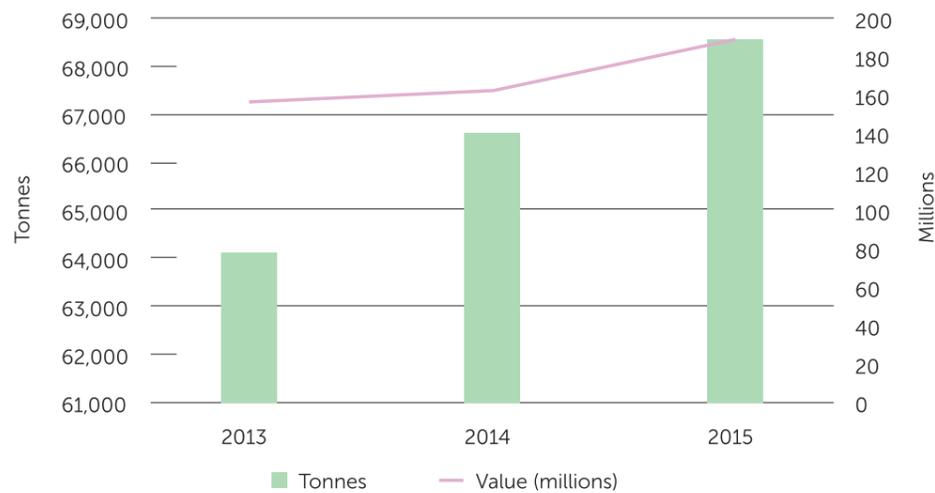
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VEGGIE STATS: BROCCOLI

KEY STATISTICS

- Australia produced around 68,500 tonnes of broccoli in 2015, an increase of 2,000 tonnes over the previous year.
- There were around 400 broccoli and baby broccoli producers in Australia in 2015 and around 7,200 hectares devoted to broccoli and baby broccoli production.
- Broccoli and cauliflower exports earned over \$17 million in 2016 and have nearly tripled since 2013. Note: Trade data combines broccoli and cauliflower into a single export category.

BROCCOLI AND BABY BROCCOLI PRODUCTION



Source: Australian Horticulture Statistics Handbook-Vegetables, (2014/15), Hort Innovation, 2016.

TOTAL EXPORTS

- Broccoli (and cauliflower) exports earned a record \$17 million in 2016, the highest on record.
- Total exports of fresh broccoli (and cauliflower) took off in 2013, almost tripling over that time.

TOTAL EXPORTS



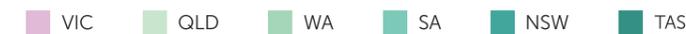
Source: ABARES Trade Data, Jan-2017



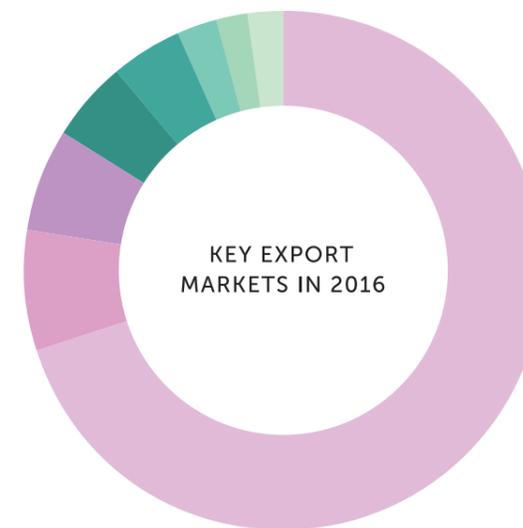
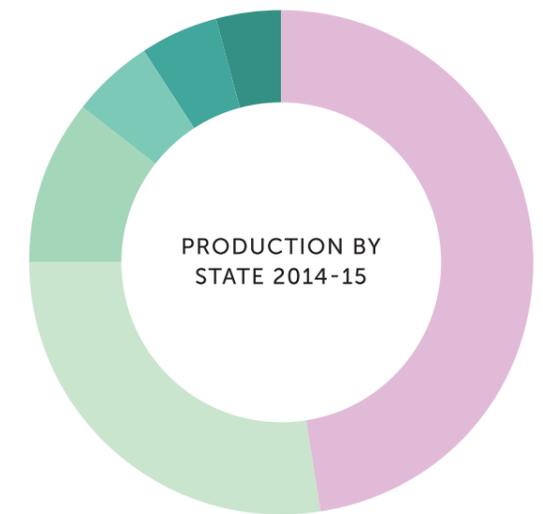
FACT: Italy is where the broccoli came from. As early as 600 B.C., Romans were already eating the vegetable.

STATE PRODUCTION

- Australia produced around \$190 million worth of broccoli in 2015, up from \$157 million in 2013.
- Victoria produced almost 50 per cent of all broccoli grown in Australia in 2015, followed by Queensland which produced over 25 per cent. Peak broccoli availability occurs in winter.



Source: Australian Horticulture Statistics Handbook-Vegetables, (2014/15), Hort Innovation, 2016.



KEY EXPORT MARKETS

- Australia exports to a growing number of countries, but by far the most important destination by value for broccoli (and cauliflower) is Singapore, which imported over \$12 million of Australian produce in 2016.



Source: ABARES Trade Data, Jan-2017

R&D

Drive Train

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The Economist Sub-Program is a component of the Vegetable Industry Communication Program and has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Number: VG15027





Participants examine the cover crop demonstration site at Houston's Farm in Tasmania.

COVER CROPS: A SPECIAL EDITION

The Soil Wealth and Integrated Crop Protection projects work with growers nationally to put soil and plant health research into practice. In this edition, we focus on cover crops and find out more about the Tasmanian demonstration site and an economic case study.

COVER CROPS FARM WALK – CAMBRIDGE, TASMANIA

Houston's Farm hosted a farm walk at the Cambridge cover crop demonstration site on 21 February. Participants said that they now have a better understanding of the benefits of cover crops and the types of things to consider when choosing cover crop species for a particular purpose, such as building soil organic matter or weed management.

Seeing a range of different cover crops first-hand encouraged some people to consider trying a different species or different mixes. It also allowed a comparison of how quickly some cover crops grow and the potential biomass of each option. The group discussed termination methods such as crimping/rolling, spraying, mulching and tillage, as well as how to manage cover crops like sorghum that can produce a large amount of biomass.

In terms of weed suppression, there were some clear differences with buckwheat and tillage radish being the best performers. There was particular interest in buckwheat for a number of reasons: it is quick to establish and therefore fits into tight rotations and also suppresses weeds; it is easy to terminate; it breaks down quickly; and it can provide a food source for bees (e.g. for vegetable seed production).

The project team is now working on plans for managing cover crops for autumn and winter.

You can follow progress of the trial via the Facebook page: facebook.com/SoilWealthCambridge. You don't need to have a Facebook account to view the page.

Petra Doust from Houston's Farm was also interviewed by ABC radio. Listen at abc.net.au/news/2017-02-24/cover-crops-make-a-comeback-in-tasmanian-trial/8300752.

The trial is supported by Houston's Farm and project VG15010 (*A multi-faceted approach to soilborne disease management*) is funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government. The farm walk was coordinated by the Tasmanian VegNET project (VG15046).

COVER CROPS IN AUSTRALIAN VEGETABLE SYSTEMS

This case study outlines the economic considerations of using cover crops in vegetable production systems. It is based on lessons learnt from several Soil Wealth/Integrated Crop Protection demonstration sites during 2014-16. One of the most important considerations is being clear about the purpose of using cover crops in the farm system, as it influences the way you may judge costs and benefits and the timing of these.

Agronomist Marc Hinderager said practices like cover cropping, using compost and using reduced tillage can increase or maintain soil organic matter.

"This builds long-term resilience. In the long-term you can't add that out of a bag. There is no substitute for long-term [soil] resilience," he said.

The overall benefits will depend on each situation. However, to figure out what works for you on your farm and a specific purpose, talk to others who have used cover crops for a similar purpose or situation. It is useful to trial different cover crops or include a test strip if possible to help determine what will best meet your needs.

All the above resources can be accessed via the Soil Wealth/Integrated Crop Protection website under the 'Resources' tab.

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INFO

For more information, please contact project leaders Dr Gordon Rogers on 02 8627 1040 or gordon@ahr.com.au and Dr Anne-Maree Boland on 03 9882 2670 or anne-mareeb@rmcg.com.au.

More information and resources are also available from the Soil Wealth/ICP website at soilwealth.com.au or integratedcropprotection.com.au. The Soil Wealth and Integrated Crop Protection projects are funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Numbers: VG13076 and VG13078



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Louise FitzRoy interviews chef Guillaume Brahimi.



EDUCATING AND ENTERTAINING PROGRAM INSPIRES AUSTRALIAN SCHOOLCHILDREN

A Walkley-award winning journalist with the ABC, Louise FitzRoy has gone back to her farming roots by establishing 'From Paddock to Plate'. What began as a radio series and book has morphed into an educational program that is an integral part of more than 100 schools across Australia. Louise spoke to *Vegetables Australia* about this highly successful project, and what it aims to achieve.

Louise FitzRoy spent her early childhood mustering sheep with her father and taking charge of the vegetable garden and fruit orchard for her mother.

Years later, as an ABC reporter travelling around Australia, the passion that Louise held as a youngster inspired a food and farming series on ABC Rural radio in Bunbury, Western Australia.

"Local farmers in the 'food bowl' of Western Australia proudly showed me around their properties, educating and entertaining ABC listeners about local produce, where to source it and the 'from paddock to plate' journey of that fresh food," Louise said.

"The response was overwhelming and this prompted the radio series to be published into a book that I called, *From Paddock to Plate*. The brand was born and there was no looking back."

AN EVOLVING PROGRAM

The book has since stemmed into the national From Paddock to Plate (FP2P) Schools Program, which is now an integral part of high school curriculums in more than 100 schools across Australia, with plans to extend this to every school curriculum in Australia.

"Food and farming education is essential for every student, no matter what subjects they elect to study. That's why at FP2P we have developed a national online portal of resources that can be implemented into seven different subjects for Year 7 to 10 students," Louise explained.

"We need to be able to demonstrate the breadth and depth of careers in the food and fibre value chain."

The main objectives of the FP2P Schools Program are to:

- Increase awareness and knowledge of where food comes from.
- Encourage healthy eating.
- Improve mental health and wellbeing.
- Reduce food waste and food miles.
- Provide social benefits and a sense of community.

- Stimulate creative thinking in a variety of subjects.
- Remove misconceptions that food education is only for food technology and agriculture classes.
- Retain and attract youth in the agriculture sector.
- Offer more agriculture education and career inspiration.
- Inspire greater support for Australian farmers.

Louise is also trialling the From Paddock to Plate app, which connects users with local farmers in their area to source local ingredients for nutritious homemade recipes.

"The demand for food is expected to double in the next 35 years. Therefore we need resources that will educate the next generation about the importance of food, food sustainability and food security so that we can continue to feed the world," Louise said.

A NATURAL PROGRESSION

The challenges in establishing FP2P have been constant and varied for Louise, who felt it was her role to pass on the passion, excitement and knowledge of farmers who are feeding the nation.

These challenges range from creating strategies to stimulate people's interest about where their food comes from, writing and filming educational materials that teachers can assimilate into their school curriculums with ease, and convincing farmers to get in front of the camera to promote their stories.

"The brand has grown quickly, indicating the demand that's out there for this educational platform, and ensuring the ongoing sustainability of FP2P," Louise explained.

"People are hungry for good quality food and if it comes with safe, ethical and environmentally friendly farming practices, their hunger grows. FP2P fills this knowledge gap, bridging the rural-city divide and giving people greater opportunities to make better food choices and improve their overall health and wellbeing. This has driven its success."

PROJECT HIGHLIGHTS

Louise has spent the last 12 years learning from hundreds of farmers, teachers, students and consumers around Australia and she has worked tirelessly to incorporate all of these lessons into FP2P to create a one-stop shop for food and farming, health and nutrition, and environment and sustainability education.

"A major highlight has been witnessing the positive effect that FP2P has had on young people to help them make healthier eating decisions and discuss topics like food miles, sustainability and the environment with their parents, friends and family," Louise said.

"The domino effect on society has been the most overwhelming and rewarding aspect of this entire FP2P journey and I beam with pride knowing that our Australian farmers have led the campaign to make this happen. FP2P would not exist without them and I am forever grateful."

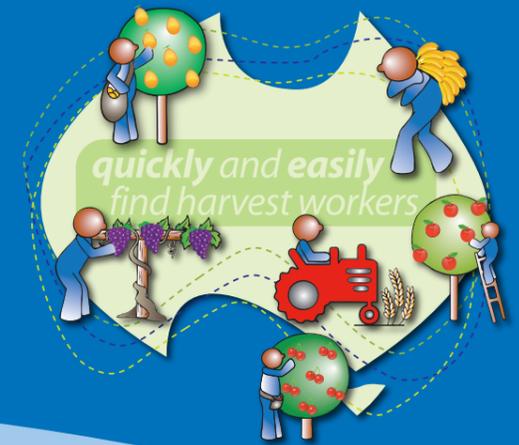
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For more information or to get involved in the From Paddock to Plate program, please contact Louise FitzRoy at louise@frompaddocktoplate.com.au or visit frompaddocktoplate.com.au.

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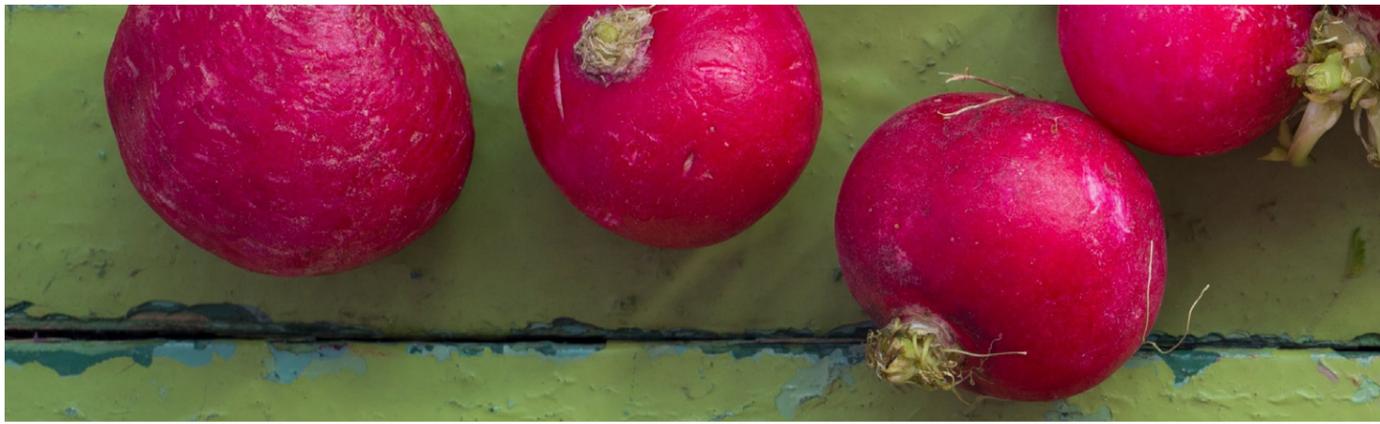


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DEVELOPING A STRATEGIC APPROACH TO MANAGING WEEDS

Vegetable fields are susceptible to many varieties of weeds, and this can have an impact on cost, yield and quality of crops. With this in mind, a weed management project is currently underway to develop effective ways to control weeds and ultimately create an Integrated Weed Management manual for growers.

Weeds are a burden on vegetable growing operations globally and require constant attention and careful management. If not dealt with effectively, they can have a devastating effect on crop profitability, yield and quality.

The latest project to focus on this issue, entitled *A strategic approach to weed management for the Australian Vegetable Industry*, is funded by Horticulture Innovation Australia and facilitated by the University of New England (UNE) in Armidale, New South Wales. A key aim of the project is to produce an Integrated Weed Management manual for the Australian vegetable industry.

"Our goal is to get a broad picture of the weed seedbank in vegetables across Australia and to do some trials on-farm, looking at cover crops and also making hand-weeding implements more efficient," UNE School of Environmental and Rural Science's Christine Fyfe said.

"As well as the standard use of herbicides, we'll look at how we can integrate cover cropping and hand-weeding into our veggie growing to make it effective, economical and efficient in terms of weed management."

While the project is focusing on around nine problematic weeds in vegetable crops, Ms Fyfe said wild radish, nutgrass and fat hen are the three highest priority weeds for the vegetable industry.

CROP DAMAGE

Weeds are a persistent problem, and can cause widespread damage in various ways.

"It can be different depending on the crop and the weed," Ms Fyfe said.

"For example, I was sampling soil in a lettuce crop in Victoria recently. One of the major weed problems there was stinging nettle, and as you can imagine that's quite problematic for people working in the crop from an OH&S point of view. In spinach or other cut leaf crops, it's very problematic in terms of contamination of the product."

Nutgrass is also a problem in many crops as it is aggressive and difficult to treat, and is very easily spread through control

methods such as hand-weeding, while fat hen is also a prolific seeder that competes with the crop for light, nutrients and water.

PRELIMINARY RESULTS

It is early days for the project, but Ms Fyfe and her team have unearthed some preliminary findings from a cover crop trial that has been established in a lettuce crop at Houston's Farm in Cambridge, Tasmania.

"Tillage radish and buck wheat were really good performers in terms of suppression of weeds within the cover crops. Interestingly, the mung bean – which was expected to do really well – didn't establish well at the site and we had the highest biomass of weeds in that cover crop. It just highlighted the importance of getting the cover crop up early, and getting good coverage," Ms Fyfe said.

Another result produced more questions for the team.

"The two main weeds at the site were shepherd's purse and prickly sour thistle. In the buck wheat, we had shepherd's purse starting to set seed but that didn't happen in the tillage radish. We're very interested to look into why, within the buck wheat, we had a particular weed going to seed (which you don't want as a veggie grower) and why that didn't happen in the tillage radish."

PROJECT PLANS

Within the next six months, Ms Fyfe plans to visit various Australian states and territories to conduct soil sampling on vegetable farms and to talk to growers about current management strategies and possible cover crop options.

Her next visit is to South Australia later this month where she will collect soil samples from farms in both Virginia and the Adelaide Hills, and also talk to growers about hosting trials on their farms.

It is hoped at least four two-year farm trials across Australia will get underway towards the end of 2017 and early into 2018. This will complement the current research being conducted



at UNE, which involves looking at the weed seedbank through laboratory trials as well as potential management options and hand-weeding implement trials.

GROWER INVOLVEMENT

Australian vegetable growers can become involved in the weed management project by contacting Ms Fyfe directly.

"What I'd be really interested to know from growers is what weeds they are having problems with and why. Are they actually doing anything on-farm themselves that's working in terms of weed control, that they would be happy for us to share with other growers?" she said.

"The ultimate goal is to produce the Integrated Weed

Management manual – if we have lots of examples of things that have worked that we can include in that, I think that could be really valuable."

R&D ■ Farm Productivity, Resource Use & Management

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For more information, please contact Christine Fyfe (0401 200 045, cfyfe3@une.edu.au), visit une.edu.au/iwmvegetables or follow the project at [facebook.com/iwmvegetables](https://www.facebook.com/iwmvegetables).

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

Project Number: VG15070



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AUSTRALIA'S FRESH PRODUCE PERFORMS ON THE WORLD STAGE

AUSVEG continues to deliver a range of exciting export market development activities to benefit levy-paying growers involved in exporting. This includes inbound and outbound trade missions to present exporting growers with opportunities to connect with international fresh produce buyers. *Vegetables Australia* reflects on the latest missions to Dubai and Japan, as well as the 2017 Reverse Trade Mission.

From 26 February to 2 March 2017, the Australian vegetable industry exhibited for the first time at Gulfood in Dubai as part of the *Australia Fresh* pavilion coordinated by Horticulture Innovation Australia (Hort Innovation) and Food Innovation Australia Limited.

Gulfood is the largest food and beverage exhibition in the world, attracting more than 5,000 exhibitors from different food industries and products from all over the globe. Nearly 100,000 visitors made their way to the five-day event this year. As one of the few exhibitors displaying fresh produce at this popular trade show, the fresh, clean and top quality produce at the *Australia Fresh* pavilion proved popular with attendees.

Exhibiting vegetable grower-exporters received strong interest from Middle Eastern buyers for vegetables including carrots, sweet corn, celery, leafy salads and herbs, as well as ready-to-eat products.

FOCUS ON THE JAPANESE MARKET

A delegation of Australian vegetable growers tapped into the Japanese market by exhibiting at Foodex Japan from 7-10 March 2017, where they showcased fresh Australian produce to this unique north Asian market.

This year, the Australian Vegetables stand partnered with the Almond Board of Australia to deliver a broader horticultural offering under the *Australia Fresh* banner. Exhibitors received strong interest in onions, carrots, cabbage, pumpkin and retail ready value-added products.

Australian chef Tim Hollands and his team delivered cooking demonstrations to showcase how to prepare and cook the fresh Australian produce on display.

Japan can be one of the more difficult markets to enter and establish a foothold, particularly for new exporters. Continued market development efforts from exporting growers, Hort Innovation, AUSVEG and other horticultural industries contributes to establishing Australia as a reliable partner for Japanese importers of fresh produce, which will deliver future benefits to exporting growers.

Additionally, in late 2016, Japan lifted the ban on Australian cucurbits from entering the Japanese market, providing opportunities for Australian growers of pumpkins and melons.

REVERSE TRADE MISSION RETURNS

The annual Australian vegetable industry Reverse Trade Mission has returned for another year and will coincide with Hort Connections 2017. This year's Reverse Trade Mission delegates represent international supermarket chains and large fresh produce importers from a broad selection of key export markets including Singapore, Malaysia and Hong Kong, along with a broader selection of international buyers from markets including Japan, Thailand and the Middle East.

Delegates on the trade mission have spent time in Western Australia visiting a range of vegetable production regions, vegetable farms, wholesale markets and vegetable distribution centres. These visits provided an exceptional opportunity for Australian growers to not only highlight the quality of their produce to international buyers, but also the quality of Australian growing practices.

The international delegation will also visit Adelaide to participate at a 'Produce Display' event at Hort Connections 2017, which will give growers from across Australia the opportunity to engage directly with fresh produce buyers from Asia and the Middle East.

R&D ■ Market & Value Chain Development

INFO

For more information or to get involved in the AUSVEG export program, please contact the AUSVEG Export Department on 03 9882 0277 or export@ausveg.com.au.

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

Project Number: VG13097



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INNOVATION IN LEAVES DRIVES EVOLUTION IN SALADS

The sale of prepared salads is booming and thanks to innovations in breeding, the type of leaves used in these salads has also increased. *Vegetables Australia* takes a look at the future of prepared salads, and the benefits they can provide to the vegetable supply chain.

The development of breathable plastic films in the 1980s revolutionised the salad industry. Once this occurred, salad could be processed, packed and delivered in a virtually ready-to-eat form, and category growth took off at a phenomenal rate.

Convenience, taste and the desire to minimise waste are three of the critical factors that combine to drive category growth, which typically measured in the double digits over the last 30 years in most developed western countries.

The United States has led the charge – US-prepared salads are reported to have a retail value in excess of US\$7 billion. The United States is followed closely by the United Kingdom and Europe, with Australia proving no exception and following a similar pattern of growth over the last decade.

Initially, prepared salads were the domain of shredded iceberg and cos lettuce, however over time there has been a significant shift in the type of leaves used. Now, prepared salad has become a riot of different colours and leaf shapes. Breeding innovations such as Salanova® bring smaller leafed cultivars of lettuce types such as butterhead that previously did not process well.

The evolution of modern western society has seen a growth in the busy family: time poor, but health conscious, with a desire to eat well. Prepared salads provide a shortcut to healthy and nutritious meals, either as a side or with the addition of a protein as a main in its own right.

AN EVOLVING SPACE

What's next for prepared salads? To achieve continued growth, this category must continue to deliver quality and good experiences to consumers. Increasingly, this means delivering a product that looks and tastes better for longer, and is less likely to be thrown out at any point in the production chain.

Johan Schut, Lettuce Breeding Manager of international breeding company Rijk Zwaan, remembers the initial struggle of processing salads.

"When I joined the company in 1998, fresh-cut and bagged lettuce was starting to take off. We were in contact with

processing companies in the USA and the UK, among other countries. Shelf life was always a key problem," he said.

This was echoed by Mr Schut's colleague Bauke van Lenteren, Marketing Specialist for Leafy Crops at Rijk Zwaan.

"Nothing beats the freshness of fresh lettuce, and fresh-cut bagged lettuce has gained considerable ground in recent years. However, the pinking on the edges poses a tricky problem. Waste reduction is perhaps one of the most important factors," Ms van Lenteren said.

This last point is increasingly important, as the prospect of waste is increasingly unpalatable to consumers. Initial efforts to combat this issue were based on physical leaf characteristics and saw the development of cos lettuce varieties with solid and less pronounced mid ribs, as less damage in the process of packing led to increased shelf life.

CONTINUAL DEVELOPMENT

The next step was to develop lettuce varieties that were strong against breakdown, oxidising at a slower rate. Over the course of more than a decade, breeding lines with improved performance were identified. The Knox™ trait was developed via conventional breeding, which delayed pinking in wholehead and fresh-cut lettuce.

"Knox™ varieties offer significant benefits in the whole chain. For retailers, the advantages include improved inventory management and less waste," Ms van Lenteren said.

"Extending the shelf life by just one extra day can generate a cost saving of up to 25 per cent. Consumers benefit too as bagged salads stay fresher for longer, retaining its fresh green colour a day after the bag has been opened. We think this can raise the purchasing frequency and boost lettuce consumption."

INFO

For more information, please visit rijkszwaan.com.au.



A FRESH START FOR ENVIRONMENTAL SUSTAINABILITY IN THE VEGETABLE INDUSTRY

The EnviroVeg Program 2017-22 is a new, levy-funded project jointly managed by AUSVEG, Growcom and Freshcare. This revamped program will align components from previous EnviroVeg programs along with Hort360 and Freshcare Environmental, to deliver a clear pathway to environmental assurance for Australian vegetable growers.

EnviroVeg is the vegetable industry's own environmental program. While previous EnviroVeg projects have provided resources to growers to develop and quantify their environmental practices, this new version of the program aims to support and improve environmental management on-farm. It will develop environmental recognition for growers as well as help direct future R&D funding by capturing quality data.

EnviroVeg has three tiers of membership, with the new program structure to include alignment with Freshcare Environmental, as well as grower support and report delivery through Hort360 and updated program resources.

MEMBERSHIP TIERS

The first tier of EnviroVeg membership will remain free to all vegetable levy payers through a self-assessment that will be housed within the Hort360 program. The self-assessment will generate a report highlighting areas for improvement and a pathway for achieving the next tier.

The second tier will comprise a supported assessment process, with additional environmental modules and one-on-one support that enables growers to meet the training requirements of the third tier of EnviroVeg and the aligned Freshcare Environmental program.

The third tier of EnviroVeg will be third-party audited to certify growers to the aligned Freshcare Environmental standards, which will underpin the use of EnviroVeg program branding. This level of membership will include co-badged certificates and use of the FreshcareOnline system to track auditing requirements. As

the resources for the new project are rolled out, the assessment and membership structure from the previous program will be maintained and growers will be able to make use of the self-assessment on the EnviroVeg website to benchmark their environmental practices.

SUPPORTING HIGH STANDARDS

All program resources will align and include assessment requirements, providing support to growers as they move through each tier. Audited members will have a mechanism to provide feedback on certification requirements, and methods to further support these growers will be investigated through the project, including developing recognition of EnviroVeg branding. The project will be supported through a stakeholder committee comprising growers and project partners, a technical panel of experts (ensuring a connection to R&D) and resources from each of the three project partners.

R&D ■ Farm Productivity, Resource Use & Management

INFO

For further information about the new EnviroVeg Program, please contact AUSVEG Environment Coordinator Andrew Shaw on 03 9882 0277 or andrew.shaw@ausveg.com.au or visit enviroveg.com.

The EnviroVeg Program has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Number: VG16063

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TIM CARNELL: HARD WORK PAYS DIVIDENDS FOR THIRD GENERATION GROWER

Tucked away in the hills not far from Glen Aplin is Kirra Pines Farming, a rapidly expanding vegetable growing operation that is spread across three locations on the Granite Belt. Michelle De'Lisle spoke to the driving force behind the business, Managing Director Tim Carnell, about the challenges he faces, the importance of on-farm biosecurity and his plans for the future.

Queensland vegetable grower Tim Carnell can consider himself fortunate in comparison to many of his colleagues around the state in recent weeks.

Tim is Managing Director of Kirra Pines Farming, a 235-acre growing operation based at Glen Aplin, located seven kilometres south of Stanthorpe on the Granite Belt. The region was spared the worst of Cyclone Debbie, which hit Queensland in late March and caused widespread destruction to a majority of the state's key production areas.

Escaping Cyclone Debbie's wrath brought a sigh of relief to Tim and the Kirra Pines Farming team, with the operation covering seven farms in three growing areas within a 35 kilometre radius.

As a third-generation grower, Tim (who runs the growing operation with his wife Felicity and parents Trevor and Alison) employs 130-150 staff in the peak season alongside 15-20 full-time staff.

Kirra Pines Farming grows tomatoes, capsicums and zucchinis, with leek production in the winter months.

RAPID GROWTH

As Managing Director of the business, no two days are the same for Tim. He says he is involved in "anything and

everything", although his role has shifted slightly over time.

"We're a growing business. What we've done over the last five to six years has been quite steep, so my role now is basically coordinating with staff from our business management, administration, operations and maintenance through to our packing sheds and harvest crews," he explains.

"We're looking at future developments and opportunities where we can be best positioned going forward."

Tim says that having three growing areas already provides benefits to the farm.

"We've got water security, hail risk management and individual micro climates. Each growing area is unique, and we're able to schedule our production throughout our growing season starting at the warmer blocks, moving to the cooler farm mid-season, then to warmer sites for the run into late autumn."

OVERCOMING CHALLENGES

Weather aside, vegetable growers face many other obstacles, both on-farm and in the daily running of their businesses. Negotiating with markets, keeping up with supply and demand plus the cost of labour and compliance are all challenges facing Tim and his business, as well as future energy costs.

Fortunately, there are already plans in place to help combat these challenges.

"We're looking at everything from energy efficiency with our pumps and all of our electrical equipment in packing sheds to conserve where we can. We're also looking at technology we can implement to make us more efficient as a business," Tim says.

"On the labour side, we focus on the cost of every job and every task and consider where we can make piece rate available for certain jobs. This allows staff to make more money per hour, and it enables us to have a more stable unit price.

"Anything we can be doing to reduce labour and cost through the implementation of technology is critical to our future."

TAKING BIOSECURITY SERIOUSLY

Kirra Pines Farming has its own in-house biosecurity policy, as there is a lot of movement between farms. This includes protocols on general hygiene, farm hygiene and the cleanliness of machinery and infrastructure.

Staff are conscious to keep the movement of equipment between farms to a minimum and wash machinery if transported, while all contractors receive a biosecurity induction.

"Certainly, biosecurity is something that we've got to be aware of. We all feel a little bit immune on our farms and think that it won't happen to us. However, we've seen in recent times certain disease outbreaks around Australia and the world in horticultural crops, so we need to be on the front foot with those," Tim explains.

"You've got people entering the farms who need to be aware of keeping to the designated areas."

ACHIEVING GOALS

Water security is a major focus for Tim, and has played a significant role in the growth of Kirra Pines Farming. As the farms rely entirely on surface water and are situated on the Granite Belt, water is a precious resource.

"As we grow our business, we still want to grow the same quality, if not better quality than a smaller grower. Achieving this as a larger operation and not losing sight of the quality we need in the marketplace is certainly challenging. Having strong relationships in the industry helps as well, whether it be from a sales or marketing perspective or from key suppliers through to our staff," Tim says.

"Another factor for our growth and success thus far is having a focus not so much on production or volume. We are looking at profitability and approaching our business as an agribusiness, not just turning numbers out for the sake of it. We're looking at the return per hectare; profit per mega litre of water; and making rational decisions based on good quality information at hand."

LOOKING AHEAD

Despite the business advancements made over the past six years, Tim is still keeping an eye out for future opportunities.

"There's definitely more growth for our business in the future. We've got some good marketing relationships with supermarket chains, wholesale markets and processors so there's plenty of potential in all of those areas," he says.

There is an ongoing succession plan in place at Kirra Pines Farming. Tim says this is another huge challenge facing those in the vegetable industry.

"I think one of the biggest challenges for family farms is succession planning, and how we succeed to the next generation. The cost price squeeze, profitability and the overall business dynamic is very different to 30 years ago," he says.

"I'm proud of being able to achieve the growth which we have had in a relatively short amount of time. With that comes a lot of hard work, and Felicity and myself are fortunate that my parents have supported the changes and growth our business needed.

"We've got three young daughters, so potentially in another 10 years we could have the next generation coming into our business. I suppose that is in the back of your mind – setting some kind of platform that they could potentially join if they choose."



Dr Matthew Wilson. Image courtesy of UTAS.

EXTENDING THE SHELF LIFE OF VEGETABLES THROUGH SMART PACKAGING

Food wastage is a major issue in Australia, with Foodwise estimating households throw out \$2.76 billion of fresh produce each year. New research is being conducted at the University of Tasmania which focuses on food packaging and developing ways to prolong the shelf life of fresh vegetables without diminishing their quality.

According to Foodwise, Australians throw out \$2.76 billion dollars' worth of fresh produce per year, which equates to 4,000 tonnes of waste. In a bid to alleviate this wastage, a new research study conducted by the University of Tasmania and the Australian Research Council (ARC), in co-operation with Woolworths, is aiming to identify and evaluate innovative new packaging options that extend the shelf life and safeguard the quality of Australian fruit and vegetables.

Dr Matthew Wilson is a Postdoctoral Research Fellow with the ARC Training Centre for Innovative Horticultural Products at the University of Tasmania, and his research specifically focuses on the packaging of fresh fruit and vegetables.

VEG STUDIES

The training centre has 10 PhD students examining different aspects of the Woolworths supply chain for fruit and vegetables, and Dr Wilson assists with student supervision as well as conducting research in those fields. He said that the research into vegetables is only beginning at the centre.

"We have projects looking at standard shelf life of leafy salad vegetables such as lettuce and spinach and a project looking at reducing potato greening. We also have a student studying protected horticulture and glasshouses in Australia (particularly for tomatoes)," Dr Wilson explained.

"I have a project looking at packaging of particular produce to increase shelf life of fresh produce generally, but we're still working out which produce items we want to explore."

Dr Wilson said examples of this research include changing the atmosphere within packaging, so there are the right mixture of gases (oxygen and carbon dioxide) to increase shelf life. Other elements that are being studied include product traceability and ethylene control.

"We're getting a project started with major overseas collaborators looking at minute concentrations of ethylene around produce," Dr Wilson explained.

"Until recently, it's been thought that only certain fruit are affected in a major way by ethylene, but Professor Ron Wills from the University of Newcastle and others have shown that even for vegetables, a very low level of ethylene can dramatically increase

shelf life. We're working with him and others to look at ways of presenting that right through the supply chain."

A SUSTAINABLE PRODUCT

Improved product packaging has the potential to benefit Australian consumers, both environmentally and economically.

"Many people in the past have complained about excess packaging and too much plastic, which they can see is being wasted. New packaging has promised to be more sustainable and eco-friendly, which will be good for everyone," Dr Wilson said.

"Packaging protects products and it can also promote products. Good packaging sells a product, identifies it and shows it off."

As companies in Europe and the United States are using pre-cut vegetable ingredients for meal kits, Dr Wilson said the latest trend is increasing the convenience of vegetables to make them more appealing to consumers and ultimately help to increase the consumption of vegetables.

"I think packaging can be an important way of teaching people to buy more vegetables, and be safe in the knowledge that those veggies are going to last in the fridge," he said.

"So much good food is wasted post-harvest due to poor storage, poor packaging, or a short shelf life. I think packaging has an increased role in making sure that veggies will last as long as consumers want them to last, and convincing consumers to buy more vegetables.

"Produce that's packaged correctly will last longer. It's a general rule that something which is packaged correctly in the right environment is going to be safer, have a longer shelf life and it's going to retain its quality for longer."

R&D ■ Drive Train ■ Market & Value Chain Development

INFO

For more information, please visit utas.edu.au/arc-training-centre.

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

Project Number: VG15027

Horticulture
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HARMONISING AUSTRALIAN FOOD SAFETY STANDARDS

Following a four-year development period, Horticulture Innovation Australia has launched a world-first initiative to harmonise the food safety certification requirements of Australian retailers. Australia's major fresh produce retailers (Aldi, Coles, Costco, Metcash/IGA and Woolworths) have had different requirements in relation to quality assurance of fresh produce, however this has changed thanks to the new project.

The Harmonised Australian Retailer Produce Scheme (HARPS) was rolled out in October 2016, and so far, there have been over 180 audits conducted under this initiative with many more audits scheduled over coming months.

The HARPS scheme applies to whole fruit, whole vegetables and nuts-in-shell. It does not apply to processed or value-added lines. Direct suppliers are required to be certified to one of four globally recognised base schemes (BRC, Freshcare, GLOBALG.A.P. or SQF) as well as HARPS by 1 January 2018.

This project has been endorsed by the Australian Competition and Consumer Commission and the Australian Food and Grocery Council. It is managed by the Produce Marketing Association Australia-New Zealand (PMA A-NZ) with the Project Team, led by Tristan Kitchener, actively engaged with a range of stakeholders.

PROJECT BACKGROUND

Mr Kitchener said the unnecessary repetition, inefficiency and costs in meeting multiple quality assurance requirements for retailers, as well as the looming shortage of qualified food safety auditors, were the main reasons behind the establishment of HARPS.

"Trying to harmonise the requirements of the retailers looked like a good opportunity to simplify a complex process that was delivering the same objective, which is safe food," he said.

"We've taken literally hundreds of additional elements developed by retailers over the years and harmonised them to about 90 combined elements.

"Through a process of collaboration, there is now a uniform level of rigour across all retailers and this is a fantastic example of retailers coming together to solve a problem that is common to all parties, both retailers and growers alike."

MEETING GROWER NEEDS

The introduction of HARPS has the capacity to reduce a grower's direct and indirect costs, plus reduce the stressful complexity of auditing.

"Instead of doing two, three or four different audits, businesses are just doing one base scheme plus HARPS. It's simpler. That means audit time and associated costs will reduce for those growers supplying multiple retailers," Mr Kitchener said.

R&D ■ Drive Train

INFO

For more information including the HARPS standard, scheme rules and a comprehensive Q&A, please visit harpsonline.com.au.

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

Project Number: VG15027

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BIOLOGICAL SOLUTION PROVES BENEFICIAL FOR GOURMET SALAD GROWER

A novel liquid biological solution aims to colonise plant roots and ameliorate soil resources to produce stronger plants that mature faster. Kevan Dobra from The Loose Leaf Lettuce Company explains how his crops have benefited from the application of this solution.

Like many growers, Kevan Dobra has had a healthy scepticism for biological products. That was until the Western Australian grower discovered one on a field trip to the United States and upon his return decided to try it out on his family's property. He has since seen land become productive again with strong plants, which has also resulted in application savings and higher crop yields and quality.

In partnership with his parents, Barry and Maureen, Kevan operates The Loose Leaf Lettuce Company, which grows and processes fresh, gourmet salad vegetables.

The Loose Leaf Lettuce Company, located at Gingin, WA is one of the largest growers of lettuce, spinach and rocket in the state, while it also produces Asian green varieties, including kale.

Spinach crops are grown over about 24 days from direct seeding to harvest, while the lettuce is produced over seven to eight weeks. The crops are irrigated twice a day using fixed irrigation and significant overhead irrigation, and they are also fertilised three times a week.

FIELD TRIP FINDINGS

Kevan was on a field trip to the United States viewing lettuce varieties in the Salinas Valley in California when he heard about a biological product during a visit to a Bayer manufacturing facility.

Serenade® Prime contains viable spores of the highly active QST 713 strain of beneficial bacteria *Bacillus subtilis*. After germination, these beneficial bacteria live on plant root surfaces and in the soil zone around the root systems (rhizosphere), where they can develop mutually beneficial relationships with plants under suitable conditions.

When interactions between the bacteria, plants and soil are balanced, both the plants and bacterial populations function at a higher level, allowing nutrients and water to become more available.

In short cycle crops, the product is designed to be used early as an inoculating agent while in perennial crops it is designed to reinvigorate the soil/root/microbe relationship at critical growth times.

TIMING IS KEY

At The Loose Leaf Lettuce Company, dolomite is applied at one tonne per acre in preparation for crops. In spinach, the liquid biological solution is applied using a boom spray just after seedling emergence at seven litres per hectare, followed by a similar application in a further seven days before harvesting a week later. Each application has been followed by five millimetres of irrigation.

Kevan said the second application of Serenade® Prime would be delayed during the cooler months, when the growing period is extended by three weeks. In the lettuce crops, they wait for plant roots to become a decent size before applications in weeks two and four prior to harvesting in weeks seven to eight.

"The crops and the quality are exceptional – and there's no withholding period, so we can harvest immediately," Kevan said.

"In the spinach, the roots are whiter, healthier and they are going deeper – and this will be better for the roots to get calcium, particularly when things are slower in winter.

"Plants are absorbing nutrients quicker and we are not putting calcium through the water, as we would normally do in summer.

"Water here is very good (with a Mount Franklin site nearby) and every week we apply 100-120 litres per hectare of calcium and boron, so we are saving 500 litres per hectare over the whole crop. We are also seeing less burn in lettuce."

INFO

For more information, please visit bayer.com.au. Serenade® is a Registered Trademark of the Bayer Group.

INDUSTRY IN THE MEDIA

AUSVEG reached a cumulative national audience of 1,051,195 in April, with 390 media reports mentioning AUSVEG across print and broadcast outlets.

INDUSTRY ADVOCACY

AUSVEG CEO James Whiteside and AUSVEG National Manager – Public Affairs Jordan Brooke-Barnett appeared extensively in print and on broadcast media in April, calling on Australians to support local growers in the wake of Cyclone Debbie. They discussed assistance measures funded through the National Disaster Relief and Recovery Arrangements, and reiterated that the maximum level of federal and state government support must be provided for growers and communities affected by the cyclone.

In addition, Mr Whiteside appeared in print media discussing the federal government's changes to the 457 visa program. Mr Whiteside noted that overseas workers play a critical role in the horticulture industry and that any changes being made should take this into account. Mr Brooke-Barnett also appeared on radio and in print media discussing the 457 visa changes. He reiterated the importance of the 457 scheme for regional areas, and reaffirmed that AUSVEG is looking to work with the government to work out the plan.

VEGETABLE R&D

AUSVEG National Manager – Communications Shaun Lindhe appeared in print media discussing the release of the *Fruit, Vegetable and Diet Score* report, produced by the CSIRO and commissioned by Horticulture Innovation Australia. Mr Lindhe said the report showed that Australians aren't eating enough fruit and vegetables, noting that increasing consumers' familiarity with a range of vegetables may be a good way of indirectly increasing overall consumption.

Mr Lindhe also appeared on radio discussing the increased use of automation within the vegetable industry. He stated that increased use of technology will enable growers to become more efficient and productive.

R&D Drive Train INFO

Communication of R&D projects in the Australian vegetable industry has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Number: VG15027

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VEGPRO INITIATIVE WELCOMES INDUSTRY FEEDBACK

VegPRO is the vegetable industry's own education and training initiative, and it invests in targeted training services to effectively upskill people at all levels in the industry, from seasonal staff to experienced growers. The program is featuring at Hort Connections 2017, with Program Coordinator Sophie Lapsley in attendance to take any enquiries from vegetable industry members.

VegPRO is pleased to be attending Hort Connections 2017, where it will be seeking expressions of interest for several courses and training materials, as well as collecting interest in other training areas that the industry has already put forward to establish where and when the training takes place.

"You need to let us know your ideas and what you need so that we can provide the industry with what it needs, when it needs it," VegPRO Program Coordinator Sophie Lapsley said.

"We look forward to seeing many of you at Hort Connections 2017, and hearing what training needs you have and how we can meet these needs. For those of you who cannot make this event, we are happy to hear from you at any time."

MANAGING WORKPLACE SAFETY

Ms Lapsley said VegPRO is aiming to have a sneak peak of the Workplace Health and Safety (WHS) online resources available soon.

"The Workplace Health and Safety 'carrot' USB is a step-by-step guide to managing safety in your workplace. Along with this, we have various videos on how to get started and how to carry out various risk assessments. These resources will be available online for use at any time," she said.

The release date for the WHS resources is pencilled in for the end of June and readers are asked to keep an eye out for this information.

TRAINING OPPORTUNITIES

VegPRO is currently calling for expressions of interest in its upcoming 'Negotiations and Influencing' course.

"This course was carried out a few years ago, and due to positive feedback and requests we are hoping to run it again with a start date in June and finishing in August," Ms Lapsley said.

Those who are interested are advised to contact Ms Lapsley (details below). Places are limited and will fill up quickly. VegPRO is also considering training in the following areas:

- Chemical handling in baby leaf and lettuce crops or other crops if required.
- Veg innovations: New product development for the vegetable industry; marketing vegetables.
- Online Veg Induction Card: For use in pre-employment or in the workplace.
- Lean management: The basics.
- Business management for the vegetable industry.

VegPRO looks forward to meeting delegates at Hort Connections, and talking to vegetable levy members about the training ideas that have been submitted.

R&D ■ Drive Train INFO

If anyone is interested in these upcoming training opportunities, please contact VegPRO Program Coordinator Sophie Lapsley on 0426 200 996 or sophie1@rmcg.com.au or visit the VegPRO website at vegpro.com.au. Any training ideas or feedback can be submitted via the VegPRO website under the 'Call for Ideas' tab.

VegPRO has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Number: VG15028



PROVIDING FOOD RELIEF TO COMMUNITIES AFTER A NATURAL DISASTER

Foodbank Australia is often called upon to supply food to affected communities following a natural disaster. It is currently assisting communities in New South Wales and Queensland that have been impacted by Cyclone Debbie, and is working closely with growers and the supply chain to meet the fresh produce demand.

Foodbank Australia plays an important role in the aftermath of a natural disaster.

The organisation is connected with the emergency response plan in each state and territory, where a considerable amount of advanced planning is conducted prior to a disaster occurring. Foodbank's role is to provide vital food supply lines to first responders and charities based at emergency and evacuation centres.

In the wake of a natural disaster such as Cyclone Debbie, Foodbank works with growers and the supply chain to source the food needed by the affected communities.

"Foodbank is there at every step of the journey to get any surplus or donations offered, and that goes right back to the farm gate, pack houses and wholesale and retail markets," Foodbank General Manager – National Food Michael Davidson explained.

"We're connected at every step in the chain. When it comes to natural disasters, we've got our ear to the ground with regard to what's needed in those disaster areas. A balance of key staples and lots of fresh food is what needs to go to those communities in the medium- to long-term."

ONGOING SUPPORT

As Mr Davidson explained, Foodbank's role goes beyond the initial emergency response.

"We're aware the problem doesn't go away once that first response has happened. In a lot of instances, communities are devastated and that means that there are people not only without homes, but businesses are closed and people are without jobs in the short- to medium-term," he said.

"This means there are ongoing challenges that need to be faced so we make sure that we're in the community for the long haul.

"That extra support in terms of food relief can sometimes go for months – if not years – while a community is rebuilding.

"The food industry and the public are extremely generous at times of natural disasters and for that, we're grateful. I just want to emphasise that when the media cameras go home, and the initial crisis is over – that's when the real work actually begins."

INFO

For more information or to donate produce, please visit foodbank.org.au or phone Foodbank Australia's national office on 02 9887 4144.



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GROWERS REAP LONG-TERM REWARDS FROM SOLAR

The price of solar panels is declining due to an improvement in technology and manufacturing processes. Solargain Commercial provides an update on the current status of feed-in tariffs across Australia and explains how solar can continue to benefit agribusinesses.

Lucrative feed-in tariffs were once the ultimate reward for businesses that made the switch to solar power. Yet, in late 2016, several state governments drastically reduced the generous incentives available to customers who feed their unused electricity back into the grid. However, feed-in tariffs are on the rise again.

As technology and manufacturing processes improve, the price of solar panels is dropping. Businesses can install much larger, and therefore more productive, solar power systems than residential customers. For instance, growers can install anything from a 30 kW system to a 300 kW system, or more. They are only limited by the size of their shed or warehouse roof.

Small-scale Technology Certificates (STC) are also still available, as they weren't scrapped during the recent Renewable Energy Target review. In short, more affordable solar panels, more productive systems and valuable STCs mean that, regardless of your state's feed-in tariff rate, the payback time on your solar power installation is now much shorter.

FEED-IN TARIFFS

From 1 July 2017, Victorian business owners with solar photovoltaic (PV) systems under 100 kW will see their feed-in tariff rise from the current minimum rate of five cents to 11.3 cents per kilowatt hour.

South Australia and the Australian Capital Territory currently operate with no minimum feed-in tariff, while the Northern Territory offers a 'dollar for dollar' arrangement for customers exporting their unused energy back to the grid.

There is currently no minimum feed-in tariff rate for businesses in south-east Queensland. However, businesses in regional Queensland receive 7.448 cents for systems up to 30 kW (up from a previous limit of 5 kW). New South Wales business owners can earn between 5.5 and 7.2 cents per kilowatt hour for their excess electricity.

Tasmanian businesses with a 10 kW (single-phase) system or up to a 30 kW (three-phase) system can receive seven cents per kilowatt hour. In Western Australia, different feed-in tariffs apply depending on your location and your power supply company.

As solar power incentives come and go, it can be difficult to estimate how much a growing operation can save by investing in solar. Solargain Commercial can provide an in-depth understanding of exactly what incentives are available to agribusinesses in your state.

It can design a system to ensure growers are taking full advantage of what's on offer, and save money long into the future.

BENEFITS OF SOLAR IN THE VEGETABLE INDUSTRY

1. As energy costs in Australia continue to soar, solar is considered a low-cost energy option.
2. Government incentives are still available and can account for 25-30 per cent of the upfront cost of the system. Under the Federal Government's Small-scale Renewable Energy Scheme, Small-scale Technology Certificates (or STCs) are available as an upfront discount on eligible solar photovoltaic systems. This is available to solar and other eligible forms of renewable energy, such as wind, hydro or biomass, with a system size less than 100 kW.
3. The cost of panels has been reducing throughout 2016 and into 2017.
4. Finance for solar systems is widely available and, in many cases, energy savings can be greater than finance repayments for solar.

INFO

For more information, please contact Solargain's commercial solar specialists, Brad (0458 633 006) or Jusuf (0478 020 851) for a free site assessment or visit solargain.com.au/solar-for-business.

CALENDAR

7-9 AUGUST: FRESHCARE FORUM AND FRESH PRODUCE SAFETY CENTRE CONFERENCE

Where: Sydney, New South Wales

What: For the first time in 2017, the Freshcare Forum and Fresh Produce Safety Centre (FPSC) Conference will be run as consecutive events.

The Freshcare Forum delivers technical and program updates on food safety, quality and environmental assurance, with social and networking opportunities. The theme for the fourth annual conference is *Science + Culture = Safe Food*.

The annual FPSC Conference provides an event for a wider fresh produce food safety audience, reporting on research outcomes, innovation and industry opportunities.

The coordinated timing of the two events provides an appealing technical and networking opportunity for all involved in food safety compliance in the fresh produce industry.

Further information: freshproducesafety-anz.com.

6-8 SEPTEMBER: ASIA FRUIT LOGISTICA

Where: Lantau, Hong Kong

What: Asia Fruit Logistica is Asia's leading trade show for the international fresh fruit and vegetable business, and last year's event attracted more than 11,000 visitors from 74 countries. The Logistica is accompanied by Asiafruit Congress, which takes place the day before the trade show.

Asia Fruit Logistica offers unparalleled opportunities for growers and supply chain members to find out what is happening in the rapidly changing world of fresh produce, make new business contacts and help grow their business.

Products on show include fresh, unprocessed fruit and vegetables, dried fruit, nuts, herbs and spices, organic products, self-service flowers and potted plants, and fresh-cut convenience. Suppliers of products and services for packaging, storage, transport, warehousing and product presentation also exhibit their offerings.

Further information: asiafruitlogistica.com.

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GROWERS' ONGOING TRADE SURPLUS ADDS TO NATIONAL PROSPERITY

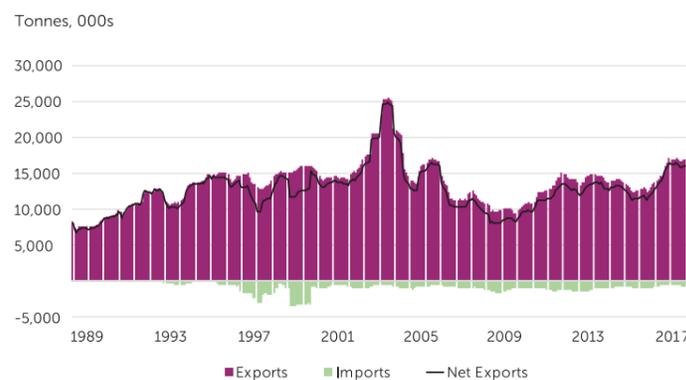
While concern has been raised in recent times about Australia's trade deficit in household groceries, the nation's vegetable industry produces a very healthy trade surplus in fresh produce. AUSVEG Economist Dominic Regan analyses the latest data on Australian vegetable trade.

The trade in goods and services has been vitally important to Australia's economic growth. It allows us to focus on doing the things we do best, our comparative advantages, while purchasing from overseas those goods and services that others can produce more efficiently. This specialisation has elevated Australian living standards to among the highest in the world, and it is why there is broad agreement on the need to continue to pursue a free trade based economic agenda.

TRADE BY THE NUMBERS

Australia's vegetable industry produces a very healthy trade surplus in fresh vegetables, which is the high value end of

CHART 1: TRADE IN FRESH VEGETABLES



Source: ABARES, Vegetable Commodity Trade Data, Jan-2017.

the market, despite concerns about Australia's trade deficit in household groceries. Australia exports over twice the fresh vegetable produce in dollar terms as we import and fresh vegetable imports tend to fill seasonal supply gaps or those caused by extreme weather events rather than compete directly with local produce. In the 12 months to December 2016, Australia exported over \$244 million worth of fresh vegetables and imported around \$95 million worth (see Chart 1).

FRESH OPPORTUNITIES

Free trade agreements (FTAs) with our Asian neighbours have opened up considerable new market opportunities in vegetables and growers have seized the opportunities. However, FTAs can make it easier for foreign exporters and countries to trade goods into Australia.

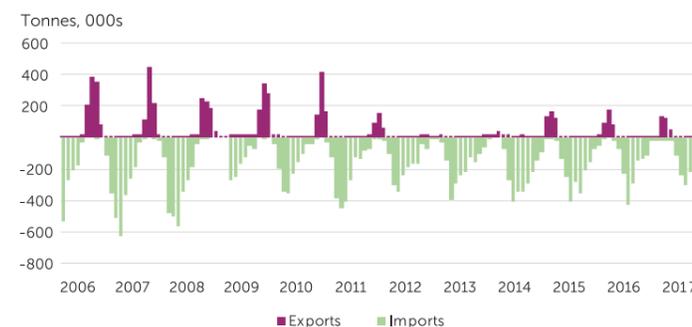
Despite this, an examination of the latest trade data shows that Australia has a surplus of trade in all but three categories of fresh vegetables; capsicum, mushrooms and garlic.

CAPSICUM PRODUCTION

Australia produces over 70,000 tonnes of capsicum for the domestic market annually, and this has been steadily increasing as growers in the cooler southern states move into hi-tech covered operations. While Australia has a trade deficit in capsicum – importing around 1,500 tonnes while exporting over 400 tonnes in the 12 months to January 2017 – this represents a small fraction of total consumption.

As Chart 2 indicates, Australia exports during the winter months and imports during warmer weather, with New Zealand

CHART 2: MONTHLY TRADE IN CAPSICUMS



Source: ABARES, Vegetable Commodity Trade Data, Jan-2017

accounting for around 75 per cent of exports and over 90 per cent of imports. This two-way trade works to the benefit of both countries to even out seasonal fluctuations in supply and keep prices steady to the benefit of consumers.

ONION AND SHALLOT PRODUCTION

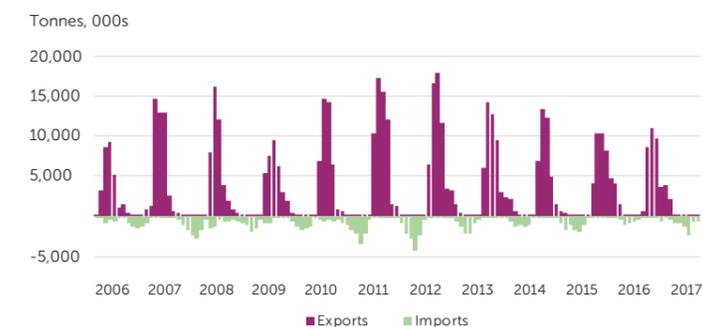
Australia grew over 230,000 tonnes of onions and shallots in 2016 – more than enough to supply the local market, where consumption is around 8kg per person per year. Australia exported nearly 40,000 tonnes between February and June and imported 9,000 tonnes between August and November (see Chart 3).

The limited level of imports goes towards filling supply gaps and complements rather than competes with domestic supply. Australia imported fresh onions from the United States, China, New Zealand and the Netherlands. Our largest export markets for onions are Belgium, Japan, Malaysia and the Netherlands.

A BRIGHT FUTURE

Australian vegetables are among the most highly sought after in the world and, combined with a reputation for growing high quality, clean and safe vegetables, gives our industry an advantage in fresh vegetable trade.

CHART 3: MONTHLY TRADE IN ONIONS AND SHALLOTS



Source: ABARES, Vegetable Commodity Trade Data, Jan-2017

Australia continues to produce enough vegetables to satisfy domestic markets and cater for expanding export markets, which are demanding high quality vegetable products. Imports of fresh vegetables generally represent a small fraction of total supply, and play an important role in filling seasonal or unexpected supply gaps. This in turn keeps prices reliable for consumers and builds product loyalty. As the Australian dollar declined from parity with the US dollar, exporters of fresh vegetables have found new and growing markets in Asia and the Middle East.

R&D Drive Train

INFO

For more information, please contact AUSVEG Economist Dominic Regan on 03 9882 0277 or dominic.regan@ausveg.com.au.

The Economist Sub-Program has been funded by Horticulture Innovation Australia Limited using the research and development National Vegetable Levy and funds from the Australian Government.

Project Number: VG15027

Horticulture Innovation Australia

MINOR USE PERMITS

PERMIT NUMBER	CROP	PESTICIDE GROUP	ACTIVE	PEST/ PLANT DISEASE/ TARGET WEED	DATE ISSUED	EXPIRY DATE	PERMIT HOLDER	STATES
PER14318 VERSION 2	Lettuce grown as winter crop, in clay to clay loam soils	Fungicide	Metalaxyl-M	Damping off (<i>Pythium</i> and <i>Phytophthora</i> spp)	23-Dec-13	30-Sep-22	Horticulture Innovation Australia Limited	All states except Vic
PER14695 VERSION 2	Parsnips	Fungicide	Metalaxyl-M	<i>Pythium</i> spp. and <i>Phytophthora</i> spp.	1-May-14	30-Jun-19	Horticulture Innovation Australia Limited	All states except Vic
PER83203	Celery, field grown lettuce (head and leafy)	Insecticide	Fipronil	Celery: Western flower thrips Lettuce: Onion thrips and western flower thrips	16-Mar-17	31-Mar-22	Horticulture Innovation Australia Limited	All states except Vic
<i>Note: PER83203 replaces PER11686 that expired 31-March-17</i>								
PER13031 VERSION 4	Capsicum and cucumbers (protected crops only)	Insecticide	Maldison	Queensland fruit fly, Mediterranean fruit fly and cucumber fly	06-Oct-11	30-Nov-18	Horticulture Innovation Australia Limited	All states except Vic
<i>Note: Cheminova FYFANON is now registered for field use only</i>								
PER83797	Parsley	Fungicide	Metalaxyl-M	Pythium root rot, Phytophthora root rot	20-Mar-17	31-Mar-22	Horticulture Innovation Australia Limited	All states except Vic
<i>Note: PER83797 replaces PER13121 - Ridimol Gold 25G no longer commercially available and permit updated to include available formulations</i>								
PER13444 VERSION 2	Radish	Fungicide	Propiconazole	Cercospora leaf spot	01-Apr-12	31-May-22	Horticulture Innovation Australia Limited	All states except Vic
PER11935 VERSION 3	Parsnips, radish, swede and turnip	Fungicide	Triadimenol	Powdery mildew	05-Feb-10	30-Jun-22	Horticulture Innovation Australia Limited	All states except Vic
PER14184 VERSION 2	Beetroot, carrots, parsnips and brassica leafy vegetables	Fungicide	Potassium phosphonate	Beetroot, carrots and parsnips: Damping off Brassica leafy vegetables: Damping off, downy mildew	01-Jul-13	30-Jun-22	Horticulture Innovation Australia Limited	All states except Vic
PER82459	Various crops	Herbicide	Clethodim	Various grasses as per product label	19-Apr-17	30-Sep-21	Horticulture Innovation Australia Limited	All states
<i>Note: PER82459 is a consolidation of the following permits that have now been surrendered and replaced by the consolidation: PER13035, PER13257, PER14744, PER11348, PER11848, PER13397, PER14164 and PER14535</i>								
PER81914	Celery (field only), eggplant (field and protected crops), snow and sugar snap peas (field and protected)	Insecticide	Emamectin	Celery: Heliothis (<i>Helicoverpa</i> spp.), Lightbrown apple moth, cluster caterpillar Eggplant: Heliothis Snow and sugar snap peas (field and protected): Heliothis, cluster caterpillar	19-Apr-17	31-Oct-19	Horticulture Innovation Australia Limited	All states

All efforts have been made to provide the most current, complete and accurate information on these permits, however we recommend that you confirm the details of these permits at the following APVMA website: apvma.gov.au/permits/search.php.



TOMATO-POTATO PSYLLID UPDATE: EMERGENCY PERMITS ISSUED

The Department of Agriculture and Food, Western Australia (DAFWA) is leading an emergency biosecurity response to combat tomato-potato psyllid (TPP), which has been found in Western Australia. To date, TPP has been detected on over 60 properties in Western Australia. The majority of detections are in the Perth metropolitan area, and there are a small number of detections in the regional areas of Gingin, Busselton, Yarloop, Margaret River, Manjimup and Balingup. For more information on the TPP incursion, please visit the DAFWA website at agric.wa.gov.au. Minor use permits have been issued in a bid to combat the spread of TPP. The permits are as follows:

PERMIT NUMBER	CROP	PESTICIDE GROUP	ACTIVE	PEST/ PLANT DISEASE/ TARGET WEED	DATE ISSUED	EXPIRY DATE	PERMIT HOLDER	STATES
PER84229	Various crops	N/A	Abamectin, bifenthrin, methomyl	Tomato-potato psyllid	07-Apr-17	28-Feb-20	NSW Department of Primary Industries	All states
PER84245	Potato, sweetpotato, tomato, capsicum, chilli pepper and eggplant (field and protected cropping systems)	Insecticide	Spirotetramat	Tomato-potato psyllid	07-Apr-17	28-Feb-20	NSW Department of Primary Industries	All states

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AROUND THE STATES



Wayne Johnston
Tasmanian Farmers and
Graziers Association
President
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Phone: 03 6332 1800

Our state is constantly being challenged by the wide range of animals and plant species that wish to invade our island.

While we all enjoy the benefits of improved transportation in and out of Tasmania, this progress has also increased the threat of incursions. As we look to the future and recognise how climate change is impacting our environment – changing our macro and micro climates – we also have come to understand that these changes will further increase the likelihood of previously unseen exotic species making their way into our natural environment.

A prime example of the need for continual vigilance is the tomato-potato psyllid, which has been detected in Western Australia. While this pest hasn't reached Tasmania's shores, the damage that it could do to the returns on our annual potato harvest is incalculable.

These challenges continue to place undue pressure on those dedicated officers who protect biosecurity in Tasmania. As we move into an election mode, the TFGA will be

seeking significant increases in resourcing to this critical element of protection for our state.

We can no longer afford to remain complacent about these threats to Tasmania, and the corresponding threat to the agricultural sector and the broader economy.

One of the many roles of government is to ensure the protection of both the population and industry. Too often, people assume that biosecurity only relates to agriculture; however it also incorporates things that affect the wellbeing and health of the broader community.

As we go to print, our thoughts are with our fellow farmers in north Queensland following Cyclone Debbie, and in Rockhampton and northern NSW as they deal with the aftermath of severe floods in their regions. As we all know, flooding has far-reaching effects on all areas of the primary production sector. We hope the communities get the support that they need to get back on their feet as quickly as possible.



Brett Guthrey
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Biosecurity remains a key issue for NSW Farmers. We await the release of the regulations to support the new Biosecurity Act, which introduces the concept of 'General Biosecurity Duty' for all of us. Research and development into biosecurity threats is another area of focus for us. We welcomed the release of the Horticulture Innovation Australia-led plan to deliver ongoing plant biosecurity research, development and education for Australian primary producers.

NSW Farmers supports a plant biosecurity RD&E model that will maintain and strengthen Australia's competitive advantage for agricultural produce, deliver enhanced biosecurity outcomes for plant industries and be a collaborative effort from the Commonwealth, states, industry and other partners, including funding of the model.

Plant Health Australia (PHA) has presented to the NSW Farmers Horticulture Committee and outlined the need for greater coordination of plant biosecurity research, noting the proposals for plant biosecurity and the different approaches planned to coordinate expenditure for projects. The proposal from the Research and Development Corporations (RDC), which involves PHA, focused on a model where

the seven plant-based RDCs would better coordinate their biosecurity research activities.

While the RDC model looks to streamline project coordination, it was noted that the model is still being refined. NSW Farmers will continue to monitor the process for both proposed models in achieving effective plant biosecurity research and development.

Finally, NSW Farmers has worked closely with state emergency management teams to respond to the catastrophic floods which have impacted the northern rivers region of our state. At the time of writing, damage assessments were still being undertaken but early concerns related to the ability to dry crops ahead of harvest. NSW Farmers, alongside AUSVEG and Growcom, has called for the maximum assistance to be provided to growers affected by Cyclone Debbie – this storm has been the cause of enormous damage through much of north-eastern Australia and the assistance provided must assess the damage and not be restricted to lines on a map.

Our farmers appreciate the efforts of emergency management staff who have been part of the flood recovery process. Thank you for your hard work.



Pat Hannan
Growcom CEO
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Fax: 07 3620 3880

There has been some confusion around the cause of the recent significant price increase of tomatoes, with a number of commentators pointing the finger at Cyclone Debbie and associated weather events.

Growcom can categorically rule out Cyclone Debbie as a factor in the price rises during April. Data obtained from the Brisbane Produce Market through the AUSMARKET Market Information Services clearly shows that there was actually an increase in the supply of tomatoes after the cyclone and it is significantly higher than the same time last year.

It is important to note that while overall supply in April was not affected, wholesale prices more than doubled compared with what they were at this time last year. Tomatoes actually increased from an average price of \$34.60 per 10kg before the cyclone to an average price of \$62.50 per 10kg after the event, despite an additional 60 tonnes coming through the markets.

The Bowen region would normally only supply a very small number of tomatoes at this

time of year, with its crop usually only hitting the market floor around the end of May. It is illogical to be attributing any price rises to the cyclone and associated weather events.

Growcom and farmer members are disappointed that the impact of Cyclone Debbie is being blamed for price increases. A whole range of factors influence the wholesale prices of fruit and vegetable commodities, including quality and demand-related factors.

The Bowen growers are concerned that hyping up the impact of the cyclone is potentially scaring away backpackers and other workers from the region and they are keen to stress that while they suffered huge financial losses, they are only three weeks behind their normal planting schedule.

While prices were high for tomatoes in April, there are many times of the year where the price is below the cost of production so it all evens out in the end. The best thing consumers can do is to simply continue to buy Australian produce and support all growers across the country.



Kurt Hermann
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Victoria's leading vegetable and potato growers have been recognised at the AUSVEG VIC Awards for Excellence, with over 140 growers and industry members gathering to celebrate the significant contributions of members of the vegetable and potato industries.

The Awards for Excellence, which were held at Kooyong Lawn Tennis Club on Saturday 8 April, showcased the dedication to high quality produce, innovation and leadership within these vitally important industries in Victoria.

- The winners of the Awards for Excellence were:
- Arnotts Vegetable Farms – Grower of the Year (proudly supported by E.E. Muir and Sons)
 - Phillip Cochrane – Young Grower of the Year
 - Stuart Grigg – Industry Impact
 - Michael Tran – Community Stewardship
 - Andrew Fragapane – R&D Adoption Award (proudly supported by the National Vegetable Extension Network Victoria)
 - Dr Marie-Astrid Ottenhof – Women in Horticulture (proudly supported by Boomaroo)
 - Stuart Grigg – Researcher of the Year.

The winners of the AUSVEG VIC Awards for Excellence are now in the running for the National Awards for Excellence, to be held during Hort Connections 2017 on Wednesday 17 May at the Adelaide Convention Centre.

Victoria's vegetable industry is the largest in Australia, growing over 700,000 tonnes of vegetables worth more than \$1 billion in 2016, and our vegetable and potato growers are renowned around the world for the exceptional quality of their produce.

The awards provided a valuable opportunity to recognise the outstanding achievements of our leading growers, as well as to celebrate the great work that our industry performs in feeding not only Victoria, but the entire nation.

I would like to congratulate all nominees and award winners, all of whom have demonstrated their commitment to the industry and made a valuable contribution to the ongoing success of Victorian vegetable and potato growing.

AROUND THE STATES



Jordan Brooke-Barnett
AUSVEG SA
State Manager
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Adelaide, SA 5000
Phone: 08 8221 5220

AUSVEG SA continues to work with the South Australian Government to ensure that the local industry receives equitable access to proposed new water resources vaunted for the Northern Adelaide Plains. These resources are critical to the future expansion of the local industry, and have the potential to significantly grow horticulture's \$1 billion contribution to the state's economy.

AUSVEG SA has long campaigned on this issue and is hopeful of achieving a positive result for industry. It is important that industries like horticulture are adequately supported with competitive water, land and electricity in our state, as our industry is one of the key drivers of the state's economy.

In other news, AUSVEG SA celebrated leaders in the South Australian vegetable industry at the 2017 AUSVEG SA and William Buck Vegetable Industry Awards for Excellence on Wednesday 12 April. Around 200 growers, industry members and government representatives

The past weeks have been an extremely hard time for solanaceous growers across the Western Australian vegetable industry. Numerous growers have had the tomato-potato psyllid detected on their property and have been subsequently issued with a quarantine Pest Control Notice, which has inflicted terrible difficulties on those families.

The market access restrictions to eastern markets has also had a real impact on prices in the Perth market for those growers not quarantined.

This is before the impact of the new pest upon production is considered. The only good news is that at the time of writing, *Candidatus Liberibacter solanacearum*, which has additional damaging effects on vegetables and particularly potatoes, has not been found.

This comes on top of the cucumber green mottle mosaic virus, which arrived late last year in addition to new green snail issues, the Queensland fruit fly incursion and allium white rot. We should also not forget ongoing concern about stable fly numbers in some part of the state too.

Clearly, biosecurity is one of our biggest threats both now and into the future. We need to have more reason to believe that the federal government is keeping new incursions from overseas and that the state government is keeping things out of interstate. As growers, we also need to do more to ensure that our own on-farm biosecurity is at the highest standard

joined us at the Arkaba Hotel to celebrate exceptional achievers in our industry. AUSVEG SA is proud to have hosted another fantastic celebration and is thankful to all the growers, industry members and politicians who attended in support of our industry.

AUSVEG SA is also excited to welcome Hort Connections 2017, the largest event in Australian horticulture, to the Adelaide Convention Centre from 15-17 May. We want to see a strong contingent of local growers attend the event, which is visiting South Australia for the first time ever.

Hort Connections 2017 expects to attract over 2,000 delegates from the local and international horticulture sector. The event will comprise a 250-exhibitor Trade Show, speaker sessions on a vast array of topics and culminate with a Gala Dinner and National Awards for Excellence. We hope South Australian growers come out in force and make it the best horticulture event ever.

to ensure that threats are reduced at that level too. For our part, vegetablesWA will continue assisting growers with these threats.

In this time of multi-level crisis, I've also had some great discussion with growers about what might come next. Continuing to push for new growing and business efficiencies would seem to be the key.

vegetablesWA is therefore very pleased to have recently started a project that will demonstrate how precision agriculture techniques used in broadacre industries can be adapted to the vegetable industry. Such ideas will be yield mapping, variable rate fertiliser and water application, and spectral mapping using satellites or drones. We are working with the project lead, the Queensland Department of Agriculture and Fisheries, and the University of New England. We have also engaged well-known former DAFWA researchers Rachel Lancaster and Allan McKay to deliver the project on the ground.

Claire McClelland is providing invaluable service to growers in the Market Development Manager role and I encourage growers to contact her for any insights or assistance on 08 9481 0834 or 0400 158 193. Bryn Edwards is doing excellent work on the benchmarking concept as well. There are many reasons to have hope for the future in spite of the many problems we face. I encourage all Western Australian growers to contact vegetablesWA to see where we can help make that difference.



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vegetablesWA
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