

Final Report

VegNET – Victoria (South-East, West and Northern Regions)

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Delivery partner: RMCG

Project code: VG15048

Project:

VegNET – Victoria (South-East, West and Northern Regions) VG15048

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Summary

This project provided research and development (R&D) extension services, products and communication to the Victorian vegetable industry related to:

- Farm productivity
- Resource use
- Business management
- Markets and consumers
- Technology.

It operated in the South-East, West and Northern regions from April 2016 to April 2019 as part of the National Vegetable Extension Network (VegNET).

The objectives of the project were to:

- Deliver regional capacity building services to the vegetable industry in Victoria, excluding East Gippsland (delivered by East Gippsland Food Cluster Inc.)
- Increase knowledge of vegetable R&D and facilitate the adoption of R&D by vegetable businesses in Victoria
- Increase the reach of the vegetable R&D program by engaging stakeholders in the vegetable value chain and developing trusted networks at a regional level
- Provide linkages to national vegetable industry communications, knowledge management and industry development services.

The project was called Growing Vegetable Businesses and aimed to build the profile and connection with productivity and R&D with growers and other industry stakeholders.

A summary of the key achievements of the project over the past three-years include:

- Knowledge transfer and events: 29 workshops, grower group / networking events and webinars delivered, 789 one-on-one farm visits and meetings undertaken, and participation, support or co-delivery for 57 other industry events
- Extension material: 10 fact sheets, 2 technical notes and 13 case studies developed
- Communication material: 30 issues of the project e-newsletter complemented by strong industry enewsletter and media coverage, project website, Twitter account and SMS alert system
- Industry coordination and engagement: 19 trials and linkages to other levy and non-levy funded research projects
- Accomplishment of project outcomes: strong delivery and engagement (1,448 growers and industry stakeholders), improvement in knowledge and skills relating to improved decision-making (68% of participants) and practice change (39% of participants), while delivering on the identified priority issues and needs of the target audience.

The main project outcomes were:

- Increased reach and knowledge of vegetable R&D
- Increased adoption of improved practices and innovation through application of R&D
- Improved profitability and marketable yield amongst participating growers.

Achievement against each of these activities and towards each of these outcomes is discussed in more detail in this report.

The project team consistently participated in the national coordination teleconferences and meetings to improve collaboration between the 10 VegNET regional delivery partners.

The RMCG extension team worked closely with the East Gippsland Food Cluster (EGFC), who delivered the Victoria – Gippsland capacity building project, as well as AUSVEG VIC, Hort Innovation, AHR, the national coordinators, and Coutts J&R, the monitoring and evaluation team.

Keywords

Vegetable, extension, regional, network, industry development, awareness, knowledge, adoption, practice change, Victoria

Introduction

Purpose of project

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The project was called Growing Vegetable Businesses to assist with building the profile and connection with productivity and R&D with growers and other industry stakeholders.

Case for investment

In 2012 Hort Innovation's predecessor, Horticulture Australia Limited (HAL) and the vegetable industry funded a program of investment under the previous Australian vegetable industry Strategic Investment Plan (SIP) 2012 – 2017 (March 2012).

The SIP identified "that development and extension has been a long-held concern to the majority of stakeholders in the vegetable industry". Development and extension capabilities were provided by a Development Drive Train function that underpinned and supported all projects, within all categories:

- Consumer Alignment
- Market & Value Chain Development
- Farm Productivity, Resource Use and Management.

The Development Drive Train addressed capabilities such as knowledge, communications, industry extension, training and business skills. Key performance indicators included:

- Increase end user satisfaction of each R&D project provider
- Increase percentage of levy funded projects that have grower end user participation.

Investment was provided to support regional capacity building services through the National Vegetable Extension Network (what later became known as VegNET), to broker R&D information and facilitate the development of the vegetable industry at the regional level across Victoria (South-East, West and Northern regions) and strengthen linkages to vegetable knowledge management and industry development project/s at a national level.

Linkages to industry strategic plans

The VegNET project contributed towards a number of strategies and plans relevant to the vegetable industry. This primarily included the following strategic priorities in the *Australian vegetable industry Strategic Investment Plan* (*SIP*) 2012 – 2017 (March 2012):

• Strategic Priority 3: Farm Productivity, Resource Use & Management. Improving farm productivity through the adoption of new technologies and techniques, making the most efficient use of resources.

More recently, the *Vegetable Strategic Investment Plan 2017-2021* (December 2017) included the following relevant outcome to the VegNET project:

• Outcome 5: Improved capability of levy payers to adopt improved practices and new innovation through improved communication and extension programs, grower innovation support, professional development and workforce building programs, and through improved farm management and information systems.

The VegNET project developed a regional, service-based approach to extension where growers and industry stakeholders had a 'one-stop-shop' contact in their Field Officer in each of the three delivery regions. The stronger linkage between R&D and the farm gate meant extension was more coordinated, targeted and efficient

Key issues for the Victorian vegetable industry

The key R&D-related issues for Victorian vegetable growers identified through an ongoing needs analysis survey and additional consultation by the RMCG project team were:

Farm productivity

- Knowledge and experience with growing particular crops
- Biosecurity
- Minor use and access to chemicals
- Pest and disease management

Resource use

- Climate suitability
- Water availability and security

Business management

Cost of production

Markets

Knowledge and experience of marketing products

Technology

• Labour saving.

The additional agri-political issues that were not directly addressed by this project included:

- Labour supply, access to appropriate skills and industry relations
- Competition from land growth and urban encroachment
- Right to farm.

These continued to be the responsibility of the state industry association, AUSVEG VIC.

Methodology

Project Plan

A detailed Project Plan was developed at project inception. This document contained the:

- Program Logic and Log Frame (including detailed monitoring, evaluation, reporting and improvement (MERI) framework)
- Risk management plan
- Stakeholder consultation plan
- Communications plan
- Year 1 work plan.

The original Plan is provided in Appendix 1.

Program logic

The overall evaluation of the project was governed through a national evaluation project (VG15050) administered through Coutts J&R. The design of the Victoria (South-East, West and Northern regions) component of the project was supported by its own Monitoring and Evaluation Plan, with a summary presented as follows.

The program logic for VG15048 forms the high-level framework for this Project Plan and governs the subsequent log frame. This included considering the hierarchy and connection between:

- Long-term outcomes: what the project will contribute to after completion
- Immediate (project) outcomes: within the sphere of influence and measurement of the project timeframe, these include:
 - 1. Increased reach and knowledge of vegetable R&D
 - 2. Increased adoption of improved practices and innovation through application of R&D
 - 3. Improved profitability and marketable yield amongst participating growers
- Outputs: a measure of activities achieved
- Influencing Activities: that will be undertaken annually
- Foundational activities: that will underpin and inform the implementation of annual activities

The Monitoring and Evaluation Plan for the project is provided in Appendix 2, linked as a component of the national evaluation project (VG15050). Key components of the monitoring and evaluation plan are included as reference in the program design, including the program logic outlined in Figure 1 below.



Figure 1: Program logic for Growing Vegetable Businesses project 2016-2019

Risk management plan

There were a number of risks that required management for project outcomes to be achieved. The risks identified, range across technical, biophysical, extension, partnerships and internal.

These included:

- Project delivery is not collaborative and/or aligned with other regional capacity building projects in the vegetable industry
- Partnerships not developed with advisors and key influences
- Unable to identify relevant R&D to program objectives to extend to growers
- Negative attitude towards a new industry development project
- Partnerships not developed with existing grower groups
- Producers and advisors not willing and/or able to participate
- Producers are faced with an overload of information
- Loss of key personnel
- Project management risks (budget, time, quality, scope)

The likelihood and consequence of these risks were analysed using a recognised risk matrix. While some risks were rated as Very High when uncontrolled, all risks had a residual treated risk level of below medium. This demonstrated strong project management by the RMCG team.

Stakeholder consultation plan

The key stakeholder groups for this project included:

- Vegetable businesses: including progressive, advancing and stable growers
- Advisors and Agribusiness service providers: including commercial resellers and agronomists, private agrochemical companies, specialist advisors, financial and business management providers
- Industry associations: including AUSVEG and AUSVEG VIC

- Researchers: including consulting firms, Federal Government agencies and universities
- State Government agents: including Agriculture Victoria (DJPR), Department of Environment, Land, Water & Planning (DELWP), and relevant Catchment Management Authorities (CMAs)
- **Supply chain participants:** including input providers (e.g. seed companies, fertiliser suppliers), nurseries, processors, packers, businesses providing vegetable growing contracts, contract service providers (planting, harvesting, labour, cool stores and transport, wholesalers and markets, retailers
- VegNET delivery partners in the other nine regions around Australia, as well as the national coordinators (AHR) and evaluators (Coutts J&R).

These stakeholder groups were considered and analysed further in the Project Plan to determine the most appropriate engagement methods in terms of type, delivery, timing and location. This governed the design of the knowledge transfer and event outputs in particular.

Communication plan

Communication was central to the project activities to deliver regional capacity building services to the vegetable industry in Victoria, excluding East Gippsland, through increased knowledge and adoption of vegetable R&D. It was therefore essential to communicate with people about the topics that interest them, and through platforms where they already seek information.

The communication plan outlined:

- Target audiences and outcomes: included the main stakeholder groups outlined in the engagement plan. A
 desired outcome from communicating with each group was analysed against the International Association of
 Public Participation (IAP2) framework¹
- Mode, tools and purpose: project communication involved a mix of face-to-face delivery across the regional areas, as well as online, and both soft and hard copy resources. The different tools and purpose within each of these modes was analysed at the start of the project
- **Delivery approach:** administered through a regional extension framework, with contact Field Officers located in each of the core focus regions (Northern, Western, and South-Eastern regions). The Field Officers worked with growers, advisors and industry partners across the regions to deliver regionally targeted services to address priorities and support the adoption of industry relevant R&D.

Work plans

Annual work plans were developed to guide the operation and delivery of the VegNET project. Evidence of progress and completion of these plans were included in 6-monthy milestone reporting to Hort Innovation.

The completed final work plans for Year 3, 2 and 1 are provided in Appendix 3.

¹ See: <u>https://www.iap2.org.au/Tenant/C0000004/00000001/files/IAP2_Public_Participation_Spectrum.pdf</u>

Needs analysis

An ongoing needs analysis was undertaken since the commencement of the project in consultation with growers and other industry stakeholders throughout Victoria.

The analysis identified the top five issues as:

- 1. Water management (4.4/5 weighted average)
- 2. Profitability (4.2/5)
- 3. Pest and disease management (4.2/5)
- 4. Cost of production (4.2/5)
- 5. Soil (4.0/5).

These issues were relatively consistent over the three-year delivery period, and as such the project team continued to deliver activities and communication to address these needs. Marketable yield, nutrients and labour savings continued to increase in prominence and were just outside the top five (3.8-3.9/5).

The detailed findings from the needs analysis are presented in Appendix 4.

Outputs

A list of outputs delivered from April 2016 to April 2019 is provided below.

Knowledge transfer and events

A total of 659 growers and industry stakeholders were engaged in 29 VegNET events, with an additional 789 oneon-one farm visits and meetings undertaken over the three-year period (see examples in Figure 2). These numbers exclude the participation, support or co-delivery for other industry events. Further details are provided below.

- Workshops:
 - Growing Vegetable Businesses launch in July 2016 (40 participants)
 - Post-harvest management in September 2016 (12 participants)
 - Gain the business edge workshop in October 2016 (9 participants)
 - o Farm walk and Vegetable Strategic Investment Plan consultation in March 2017 (22 participants)
 - o Tomato Potato Psyllid and Biosecurity Awareness workshop in June 2017 (26 participants)
 - Spray application workshop in August 2017 (28 participants)
 - Farm biosecurity planning workshop in September 2017 (41 participants)
 - o Horticulture Code of Conduct workshop in October 2017 (18 participants)
 - o Broccoli extrusion demonstration in October 2017 (21 participants)
 - o CSIRO Extrusion Demo and Leafminer Workshop in March 2018 (27 participants)
 - Future Farming Field Day in April 2018 (35 participants)
 - Leafminer workshop and market information in May 2018 (11 participants)
 - Vegetable innovation trends: Opportunities for your business (VegInnovations 2018 Regional Roadshow) in August 2018 (15 participants)
 - o Breakdown on compost on-farm discussion in September 2018 (21 participants)
 - Cover crops and soil & tissue testing for vegetables in November 2018 (4 participants)
 - Nutgrass management on-farm discussion in February 2019 (29 participants)
 - Lettuce necrotic yellows virus workshop in February 2019 (25 participants)
 - Spray application workshop in April 2019 (15 participants)
- Grower groups / networking:
 - Port of Melbourne export facility tour in April 2017 (23 participants)
 - o Biosecurity Capacity Building in Regional Communities in May 2018 (36 participants)
 - o Agronomy network facilitation statewide (ongoing)
 - Young grower group in Werribee (ongoing)
 - LOTE Community of Practice in the western region in collaboration with the Western Victorian Growers Association and E.E. Muir & Sons (ongoing)
- Webinars²:
 - o Australasia-Pacific Extension Network (APEN) VegNET webinar in June 2017 (16 participants)
 - *Precision agriculture technology in vegetable production systems* in collaboration with QDAF, TAPG and VegNET Tasmania in August 2017 (42 participants)

² Note: all webinar recordings are available at <u>https://www.ausvegvic.com.au/communication/video-2/</u>

- Are you ready? Biosecurity lessons in planning and response for the Australian vegetable industry in March 2018 (15 participants)
- Spray technology for vegetable growers: a guide to getting it right in May 2018 (25 participants)
- *Future focus: robotics and intelligent systems in Australian vegetable production systems* in August 2018 (24 participants)
- Integrated Pest Management of vegetable pests: a more sustainable approach in October 2018 (35 participants)
- One-on-one farm visits, meetings and needs analysis (Appendix 4) undertaken with 789 growers and industry stakeholders (see Appendix 5 for details)
- Participation, support or co-delivery for 57 other industry events:
 - Creating native vegetation insectariums on your farm in September 2016 (hosted by Port Phillip and Westernport CMA)
 - o Horticulture Industry Network project presentation in October 2016
 - Vegetable Strategic Investment Plan assistance with consultation in October 2016
 - o RIPPA robot field trials in October 2016
 - o AUSVEG VIC Annual General Meeting project update in October 2016
 - o Victorian Agribusiness Council Annual General Meeting in November 2016
 - o Goulburn Valley vegetable growers' information session in December 2016
 - Development and sponsorship of the inaugural R&D Adoption Award as part of the AUSVEG VIC Awards for Excellence in April 2017. The criteria for this award were:
 - A vegetable grower who has demonstrated a commitment to industry funded research and development (R&D) projects
 - A grower who has hosted field trials, demonstration sites or events or contributed to a Project Reference Group for the benefit of the broader vegetable industry
 - A grower who has changed practice or adopted new technology on-farm because of being involved in a levy funded R&D project
 - A grower who is perceived by the industry and their peers as a leader and influencer to improve the productivity, profitability and sustainability of the vegetable industry beyond their individual business.
 - East Gippsland Vegetable Innovation Days & Industry Dinner in May 2017
 - o RIPPA robot field trials in May 2017
 - Hort Connections conference, Adelaide, SA in May 2017
 - Western Vegetable Growers Association meeting in June 2017
 - PMA A-NZ Science and Technology TECH EVENT in July 2017
 - o Riverina Precision Agriculture Field Day in July 2017
 - Gippsland Growers' Forum in July 2017
 - Creating value from vegetable waste workshop (VG15076) in August 2017
 - Spray drift stakeholder workshop in August 2017
 - Victorian Agribusiness Council Summit in August 2017
 - Port of Melbourne Supply Chain Tour in August 2017
 - o Tomato Potato Psyllid Stakeholder collaboration meeting in August 2017
 - VegPRO Managing Vegetable Production Systems Group Coaching in August 2017

- Food Innovation Centre workshop, Gippsland in September 2017
- Agrichemical pest management needs and priorities workshop, Werribee in September 2017
- Agrichemical pest management needs and priorities workshop, Clyde in September 2017
- o Horticulture Industry Network meeting in September 2017
- AUSVEG VIC Annual General Meeting project update in October 2017
- o Tomato Potato Psyllid (TPP) stakeholder working group meeting in October 2017
- o Rutherglen Bug round table R&D development discussion in October 2017
- o Werribee Food Safety Field Day: Pre-harvest water risk mitigation in November 2017
- o CSIRO Eliminate Food Loss Workshop in February 2018
- AUSVEG VIC Executive Committee meeting project update in February 2018
- Development and sponsorship of the R&D Adoption Award as part of the AUSVEG VIC Awards for Excellence in April 2018, for the second consecutive year
- o Hort Connections 2018 in June 2018
- VegPRO Irrigation training, Clyde in August 2018 (6 participants)
- o VegPRO Irrigation training, Wemen in August 2018 (6 participants)
- o VegPRO Chemical handling course, Werribee in September 2018 (12 participants)
- o VegPRO Chemical handling course, Cranbourne in September 2018 (5 participants)
- VegPRO Pest and disease identification workshop, Werribee in October 2018 (9 participants)
- VegPRO Pest and disease identification workshop, Clyde in October 2018 (8 participants)
- o AUSVEG VIC Annual General Meeting in October 2018
- Development and sponsorship of the R&D Adoption Award as part of the AUSVEG VIC Awards for Excellence in May 2019, for the third consecutive year (existing commitment beyond current project contract timeframe)
- Horticulture Industry Network (HIN) meetings (ongoing)
- TPP stakeholder working group meetings (ongoing)
- Indian vegetable growers workshop (ongoing)
- Spray drift stakeholder workshop (ongoing)
- o Western Victorian Growers Association meetings (ongoing)



Figure 2: Examples of knowledge transfer and events – nutgrass management on-farm discussion (top), spray application workshop (middle), and robotics and automation field briefing (bottom)

Extension material

- Fact sheets³: 10 finalised with extensive peer review and approval from industry experts (all provided in Appendix 6):
 - BizCheck: benchmarking for vegetable businesses
 - o Spinach Crown Mite
 - o Irrigation water quality
 - Recycled water classes
 - Assessing the Costs Associated with Vegetable Production
 - Food safety and transitioning to HARPS
 - Protecting IP and R&D tax incentives
 - The 'breakdown' on composts
 - Precision Agriculture current projects and areas of interest, what's in the pipeline
 - o Clubroot management in vegetable production
- Technical notes: 2 finalised:
 - Energy technology and options for the vegetable industry
 - Waste management: sources and options
- Case studies⁴: 13 developed (all provided in Appendix 7):
 - Andrew Fragapane, Fragapane Farms Winner R&D Adoption Award 2017 showcasing inaugural AUSVEG VIC VegNET R&D Adoption Award completed in June 2017 (<u>https://youtu.be/jsde8JYo8A8</u>, 680 views)
 - Lessons from the Field: Chemical free sanitation Schreurs & Sons
 - Lessons from the Field: Emma Germano I Love Farms
 - o Lessons from the Field: David Wallace Wallace Vegetable Farm
 - o Lessons from the Field: Andrew Fragapane Fragapane Farms
 - Lessons from the Field: Sean Croft Arahura Farms
 - Schreurs & Sons Winner R&D Adoption Award 2018 video showcasing AUSVEG VIC VegNET R&D Adoption Award completed in June 2018 (https://youtu.be/cB77GbXpxps, 338 views)
 - o Grouping Growers in Greater Shepparton the power of extension in the Indian community
 - Servicing organic growers in Swan Hill-Robinvale the importance of connection in remote growing regions
 - o Local context to national challenges Lessons in club root sampling
 - Timing is everything targeted responses in biosecurity management
 - Digital action reflecting on the national webinar series
 - Video showcasing AUSVEG VIC VegNET R&D Adoption Award in May 2019 (existing commitment beyond current project contract timeframe)
- Vegetable R&D review 2006-2018 (third edition updated July 2018, in addition to previous two versions): summary of over 300 previous vegetable levy funded projects undertaken by the national coordination project and matching this to the needs analysis for each sub-region in Victoria. This was used to identify existing materials to be distributed to growers and industry stakeholders, as well identify gaps and the development of additional materials.

³ Note: all fact sheets are available at https://www.ausvegvic.com.au/communication/veg_mof/

⁴ Note: all case studies are available at <u>https://www.ausvegvic.com.au/resources/case-studies/</u>

Communication material

- Project promotional postcard developed to distribute at training and events, as well as local agribusinesses and resellers in the relevant sub-regions to improve awareness of the new extension project (prior to October 2016)
- E-newsletter coverage⁵:
 - Monthly Growing Veg Businesses e-newsletter: 30 issues circulated to 634 subscribers with a 40% open rate (above industry average of 20%) and 7% click rate (example provided in Figure 3):
 - Issue 1 November 2016
 - Issue 2 December 2016
 - Issue 3 January 2017
 - Issue 4 February 2017
 - Issue 5 March 2017
 - Issue 6 April 2017
 - Issue 7 May 2017
 - Issue 8 June 2017
 - Issue 9 July 2017
 - Issue 10 August 2017
 - Issue 11 September 2017
 - Issue 12 October 2017
 - Issue 13 November 2017
 - Issue 14 December 2017
 - Issue 15 January 2018
 - Issue 16 February 2018
 - Issue 17 March 2018
 - Issue 18 April 2018
 - Issue 19 May 2018
 - Issue 20 June 2018
 - Issue 21 July 2018
 - Issue 22 August 2018
 - Issue 23 September 2018
 - Issue 24 October 2018
 - Issue 25 November 2018
 - Issue 26 December 2018
 - Issue 27 January 2019
 - Issue 28 February 2019
 - Issue 29 March 2019
 - Issue 30 April 2019

⁵ Note: all past issues are available at <u>https://www.ausvegvic.com.au/e-news/</u>

- o AUSVEG Weekly Update: 93 articles in the national industry newsletter
- AUSVEG The Front Line biosecurity bulletin: 6 articles
- o AUSVEG VIC e-newsletter: 8 articles
- Hort Innovation Growing Innovation e-news (now discontinued): 2 articles
- Bundaberg Fruit and Vegetable Growers e-news: 2 articles
- o vegetablesWA e-news: 10 articles
- Hydroponic Farmers Federation Newsletter *National Vegetable Extension Network what it means for you* in January 2017
- Victorian Agribusiness Council Newsletter National Vegetable Extension Network what it means for you in February 2017
- o Other industry e-newsletters: 20 articles
- Media coverage:
 - Media releases:
 - Growing Vegetable Businesses, not just crops in July 2016 (accompanying project launch)
 - Bridging the divide between research to practice in August 2016
 - Vegetables Australia magazine: 15 articles (example provided in Figure 3):
 - The National Vegetable Extension Network is up and running (September/October 2016)
 - Extension Updates From Around the Nation; Inaugural Annual Meeting (January/February 2017)
 - Potential For Vegetable Production in the Goulburn Murray Irrigation District (January/February 2017)
 - VegNET: Program Updates From Around the Nation; Growing Victorian Veg Businesses (March/April 2017)
 - Around the States; Andrew Fragapane R&D Adoption Award (proudly supported by the National Vegetable Extension Network Victoria) (May/June 2017)
 - Family heritage continues to pay dividends (November/December 2017)
 - Irrigation the Key to a Sustainable Farming Future in the Goulburn Valley (November/December 2017)
 - Extension Updates: Victorian Regions and Far-North Queensland (January/February 2018)
 - A Taste of Veg Industry Training In 2018 (January/February 2018)
 - Victorian Grower Committed to Sustainability (January/February 2018)
 - Around the States mentioning AUSVEG VIC website redevelopment and launch (March/April 2018)
 - Around the States mentioning the VegNET sponsored R&D Adoption Award winner (May/June 2018)
 - Around the States mentioning the new AUSVEG VIC website launch and VegNET Victoria R&D event calendar (July/August 2018)
 - Meet the Vegetable Industry's Extension Officers: South-Eastern Victoria and WA (September/October 2018)
 - Around the States mentioning the various recent VegNET events and AUSVEG VIC attendance and analysis for members (March/April 2019)

- Online newspapers: 4 articles:
 - New program aims to boost vegie farm businesses published in Good Fruit & Veg on 25 July 2016⁶
 - AUSVEG VIC Awards for Excellence winners announced published 11 April 2017
 - Andrew Fragapane wins AUSVEG VIC R&D Adoption Award published 11 April 2017
 - Schreurs & Sons receive Excellence in R&D Adoption award for electrolysed water system published in Fresh Produce Safety Centre Australia & New Zealand on 20 June 2018
- Victorian project website: significant contribution to the redevelopment and content of
 <u>www.ausvegvic.com.au</u> launched in April 2018. AUSVEG VIC, EGFC and RMCG collaborated to redevelop the
 structure and content of the website over a nine-month period (example provided in Figure 3). An overview
 of the analytics since the launch include:
 - Users: 6,200 (91% new visitors, 9% returning visitors)
 - o Sessions: 7,300
 - o Bounce rate: 72%
 - Session duration: 1 minute 19 seconds
 - Most popular pages: home, contact, about-us Executive Committee, and my crop
- Twitter account: <u>@GrowingVegBizs</u> with 486 followers. Examples of key Tweets and analytics are outlined in Figure 4 below
- SMS system: a total of 1,562 text messages sent for event reminders and alerts such as biosecurity, split at a regional level. The key monthly usage includes (initiated November 2016):
 - April 2017 209 text messages sent
 - August 2017 95 text messages sent
 - September 2017 91 text messages sent
 - October 2017 229 text messages sent
 - November 2017 20 text messages sent
 - March 2018 180 text messages sent
 - April 2018 143 text messages sent
 - September 2018 97 text messages sent
 - October 2018 246 text messages sent
 - February 2019 252 text messages sent

⁶ See: <u>http://www.goodfruitandvegetables.com.au/story/4044512/new-program-aims-to-boost-vegie-farm-businesses/</u>





In this edition

NEWS

- Strong growth in vegetable export markets
- Increased funding for biosecurity research
- Boost Your Business Round 3
 Calls for food protection zone for
- Melbourne's food bowl • Government seeks submissions on
- agricultural land planning

 Fair Work Commission decision on
- overtime rates for casuals

RESOURCES

- Precision agriculture in vegetable production
- · El Niño ALERT

EVENTS

- Churchill applications closing soon
 Workforce planning for the agrifood sector
- AUSVEG VIC Awards for Excellence
- Hort Connections 2019
- Costa PCA conference 2019



EVENTS \checkmark RESOURCES \checkmark CONTACT \checkmark

MEET THE VEGETABLE INDUSTRY'S EXTENSION OFFICERS: SOUTH-EASTERN VICTORIA AND WA

This is the first in a series of profiles of Vegetable Industry Development Officers, who have the job of effectively extending RBD and relevant information to growers through 10 regionally-based extension projects that are part of the National Wegetable Extension Network (VegNET) vegNET is a strategic terwestment under the Hort Innovation Vegetable Fund

MEET CARL LARSEN, FIELD OFFICER - SOUTH-EASTERN VICTORIA

Science communication and sustainable agriculture are my two passions. Coming from a rural background in western Victoria, Ive always been involved in agriculture in some way. This shallowed me to work in research positions and more recently consultancy to understand the practical implications of policy and science on communities and apriculture.

communities and agriculture My inocknement in the horticulture sector has spanned vegstables, apples and pears, stone trut, strawbertes, critus and werg rapes, working on a widk variety of research, development and extension topics over almost 10 years. This has predominately elasted to far mproductivity, resource management, strategiplanning, evaluation and business case development for government apencies, industry groups, Research and Development Consortions and individual tammers.

Working with people to solve problems and putting research into practica are solved in the yikinghists of the current WegNET project that BMC Censuling Guoup (BMCCa) is delivering. Ive really encycle volving with growers and other industry representatives on the sheer breadth of Issues this dynamic industry of persentatives and the sheer breadth of Issues this dynamic industry representatives on the sheer breadth of Issues this dynamic industry and persentatives on the sheer breadth of Issues with dynamic industry representatives for innovate technologies with the growers we work with: such as pericional apticular and for internet of things, the well as adapting some practices item often industries and the past for example cover cooping and organic amendments.

The main opportunities VepNET provides growers and the Victorian industry is connection to the latest research information, advice and practical know-how. We're doing this by: Meeting the needs of the growers in each region, there are always differences in what growers need, when and how, and we're tailoing our approach in he north, west and south-east to auf these differences.

groups, webines, one-on-one fam visits. Keeping you informed through fact sheets, technical notes, case studies and communication such as e-newakters, the AUSVEC VIC website, social media, local newspapers and 5MS alerts. One of the great achievements of our VegNET projects in ot origin connecting levy payers to research that has been completed, but research that is currently underways. The process of thining growers

ENERGY CALCULATOR

Q

CASE STUDIES

AUSVEG VIC



NEWS AND UPDATES ~

Figure 3: Examples of communication material – e-newsletter (top left), Vegetables Australia magazine article (top right), and case studies on the redeveloped AUSVEG VIC website

Mar 2019 - 31 days

TWEET HIGHLIGHTS

Top Tweet earned 472 impressions.

READ: @GrowingVegBizs - March 2019 e-newsletter. In this edition celebrating #IWD2019, @VegetablePRO induction course, @Fertcare_au Salad Fertiliser Standard, #agrifood #workforce planning & much more... bit.ly/2VZfXIg @VegNET_au @Hort_Au @AUSVEG @Hort_VFF @gippy_growers pic.twitter.com/17b8KpnpyN



1.00

View Tweet activity

View all Tweet activity

Top Follower followed by 1,492 people



Fruchtnews

@Fruchtnews FOLLOWS YOU Informationen aus der Fruchtwirtschaft

View profile

View followers dashboard

Top mention earned 30 engagements



#Cauliflower stacking 1959 #weribee Victoria.

"Arts" of horticulture.

Good to look back & see where weve innovated & kept growing.

@Hort_Au @hortleaders @Hort_VFF @GermanoEmma @CAULIPOWERED @VegetablePRO @GrowingVegBizs @Donna_M_Lucas @GoodFruitandVeg @AUSVEG @SoilWealth pic.twitter.com/ikuZtzIDJG



240 40

View Tweet

Top media Tweet earned 162 impressions

READ: @GrowingVegBizs - February 2019 e-newsletter. In this edition #nutgrass & #lettuce necrotic yellows virus management events, @AgriFuturesAU scholarships open, getting soil #pH right & much more ... bit.ly/2SPYkMQ @VegNET_au @Hort_Au @AUSVEG @Hort_VFF @gippy_growers pic.twitter.com/I77MfqJjbM



Figure 4: Example Twitter analytics used to engage the Victorian vegetable industry (March 2019)

Industry coordination and engagement

The project grew to be a central point of contact and referral for the vegetable industry in the relevant Victorian regions.

The strong industry coordination and engagement is evidenced by the trials and linkages to 19 other levy and nonlevy funded research projects. These have included:

- Lake Wellington Land and Water Management Plan horticulture best management practices (BMPs) in conjunction with Agriculture Victoria (DEDJTR) and West Gippsland Catchment Management Authority
- QDAF adoption of precision agriculture project (VG16009)
- CSIRO creating value from vegetable waste and broccoli loss survey (VG15076)
- Sampling and R&D concept design for spinach mite and lettuce aphid biotypes in conjunction with Stuart Grigg Ag-Hort Consulting and cesar
- UNE strategic weed management project (VG15070)
- University of Melbourne; Towards sustainable agriculture: leafy greens cultivation in Hume region
- Beneficial insect release R&D concept design in conjunction with GroLink nursery, AUSVEG, E.E. Muir & Sons and cesar
- VegNET Gippsland, New South Wales, South Australia and Tasmania projects in relation to events and resource development
- Area-wide management of insect-vectored viral and bacterial diseases (VG16086) assistance with site visits, communication of outputs and workshop delivery
- Adoption of precision systems technology in vegetable production (VG16009) demonstration site in Werribee established in April 2018
- Agrichemical Pest Management Needs and Priorities (VG16060) national pest survey
- Vegetable business benchmarking Victoria (VG17000)
- SARDI brassica sampling for Club Root and carrot sampling for Pythium (VG15009)
- Soil Wealth and Integrated Crop Protection (VG16078)
- Soil borne disease management project (VG15010)
- Optimising cover cropping project (VG16068)
- VegPRO contribution to workshop delivery, training needs analysis, group coaching pilot, calendar and training centres (VG15028)
- Masterclass in Horticultural Business new intake promotion
- AUSVEG VIC energy efficiency capabilities program.

Outcomes

The project team continuously monitored and evaluated activities to ensure progress towards the desired outcomes in accordance with the program logic contained in the Monitoring and Evaluation Plan (outlined in Appendix 2). Being adaptive with annual planning cycles also allowed the project to continue to meet the needs of growers and the Victorian industry.

The immediate (project) outcomes within the sphere of influence and measurement of the project timeframe and geographic region (Victoria – South-East, West and Northern regions), were:

- 1. Increased reach and knowledge of vegetable R&D
- 2. Increased adoption of improved practices and innovation through application of R&D
- 3. Improved profitability and marketable yield amongst participating growers.

Evidence of achieving each of these project outcomes is provided below.

1. Reach and knowledge

Increased reach and knowledge of vegetable R&D was a primary focus of the project with concrete evidence that this has been achieved. In particular, there have been positive evaluation results from knowledge transfer and events, including:

- There has been strong delivery and engagement over the three-year project period:
 - 1,448 growers and industry stakeholders engaged in the project
 - o Approximately 50-60% of the vegetable growing area covered across all three regions
 - o Approximately 90% improved awareness of participants from involvement
- Knowledge and skills of the target audience has improved as a result of being involved with the project:
 - Change in knowledge and confidence from 2.8/5 prior to the event to 3.8/5 following the event on average (1 = not very much, 5 = a lot) (25% improvement)
 - o 68% of participants have an improved ability to make more informed decisions following the event
 - o Practice change: 39% of participants will change farm practices or advice following the events
- The events are highly appropriate and meeting the needs of the target audience:
 - Topic & content: 4.3/5 on average (1 = very poor, 5 = very relevant)
 - Delivery: 4.4/5 on average
 - Relevance to business: 4.3/5 on average
 - Venue location: 4.3/5 on average
 - Catering: 4.3/5 on average
 - Timing (date and time of day): 4.1/5 on average
 - Role of Field Officer (RMCG): 4.4/5 on average
- The project delivered on the identified priority issues and needs of the target audience:
 - Farm productivity: 15 topics, or 35%, in direct project events
 - Resource use: 6 or 14%
 - o Business management: 6 or 14%
 - Markets and consumers: 5 or 12%
 - Technology: 11 or 26%.

An evaluation scorecard that summarises the achievements against the program logic is provided in Appendix 8.

In addition to collecting monitoring data from each of the knowledge transfer and events, an end of project survey

was undertaken from October to December 2018. This included a representative sample of growers and industry stakeholders across the three delivery regions, covering almost 1,000 ha of vegetable production area (Figure 5).



Figure 5: Respondents to the VegNET Victoria (South-East, West and Northern) end of project survey (n=27)

The analysis of activities suggested that VegNET participants attended grower group / networking opportunities, other industry events, workshops and one-on-one farms visits and meetings the most. Respondents derived the most value from the one-on-one farm visits, followed by the communication to industry (e.g. monthly e-newsletter *Growing Veg Businesses*, Twitter @GrowingVegBizs, AUSVEG Weekly Update articles), resources on best practice (e.g. fact sheets, technical notes, case studies), and grower groups / networking (e.g. biosecurity capacity building, Port of Melbourne export tour, agronomy network) (Figure 6).



Figure 6: Attendance and usefulness of VegNET (South-East, West and Northern) activities (n=27)

2. Adoption

Increased adoption of improved practices and innovation has been a major outcome of the project with strong support that this outcome has been met. The VegNET project has directly changed grower, advisor and stakeholder work practices (or advice) and adoption of new technologies over the past three years, which is predicted to have a lasting impact beyond the project.

A total of 59% of respondents said they had made changes as a result of the project activities (Figure 7), with 70% planning to make further changes in work practices (or advice) following the completion of the project (Figure 8).

Respondents identified continued information provision (20%), on specific crops (10%), specific to growers (10%) and drawing on industry best practice (10%) as important further information and assistance from VegNET in making changes to their business.



Figure 7: Practice change and adoption of new technology over 3 years as a result of VegNET (South-East, West and Northern) activities (n=27)



Figure 8: Further practice or advice change following the VegNET project (n=27)

The project is highly valued by participants as keeping them informed about the latest development in vegetable R&D. Almost half (48%) of respondents rated VegNET as very important to keeping them informed, with a further 37% stating the project was important for linkages and information on relevant R&D (Figure 9).



Figure 9: Importance of VegNET keeping stakeholders informed about vegetable R&D (n=27)

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The Victorian vegetable industry overwhelmingly sees value in the continuation of VegNET beyond 2019, with 100% of survey respondents agreeing (Figure 10). Improvements and elements of VegNET that stakeholders wanted to see in the future included:

- Continuing to be the conduit between researchers and growers
- Providing a coordinated channel for communication and R&D at an industry level
- Focussing on progress in fast-paced areas, such as technology and precision agriculture
- Facilitating better planning and servicing of growers and the industry to encourage best practice (e.g. export options, value adding).

There were numerous comments requesting to keep the current service offered by the project, and that it had met a number of important needs and gaps since its inception in 2016.

"Just as important as the learning opportunities, the VegNET project has also provided a lot of very valuable networking opportunities." – Grower survey respondent

"The VegNET project has been invaluable for researchers such as us in making contacts with key vegetable growers, building productive relationships with growers, conducting research on their farms, and promoting research activities and findings. The IDOs in each region have provided invaluable support. This would result in a significant cost-saving and greater reach for all industry research activities." – Researcher survey respondent



Figure 10: Value of VegNET continuing beyond 2019 (n=27)

A series of case studies have also been developed to demonstrate the impact of the VegNET project, and some of the more qualitative outcomes at an industry level. These are often where valuable gains are made, but are less tangible to measure. The five impact case studies are provided in Appendix 7 and include:

- Grouping Growers in Greater Shepparton the power of extension in the Indian community
- Servicing organic growers in Swan Hill-Robinvale the importance of connection in remote growing regions
- Local context to national challenges Lessons in club root sampling
- Timing is everything targeted responses in biosecurity management
- Digital action reflecting on the national webinar series.

3. Profitability and marketable yield

Based on achieving project outcomes 1 and 2, it would be reasonable to assume that significant progress has been made in achieving outcome 3 – improved profitability and marketable yield amongst participating growers. However, this is difficult to determine and measure for the following reasons:

- Insufficient financial data from participants: due to limited availability and privacy concerns about sharing sensitive information
- Insufficient yield data from participants: due to limited availability and difficulty in determining due to diversity of crops grown and large number of rotations annually. It is therefore impossible to make comparisons between businesses
- Complexities of attribution to the VegNET project where available macro-level data exists (e.g. ABS Agricultural Census, ABARES). These sources indicate a continuing decline in the total number of vegetable growing farms, with an increase in area (ha) and production (i.e. the big are continuing to get bigger).

Due to these difficulties, the impact case studies in Appendix 7 provide evidence of contribution to improved marketable yield and profitability. These are individual or group participant experiences in the project over the three-year period.

Monitoring and evaluation

Project log frame

The achievement of the project details and targets included in the log frame contained in the original Monitoring and Evaluation Plan (September 2016) is provided in Table 1 below. This plan was developed in conjunction with Coutts J&R and approved by Hort Innovation, however did not contain Key Evaluation Questions (KEQs) referenced in the Final Report Guide.

The analysis of achievement against the immediate (project) outcomes shows the strongest advances in knowledge and capacity gains, followed by practice change. This is significant as they are the two primary outcomes of the VegNET project both in Victoria, and nationally. The most difficult outcome to measure was indicative impact related to profitability and/or marketable yield to achieve growers' business goals. This is due to insufficient financial and yield data to determine impact and complexities of attribution to VegNET project.

Table 1: Achievement against project log frame

| Evaluation level | Project details | Achievement |
|-----------------------|---|--|
| Broader goals | Increased size, efficiency, sustainability and profitability in the vegetable industry | [Not the responsibility of this |
| | Australian community recognises and is supportive of the contribution of the vegetable industry | project] |
| Long-term outcomes | Increasing industry knowledge of R&D investments and providing a supporting environment to regional capacity building projects which aim to increase knowledge, engagement and adoption of the vegetable R&D program (Vegetable Industry Strategic Investment Plan 2012 – 2017 objective) [To be updated post 2017] | [Not the responsibility of this project] |
| Immediate | Knowledge and capacity gains | Completed |
| (project) outcomes | Increased reach and knowledge of vegetable R&D | |
| | • Target: Most vegetable growers (>75% by number and/or >50% by area) in the region are aware of Growing Vegetable Businesses program, events and/or materials by March 2019 | |
| | • Target: Majority of Growing Vegetable Businesses participants (>75%) have increased knowledge of the vegetable R&D program by March 2019 | |
| | Practice change | Significant progress |
| | Increased adoption of improved practices and innovation through application of R&D | 39% of participants |
| | • Target: Majority of Growing Vegetable Businesses participants (>75%) are applying knowledge and implementing practice change, or intending to change, within 6 months of involvement | practices or advice, with an additional 23% unsure. End of project survey also identified 59% of participants had changed practice or advice, with 70% planning further change beyond the project period |

| Evaluation level | Project details | Achievement |
|---------------------------|--|---|
| | Indicative Impact Improved profitability and marketable yield amongst participating growers Target: More than half of Growing Vegetable Businesses participants (>50%) who apply knowledge or change practice improve their profitability and/or marketable yield to achieve their business goals by March 2019 | Progress made Insufficient financial and yield data to determine impact and complexities of attribution to VegNET project. Impact case studies in Appendix 7 provide evidence of contribution to improved marketable yield and profitability |
| Outputs | Extension and communication materials | Completed |
| | Develop grower friendly R&D information and project results, including: 4 fact sheets or technical notes per year based on vegetable R&D reports for specific regions and/or crop types 2 case studies (video or soft copy) per year on grower experiences, costs and benefits of changing practice and adopting R&D Develop strategic events calendar in conjunction with other regional capacity building teams (e.g. Tasmania) and industry stakeholders | Final number of fact sheets, technical notes and case studies varied based on industry feedback and needs throughout project |
| | Project reports | Completed |
| | Develop annual work plans | |
| | Develop Monitoring and Evaluation Plan | |
| | Update Hort Innovation via 6 monthly milestone status reports | |
| | Develop mid-term project review report | |
| | Develop final report | |
| Influencing activities | Extension | Completed |
| | Deliver a minimum of 4 workshops or field days per year in each of the South-East, West and Northern regions Facilitate 4 quarterly grower meetings in each of the South-East, West and Northern regions that allow | Final number of workshops, grower groups / networking, webinars, one-on-one |
| | members to achieve their own goals and learning needs by being issue and/or crop type specific. Undertake farm walks of demonstration site as determined by the group | farm visits, and other industry events varied based on industry feedback and needs |
| | Undertake 2 webinars each year based on workshop, field day or grower group content that could be of use to a broader industry audience | throughout project |
| | Undertake targeted one-on-one farm visits with vegetable growers to assist with R&D take-up | |
| | Assist and participate in other vegetable industry events (e.g. National Horticulture Convention, Trade Show, others as required) | |

| Evaluation level | Project details | Achievement |
|------------------|--|--|
| | Communication | Completed |
| | Distribute quarterly Growing Vegetable Businesses e- newsletter | All communication outputs exceeded |
| | Contribute content to monthly AUSVEG VIC e-newsletter | |
| | Distribute grower and advisor video and/or soft copy case studies | |
| | Contribute content to the AUSVEG VIC website | |
| | Curate social media platforms such as Facebook and Twitter for industry updates as required | |
| | Contribute to articles in local newspapers as required | |
| | Distribute SMS alerts for events or issues arising as required | |
| | Industry coordination and engagement | Completed |
| | Undertake 6-monthly update meetings with RMCG and AUSVEG VIC representatives as required | Although stronger relationships with |
| | Participate in relevant industry and regional coordination and networking meetings | stakeholders is difficult to measure. Refer to impact case |
| | • Target: Majority of Growing Vegetable Businesses participants (>75%) engaged have stronger relationships with stakeholders both up and down the value chain | studies in Appendix 7 for further details. |
| Foundational | Program design and development | Completed |
| activities | Undertake needs analysis and analysis of industry information to be regionally focussed | |
| | Review program design annually to ensure activities and materials developed are fit-for-purpose | |
| | Provide feedback to Hort Innovation on R&D gaps and needs | |
| | Program management and governance | Completed |
| | Maintain contact database and project log of activities and events | |
| | Collaborate with National Coordination (AHR) and Evaluation (Coutts J&R) projects | |
| | Coordinate three Field Officers in the South-East, West and Northern regions | |
| | Link with Project Reference Group and AUSVEG VIC Executive Committee | |

Lessons learnt

There are a number of lessons for the delivery of regional extension services to the vegetable industry as a result of the VegNET project both in Victoria and nationally, which include:

- The reputation and awareness of VegNET is ever-growing: while the VegNET concept took a large amount of effort and time to establish early in the project, it has now grown to become a central point of information provision, industry coordination and connection. Through established networks the RMCG team has been able to build the VegNET brand as a trusted, reliable and well-informed source of R&D findings and information for all growers, advisors and industry stakeholders
- Having a 'go-to' contact is important for grower connection: the RMCG project team had three Field Officer servicing each of the three regions around the state. This meant there was a local contact for growers for inquiries relating to all industry development matters, as well as equitable and holistic geographic coverage of the target audience growers. As a result, queries could be dealt with in a coordinated manner, and non-R&D related issues or regulatory matters could be referred to the appropriate organisation as required. All Field Officers were independent, and performance managed in accordance with the Hort Innovation contract, as well as meeting every fortnight to share updates, news and explore issues common to all regions
- **Timing is critical to respond to industry needs:** by undertaking a rolling needs analysis the project team were able to monitor and address the needs of growers in real-time throughout the project term. In addition, strong networks and trusted relationships with industry leaders meant that new or emerging R&D issues were responded to in a timely manner critical to the success of targeted extension (e.g. biosecurity issues surrounding tomato potato psyllid and lettuce necrotic yellows virus)
- Extension and industry development continue to be complex: with growers facing so many changes and emerging issues, it is important that extension efforts keep pace with the needs of the industry. This can be challenging to balance short-term acute issues versus longer-term more strategic matters of importance. The breadth and depth of R&D that the vegetable industry invests in requires future delivery partners to recognise this challenge and ensure information and services evolve over time and are delivered in a fit-for-purpose way (e.g. decline in importance of fact sheets and increase in popularity of video content, cohorts of regionally-based growers forming groups as a next step facilitated by VegNET e.g. Swan Hill, Werribee, Devon Meadows/Clyde). The VegNET project was responsive to these changing needs over the three-year period
- Tailored extension approach for different industry segments: it is important that a needs analysis and segmenting of the industry segments is undertaken early in the project. This includes grower size, location as well as their current preferred sources of information. Stakeholder analysis assists in determining the key issues, where people source their information from, as well as preference in activity type (e.g. workshop setting versus 1:1 farm visit) and communication channels. The VegNET project was then able to tailor the delivery of extension to the target audience in each region, which differed considerably (e.g. South-East region had a greater demand for shared learning via workshops and training, with the Northern region preferring individual farm visits and e-news)
- **Partnerships are critical for collaboration and industry cohesion:** significant progress has been made in the collaborative working relationship between RMCG, EGFC and AUSVEG VIC. This included developing a Statement of Intent that outlined the roles and responsibilities for each organisation and how they worked effectively over the three-year duration of the project (provided in Appendix 9). Future improvements could explore more formal partnerships with deliverers (e.g. event hosting, sponsorship, co-delivery, catering)
- Interaction between the regional delivery partners and the national coordinators is integral: meaningful
 engagement between each of the 10 regional delivery partners and the national coordinators from the start
 of the project is crucial for sharing ideas, planning together, and having a united vision for extension in the
 vegetable industry nationally. While this was effective and matured significantly in the latter stages of the
 project, it could have been more purposeful and strategic early on.

Recommendations

The recommendations below are based on the lessons learnt from the first phase of VegNET, feedback from industry and other key stakeholders, and an understanding of R&D needs of the Victorian vegetable industry.

- 1. Continue the VegNET projects nationally into a second phase spanning five-years instead of three. This is the subject of a current Request for Proposal (RFP) with RMCG being part of a consortium that submitted a proposal on 14 February 2019. The seamless provision of services to industry in the short-term is critical
- 2. Build on the lessons learnt from the three Victorian regions for the delivery of VegNET Phase 2. This includes:
 - 'Do the basics well' and provide the opportunity for knowledge exchange and events, extension material, complemented by multiple forms of industry communication channels (e.g. utilising existing industry communication platforms like e-newsletters, responding to biosecurity incursions)
 - Communicate early project successes to build the awareness and reputation of the VegNET project from contracting and ensure that the state and regional industry associations are on board with the direction of the project
 - Continue to adapt the extension model to meet the ever-changing needs and emerging issues of the vegetable industry (e.g. non-production issues such as marketing may increase in focus in the shortterm, increased breadth of issue coverage over the medium to long-term as business management evolves)
 - Explore more formal partnerships with deliverers to further promote collaboration and industry cohesion (e.g. event hosting, sponsorship, co-delivery, catering)
- 3. Improve the process and responsiveness of collecting information from growers and industry stakeholders and feeding this back to Hort Innovation. Relying solely on the online innovation portal to generate RFPs is cumbersome, time delayed and misses opportunities for non-project related benefits to industry (e.g. strengthened relationships, collaboration, responding to timely issues e.g. biosecurity). A process that involves discussion with industry would be preferable
- 4. There is the opportunity to scale-up the R&D Adoption Award initially developed at a state level for the 2017 AUSVEG VIC Awards for Excellence with delivery partners in other states. The project team is willing to share experiences and criteria to facilitate this expansion for the benefit of national extension, which should be discussed further with Hort Innovation.

Refereed scientific publications

None to report.

Intellectual property, commercialisation and confidentiality

No IP, commercialisation or confidentiality issues to report.

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The RMCG team would like to acknowledge the Victorian growers, advisors, researcher and industry stakeholders who contributed their valuable time and expertise to the VegNET project. Your continued support has ensured the project has been an outstanding success, and established a strong foundation for future industry development and extension of vegetable R&D.
Appendices

- Appendix 1: Project Plan
- Appendix 2: Monitoring and Evaluation Plan
- Appendix 3: Annual work plans (complete)
- Appendix 4: Needs analysis survey results
- Appendix 5: One-on-one farm visits and meeting register
- Appendix 6: Fact sheets and technical notes
- Appendix 7: Case studies
- Appendix 8: Evaluation scorecard summary
- Appendix 9: Project partners' Statement of Intent

Appendix 1: Project Plan



September 2016

Regional Capacity Building to Grow Vegetable Businesses – Victoria (South-East, West and Northern regions) Project Plan

Horticulture Innovation Australia Limited



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1 Introduction

1.1 Driver and purpose of program

This program has been developed in response to a project brief from Horticulture Innovation Australia Limited (Hort Innovation) to provide regional capacity building services for the vegetable industry in Victoria (South-East, West and Northern regions). The key objectives of the project will be to:

- Deliver regional capacity building services to the vegetable industry in Victoria, excluding East Gippsland (delivered by East Gippsland Food Cluster Inc.)
- Increase knowledge of vegetable R&D and facilitate the adoption of R&D by vegetable businesses in Victoria
- Increase the reach of the vegetable R&D program by engaging stakeholders in the vegetable value chain and developing trusted networks at a regional level
- Provide linkages to national vegetable industry communications, knowledge management and industry development services.

1.2 Purpose and structure of this plan

The purpose of this plan is to outline the following for the *Regional Capacity Building to Grow Vegetable Businesses* project from 2016 to 2019:

- Purpose and brief background (this section)
- Program logic and monitoring, evaluation, reporting and improvement (MERI) framework (section 2)
- Risk management plan (section 3)
- Stakeholder consultation plan (section 4)
- Communication plan (section 5)
- Year one work plan (section 6).

This plan describes what success looks like, how to measure it, how to mitigate potential risks, and when key activities will be undertaken with different target audiences.

1.3 Background

1.3.1 Case for investment

In 2012 Horticulture Innovation Australia predecessor, Horticulture Australia Limited (HAL) and the vegetable industry commenced a new program of investment under the guidance of the Vegetable Industry Strategic Investment Plan (SIP) 2012-2017.

The SIP identified "that development and extension has been a long held concern to the majority of stakeholders in the vegetable industry". Development and extension capabilities are provided by a Development Drive Train function that underpins and supports all projects, within all categories:

- Consumer Alignment
- Market & Value Chain Development
- Farm Productivity, Resource Use and Management.

The Development Drive Train addresses capabilities such as knowledge, communications, industry extension, training and business skills. Key performance indicators include:

- Increase end user satisfaction of each R&D project provider
- Increase percentage of levy funded projects that have grower end user participation.

Investment has been provided to support regional capacity building services through the National Vegetable Extension Network, to broker R&D information and facilitate the development of the vegetable industry at the regional level across Victoria (South-East, West and Northern regions) and strengthen linkages to national vegetable knowledge management and industry development project/s.

1.3.2 The vegetable industry in Victoria

According to 2013/14 ABS data, the gross value of vegetable production by 840 businesses on 36,870 hectares (ha) in Victoria is close to \$975 million. Victoria is the second largest vegetable producing state by value, after Queensland, with 24 per cent of the total production value. Half of Victoria's vegetable production occurs in the Port Philip and Westernport natural resource management (NRM) region, which is the second largest vegetable production area in Australia after the Bundaberg region in Queensland. Significant production also occurs in the Goulburn region, East Gippsland, Gippsland, the Central Highlands and the Mallee. Most vegetable businesses are run as partnerships, around 20% are single operator businesses and a small proportion (about 6%) are companies.

The Victorian vegetable industry is driven primarily by domestic markets (90%) rather than by exports. Victoria is the largest vegetable exporting state, contributing 31 per cent of all Australian vegetable exports. A high proportion of fresh vegetables is sold through the major supermarket chains who have a considerable buying power and thus can influence to some degree what is grown (varieties, volumes) when and where, and how produce is packed and presented. Producers who want to have sufficient scale to be profitable usually need to be aligned with major retailers to grow their business. Major retailers (and some importers) impose their food safety (and sustainability) QA systems on suppliers. Currently several food safety systems / schemes exist side by side and many vegetable businesses have to comply with several of these systems.

Of levy vegetables, Victoria is the largest broccoli and asparagus producing state; asparagus is one of the main crops grown for export. Most of the exports go to Japan; Singapore and Indonesia are other important export markets. Further expansion of production volumes would require a stronger export focus given that domestic markets are usually well supplied with vegetables and profit margins are therefore

low for much of the time. They can rise rapidly if supply from other regions is severely reduced by extreme weather events, pest attack or disease. The size of the domestic market could be more permanently increased by raising consumer demand for healthy food, particularly amongst those who currently consume low volumes of it, and greater use of vegetables by the food service sector.

Scale, production efficiency and smart supply chain management and marketing are required to run a successful, sustainable vegetable business. Over 3,000 people are directly employed in the vegetable growing industry in Victoria; additional employment in processing, marketing and exporting makes a significant contribution to regional economies. In 2008/09, the average age of vegetable farm owners/operators in Victoria was 55.1

Government services the vegetable industry via the Agriculture Research and Development Branch of the Department of Economic Development, Jobs, Transport and Resources (DEDJTR). This is primarily through the Horticulture Centre of Excellence, which facilitates government, industry and growers collaboration to improve productivity and profitability. The new industry body AUSVEG VIC, established in November 2015, replaces the previous Vegetable Growers' Association of Victoria (VGA VIC), and will play an important role in communicating and representing Victorian members. Their previous vision, which aligns with the National Strategic Plan VegVision 2020, was: a profitable, united Victorian Vegetable Industry recognised for providing the health food of the nation.2

A brief analysis of the strengths, weaknesses, opportunities and threats (SWOT) facing the Victorian vegetable industry is outlined in Table 1-1.

| St | rengths | Weaknesses | | | |
|-------------|---|------------|--|--|--|
| - - - | Growing conditions and availability of good quality land and water resources Highly skilled and innovative growers with access to independent advice 'Clean and green' image of produce in export markets Access to infrastructure and proximity to market State and national industrybody coordination | • | High cost of production compared to other export market competitors Declining terms of trade, particularly due to increasing input costs Land use conflict and 'right to farm' issues with major growing regions close to Melbourne Increased cost of land in metropolitan areas due growth and residential demand in Melbourne | | |
| O | portunities | Threats | | | |
| • | Increasing resource use efficiency in relation to water and chemical use | • | Greater disease incidence through poor hygiene and crop rotation | | |
| • | Development of new value add or processed vegetable products for domestic and export markets | • | Continuing decline in terms of trade, linked to the value of the Australian dollar | | |
| • | Coordination of export market supply | • | Lack of coordination within market system | | |
| - | Strengthen state industry body coordination | - | Access to good quality and reliable water supply | | |

 Table
 1-1:
 Strengths,
 weaknesses,
 opportunities
 and
 threats
 (SWOT)
 facing
 the
 Victorian

 vegetable
 industry
 industry</td

Catchment Management Authorities (CMAs), the Victorian NRM bodies, are playing an increasingly important role in contributing to the sustainable development of the vegetable industry in the state. Current projects in the Port Phillip and Westernport CMA region include recycled organics and integrated

¹ Department of Economic Development, Jobs, Transport & Resources (2015) Victoria's Vegetable Industry - Summer 2012, Victoria Government, Melbourne

² Victorian Vegetable Grow ers' Association of Victoria (2009) Victorian Vegetable Industry Strategic Plan 2009-2012, Melbourne

pest management (IPM), and the West Gippsland CMA is focusing on risks and management options for expansion in regional vegetable production.

Vegetable growers obtain on-farm production advice via independent and/or sales agronomists, larger scale operators employ agronomists. Agribusiness and post harvest, supply chain and marketing advice is more difficult to obtain.

1.3.3 Critical features of the Victorian regional capacity building to grow vegetable businesses program

The general approach of the project will encompass:

- Problem based/active learning and focus on co-learning
- Addressing current gaps in extension services and/or industry adoption of innovations (eg. product, process and supply chain innovations, business and people management and cooperation approaches, using consumer and market information)
- A focus on young people and future leaders (producers and advisors), to enable them to interact, and share ideas in a supportive learning environment and be an example and inspiration to others.

The project will be administered through discussion group facilitation, targeted workshops, master classes, tours and mentoring. The focus will be on issues/problem based, active learning, not 'stand and deliver' events; i.e. participants will develop action plans to implement in their business. One-on-one mentoring will support producers to implement changes. This will allow us to measure success.

A number of priorities and gaps in existing services, as illustrated in Figure 1-1, have been identified and will form the focus of the project. The key priories are markets (consumer alignment), innovation in the value chain, resource use efficiency – with a focus on distilling and extending information that has already been produced.





2 Program Logic and Log Frame

2.1 Program logic

The overall evaluation of the project is governed through a national evaluation project (VG15100) administered through Coutts JR. The design of the Victoria (South-East, West and Northern regions) component of the project is supported by its own monitoring and evaluation plan, with a summary presented as follows.

The program logic for VG15048 forms the high-level framework for this Project Plan and governs the subsequent log frame. This includes considering the hierarchy and connection between:

- Long-term outcomes: what the project will contribute to after completion
- Immediate (project) outcomes: within the sphere of influence and measurement of the project timeframe, these include:
 - i. Increased reach and knowledge of vegetable R&D
 - ii. Increased adoption of improved practices and innovation through application of R&D
 - iii. Improved profitability and marketable yield amongst participating growers
- Outputs: a measure of activities achieved
- Influencing Activities: that will be undertaken annually
- · Foundational activities: that will underpin and inform the implementation of annual activities

A Monitoring and Evaluation Plan for the project is available as a separate document, linked as a component of the national evaluation project (VG15100). Key components of the monitoring and evaluation plan are included as reference in this Program design, including the program logic as outlined in Figure 2-1 below and project log frame in Table 2-1.



Figure 2-1: Program logic for Growing Vegetable Businesses project 2016-2019

2.2 Project log frame

Table 2-1: Project log frame

| Evaluation level | Project details | Performance measures | Evaluation m ethods |
|-----------------------|--|---|--|
| Broader goals | Increased size, efficiency, sustainability and profitability in the vegetable industry Australian community recognises and is supportive of the contribution of the vegetable industry | Extent to w hich the vegetable industry is grow ing, has increased efficiency and profitability Extent to w hich community are aw are and supportive of the vegetable industry | National and regional economic and production statistics for vegetable production Community surveys and media analysis [Not the responsibility of this project] |
| Long-term outcomes | Increasing industry know ledge of R&D investments and providing a supporting environment to regional capacity building projects w hich aim to increase know ledge, engagement and adoption of the vegetable R&D program (Vegetable Industry Strategic Investment Plan 2012 – 2017 objective) [To be updated post 2017] | Extent to w hich vegetable growers are aware and supportive of R&D investments and the trend over time Extent to w hich vegetable growers are engaged in capacity building activities and w ho accesses information and outputs | National and regional industry surveys Cumulative data from regional capacity building projects Feedback from industry representatives [Not the responsibility of this project] |
| | Know ledge and capacity gains | Know ledge and capacity gains | Know ledge and capacity gains |
| | Increased reach and know ledge of vegetable R&D Target: Most vegetable grow ers (>75% by number and/or >50% by area) in the region are aw are of Growing Vegetable Businesses program, events and/or materials by March 2019 Target: Majority of Grow ing Vegetable Businesses participants (>75%) have increased know ledge of the vegetable R&D means by March 2019 | Number of grow ers, enterprise scale and vegetable grow ing area covered who have participated in Grow ing Vegetable Businesses and indicate increased know ledge of priority topics and ability to identify further information and address issues and opportunities | Project activities, materials, participation and engagement database Event feedback form Mid-term and end of project impact survey |
| Immediate | Practice change | | Practice change |
| (project) outcomes | Increased adoption of improved practices and innovation through application of R&D | Practice changeNumber of grow ers, enterprise scale and vegetable | Narratives capturing incidences of changes and indicative impacts |
| | Target: Majority of Grow ing Vegetable Businesses participants (>75%) are applying know ledge and implementing practice change, or intending to change, within 6 months of involvement | grow ing area covered who have adopted one or more improved practices | Mid-term and end of project impact survey Indicative Impact |
| | Indicative Impact | | Case studies of farms having made changes |
| | Improved profitability and marketable yield amongst participating grow ers Target: More than half of Grow ing Vegetable Businesses participants (>50%) w ho apply knowledge or change practice | Indicative Impact Evidence that grow ers who have made one or more changes have (potentially) increased profitability and/or marketable yield | w ith economic analysis Mid-term and end of project impact survey |

| Evaluation level | Project details | Performance measures | Evaluation methods | |
|---------------------------|--|--|---|--|
| | improve their profitability and/or marketable yield to achieve their business goals by March 2019 | | | |
| | Extension and communication materials | Extension and communication materials | Extension and communication materials | |
| Outputs | Develop grow er friendly R&D information and project results, including: 4 fact sheets or technical notes per year based on vegetable R&D reports for specific regions and/or crop types 2 case studies (video or soft copy) per year on grow er experiences, costs and benefits of changing practice and adopting R&D Develop strategic events calendar in conjunction with other regional capacity building teams (e.g. Tasmania) and industry stakeholders Project reports Develop Annual w ork plans Develop MER Plan (this document) Update Hort Innovation via 6 monthly milestone status reports Develop final report | Number and topics of extension materials, their accuracy, details of circulation/requests, perceived user-friendliness and usefulness to grow ers and consultants Extent to which calendar is comprehensive, practical and used by grow ers and other stakeholders Project reports Extent to which planned reports are completed in relation to project needs and timing, and are of required detail and quality | Project records on outputs, feedback from Hort Innovation, peer review of outputs Project details of calendar, as well as feedback from grow ers and consultants in usefulness and value Mid-term and end of project impact survey Project reports Acceptance and feedback from Hort Innovation | |
| | Extension | Extension | Extension | |
| Influencing activities | Deliver a minimum of 4 workshops or field days per year in each of the South-East, West and Northern regions Facilitate 4 quarterly grow er group meetings in each of the South-East, West and Northern regions that allow members to achieve their own goals and learning needs by being issue and/or crop type specific. Undertake farm walks of demonstration site trials/visits as determined by the group Undertake 2 w ebinars each year based on workshop, field day or grow er group content that could be of use to a broader industry audience Undertake targeted one-on-one farm visits with vegetable grow ers to assist with R&D take-up | Number, type and topics of w orkshops and field days, participation by grow ers (type, size), usefulness and practicality of the information Details of number, frequency, participants (type and size), topics, process and perceived value of grow er groups and actions and decisions resulting Number and topics of one-one visits and extent to w hich these assisted uptake of R&D and facilitated change Type of assistance and participation in vegetable industry events and netw orking meetings, extent of added value, reaction by participants and | Event feedback form for workshops, field days, grow er groups and webinars Project records on details and participants at events and meetings Case study template | |

| Evaluation level | Project details | Performance measures | Evaluation methods | | |
|----------------------------|---|---|--|--|--|
| | Assist and participate in other vegetable industry events (e.g. National Horticulture Convention, Trade Show, others as required) Communication Distribute quarterly Growing Vegetable Businesses enew sletter Contribute content to monthly AUSVEG VIC enew sletter Distribute grow er and advisor video and/or soft copy case studies Contribute content to the AUSVEG VIC website Curate social media platforms such as Facebook and Twitter for industry updates as required Contribute to articles in local new spapers as required Distribute SMS alerts for events or issues arising as required Industry coordination and engagement Undertake 6-monthly update meetings with RMCG and AUSVEG VIC representatives as required Participate in relevant industry and regional coordination and netw orking meetings Target: Majority of Growing Vegetable Businesses participants (>75%) engaged have stronger relationships with stakeholders both up and dow n the value chain | usefulness and practicality of information Communication Extent of distribution of new sletter, case studies and articles, aw areness and value perceived by grow ers, advisors and other industry stakeholders Type and extent of social media follow ers, interaction and value perceived by follow ers Type, number and reaction to SMS alerts by grow ers, advisors and other industry stakeholders Mumber, advisors and other industry stakeholders Number, type and topics of meetings, participation by partners, value perceived and use made of information Type and extent of linkages established betw een national, regional and local industry stakeholders (e.g. via demonstration sites, AUSVEG VIC, EviroVeg, AUSVEG, Hort Innovation) | Communication Project and internet statistics on distribution and access of new sletter and w ebsite Social media analysis and statistics (as appropriate) Project contact database and log records (including use of SMS alerts as required) Industry coordination and engagement Field officer report on participation in industry and netw orking meetings Narrative capture template to document industry engagement (| | |
| | Program design and de velopment | Program design and development | Program design and development | | |
| Foundational activities | Undertake needs analysis and analysis of industry information to be regionally focussed Review program design annually to ensure activities and materials developed are fit-for-purpose Provide feedback to Hort Innovation on R&D gaps and needs | Extent and usefulness of feedback from participants to Hort Innovation and extent of action taken | Feedback from Growing Vegetable Businesses participants on activities and materials via the narrative capture template Feedback from Hort Innovation on R&D gaps | | |
| | Program management and governance Maintain contact database and project log of activities and | Program management and governance Type and extent of collaboration with the National Coordination and Evaluation projects | Program management and governance Project records from contact database and log | | |

| E | Evaluation level | Proj | ect details | Per | formance measures | Evaluation methods | | | | |
|---|------------------|---|--|-----|---|--------------------|---|----------------------|------------|------------|
| | | | events | • | Engagement, role and time input from staff | • | Interview | feedback | from | National |
| | | Collaborate with National Coordination (AHR) and Evaluation | | • | Composition of Project Reference Group and | | Coordination and Evaluation project leaders | | | ct leaders |
| | | | (Coutts JR) projects | | AUSVEG VIC Executive Committee, number of | • | Feedback | sheets by | Project | Reference |
| | | • | Coordinate 3 Field Officers in the South-East, West and Northern regions | | meetings, satisfaction of members with role, extent of input and their influence on the project | | Group a Committee | nd AUSVEO members | G VIC | Executive |
| | | • | Link with Project Reference Group and AUSVEG VIC | | | • | Interview s | with project s | taff | |
| | | | Executive Committee | | | • | Interview s | with Hort Inno | vation sta | aff |

3 Risk Management Plan

There are a number of risks requiring management if project outcomes are to be achieved.

The risks identified range across technical, biophysical, extension, partnerships and internal. The likelihood and consequence of these risks were analysed using the risk matrix outlined in Table 3-1 below.

Table 3-2 summarises these risks and how these will be managed (mitigation strategies). These risks will be reviewed at the Project Reference Group meeting with the mitigation strategies being the responsibility of the project team.

Table 3-1: Risk matrix

| | Consequence | | | | | | | | | |
|----------------|---------------|---------|----------|-----------|--------------|--|--|--|--|--|
| Likelihood | Insignificant | Minor | Moderate | Major | Catastrophic | | | | | |
| Almost certain | Low | Medium | High | Very High | Extreme | | | | | |
| Likely | Low | Medium | High | Very High | Very High | | | | | |
| Possible | Low | Low | Medium | High | High | | | | | |
| Unlikely | Minimal | Minimal | Low | Medium | High | | | | | |
| Very unlikely | Minimal | Minimal | Low | Low | Medium | | | | | |

Table 3-2: Risk management plan

| ID | Risk description | Source of risk | Impact of risk | Likelihood of risk eventuating | Uncontrolled risk level | Acceptable/ Unacceptable | Potential mitigation strategies | Treated risk level | Acceptable/ Unacceptable | Responsible person |
|----|---|---|----------------|-----------------------------------|----------------------------|-----------------------------|---|-----------------------|-----------------------------|-------------------------|
| 1 | Project delivery is not collaborative and/or aligned with other regional capacity building projects in the vegetable industry | 10 regional delivery partners, national coordination and national M&E coordination | Major | Almost certain | Very High | Unacceptable | Periodic telephone conference Information sharing and knowledge exchange of learning outcomes Open communication channels and feedback to national coordination partners | Medium | Acceptable | RMCG Project Manager |
| 2 | Partnerships not developed with advisors and key influences | Advisors and key influencers unwilling or unable to be engaged | Major | Possible | Very High | Unacceptable | Reputable project team members that are trusted and respected. Early engagement with advisors and key influences and involvement in project activities. Monitoring and evaluation of target audience response, to enable an adaptive and responsive approach. | Medium | Acceptable | RMCG Project Manager |
| 3 | Unable to identify relevant R&D to program objectives to extend to growers | Research and development activities may not have been undertaken for some priority issues / opportunities | Major | Likely | Very High | Unacceptable | Work with growers, advisors and experts to identify priority R&D topics for the project. Identify gaps in knowledge to inform R&D | Medium | Acceptable | RMCG Project Manager |
| 4 | Negative attitude towards a new industry development project | Lack of consultation with key stakeholders in explaining project | Major | Likely | Very High | Unacceptable | Reputable project team members (trusted and respected). Early engagement with grower groups. Build on existing extension activities in Victoria eg. through other vegetable projects | Medium | Acceptable | RMCG Project Manager |

| ID | Risk description | Source of risk | Impact of risk | Likelihood of risk eventuating | Uncontrolled risk level | Acceptable/ Unacceptable | Potential mitigation strategies | Treated risk level | Acceptable/ Unacceptable | Responsible person |
|----|--|--|---|-----------------------------------|----------------------------|-----------------------------|--|-----------------------|-----------------------------|-------------------------|
| 5 | Partnerships not developed with existing grower groups | Existing grower groups and networks not engaged | Major | Likely | Very High | Unacceptable | Early engagement with grower groups. Promotion of the 'grower driven' concept of the project with a focus on meeting needs and regional delivery. Directly approach grower groups to explain the project | Low | Acceptable | RMCG Project Manager |
| 6 | Producers and advisors not willing and/or able to participate | Extension activities not addressing issues of concern | Major | Possible | High | Unacceptable | Understanding of industry needs based on previous projects. Established contacts and networks in industry. Experience team in developing and delivering extension, including experience in engaging producers on a topic that they may be unsure about. | Low | Acceptable | RMCG Project Manager |
| 7 | Producersare faced with an overload of information | Information provided to growers is too much, not in useful format and/or not specific to grower needs | Major | Possible | High | Unacceptable | Engage with specific groups on particular topics of their choice within the scope of this project rather than deliver general information and technology transfer events, which are already covered by existing extension projects and a range of other initiatives. | Low | Acceptable | RMCG Project Manager |
| 8 | Loss of key personnel | Key staff resign | Major Loss of key knowledge, experience and information | Possible | High | Unacceptable | Project staff trained with multiple skills. Regular meetings to ensure all staff are aware of project progress. Inclusion of external technical experts and specialist consultants to reduce the reliance on any one resource to heavily. | Low | Acceptable | RMCG Project Manager |

| ID | Risk description | Source of risk | Impact of risk | Likelihood of risk eventuating | Uncontrolled risk level | Acceptable/ Unacceptable | Potential mitigation strategies | Treated risk level | Acceptable/ Unacceptable | Responsible person |
|----|---|--|----------------|-----------------------------------|----------------------------|-----------------------------|--|-----------------------|-----------------------------|-------------------------|
| 9 | Project managementrisks (budget, time, quality, scope) | Budget: Budgetsnot regularly monitored; activities cost more than originally anticipated; lackof control over budget allocation. Time: Schedule dominated by critical tasks; tight timeframes. | Major | Possible | High | Unacceptable | Adhere to RMCG Quality Management System (QMS) to ensure rigorous and consistent processes are followed in the delivery of the project. Key personnel experienced in project management. Utilise Program Reference Group to inform project strategic direction. | Low | Acceptable | RMCG Project Manager |
| | | Quality: Poorly skilled people; lack of reviews and monitoring; low commitment to quality standards. Scope creep: poor definition of expectations; poor documentation; lack of scope control measures | | | | | | | | |

4 Stakeholder Engagement Plan

4.1 Overview

The key stakeholder groups for this project include:

- Vegetable businesses (growers)
- Advisors and Agribusiness service providers
- Industry associations
- Researchers
- State Government agents
- Supply chain participants
- National Vegetable Extension Network partners.

These stakeholder groups are discussed and analysed further below.

4.2 Vegetable businesses (growers)

Segmenting the industry is important for tailoring extension approaches. This is based on size and relative attitudes, knowledge and skills, as well as production system, commodity and location. This approach has been previously used and will be tailored with a focus on the targeted delivery and adoption of on-farm management practices. The vegetable industry has been segmented into three main hypothesised groups, namely:

- 1. **Progressive vegetable businesses:** viewed by peers within the industry as leaders, as evidenced by efficiencies within their production operation and/or successful adoption and trialling of innovative practices
- 2. Advancing vegetable businesses: the collective majority of vegetable businesses who operate viable production systems, however, would benefit from the adoption of improved production practices to support farm gate efficiency, profitability and sustainability
- 3. **Stable vegetable businesses:** vegetable businesses who are restricted in their adoption of innovative practices and may struggle to provide a positive return in every year of production. This group also includes Language Other Than English (LOTE) producers.

The knowledge, access, attitude to risk, interest in information, extension activities and products, and advisors are described for each segment in Table 4-1 below.

Table 4-1: Grower segmentation

| | Progressive vegetable businesses | Advancing vegetable businesses | Stable vegetable businesses | | |
|---|--|---|--|--|--|
| Description | View ed by peers within the industry as leaders, as evidenced by efficiencies within their production operation and/or successful adoption and trialing of innovative practices | The collective majority of vegetable businesses who operate viable production systems, how ever, would benefit from the adoption of improved production practices to support farm gate efficiency, profitability and sustainability. | Vegetable businesses who are restricted in their adoption of innovative practices and may struggle to provide a positive return in every year of production. This group also includes LOTE producers. | | |
| Know ledge Access | Most likely to seek specialist advice including use of agronomist or IPM consultants for managing crop health or employ a specialist in the business to look after agronomy including crop health management Proficient at searching for information using on-line resources and travel (or getting somebody to do this for them), and using / adapting this suitable information in the business Open to new ideas and people and see the benefit in direct conversation with researchers and others developing new technologies, as w ell as providing direction to these people Conduct trials and develop new production methods for their business to improve efficiencies, profitability and their position in the market | Especially motivated to improve the efficiency and profitability of their businesses Interested in new technologies, varieties, supply chain arrangements Want to hear about research results relevant to their business Appreciate assistance in filtering and interpreting relevant information due to the vast amount of material available and time constraints May not employ specialists to look after agronomy and crop health management or conduct trials Prefer to hear about new technologies and concepts from trusted people See the benefit in organised study tours, case studies and demonstration trials | Have reasons, other than profitability, for remaining in the vegetable industry Do not widely search for new technologies or information in w ritten formats Require support to ensure they meet environmental and food safety requirements Prefer one-on-one support by trusted individuals (potentially from advisors w ho speak their main language, if it is not English) | | |
| Attitude to Risk | Able to take some risks and deal with complexity and uncertainties when implementing change | Feel uneasy about taking risks and dealing with complexity and uncertainties, and will therefore implement change when new technologies are proven to be 'safe' | Are generally risk adverse and try to avoid complexity and uncertainty | | |
| | Regionally targeted, participatory s | tyle training | | | |
| | Regional demonstration farms with | n leading grow ers in key regions | | | |
| | Investment in digital technology | | | | |
| Targeted | All segments to have access to all | products events | | | |
| Extension Activities and Products | Digital technologies (e.g. w ebinars, smart phone apps) Master classes/think tanks involving researchers, advisors and producers Progressive producers club including benchmarking analysis | Study tours On-line information and repackaging of existing ICP material Use of case studies and grow er groups | One-on-one support Informal training sessions Instructive, brief factsheets | | |

4.1 Advisors and Agribusiness service providers

The project will engage with other advisors, extension agents and agribusiness service providers as appropriate based on the specific skill identified through the implementation of the project. Relevant service providers to be engaged may include:

- Commercial resellers and agronomists, such as E.E. Muir & Son, Landmark, Elders, Campbell's
- Private agro-chemical companies and suppliers, such as Bayer, Syngenta, DuPont
- Specialist advisors, such as crop scouts, Integrated Pest Management (IPM) specialists and in-house agronomists for corporate growers.
- Financial and business management including agribusiness bankers.

Advisors and extension providers will be engaged predominately through training events (technology transfer activities) and grower and advisor networks.

4.2 Industry associations

Collaboration and partnership with industry associations will be critical to the success of the project. We will engage with the peak industry body, AUSVEG VIC and collaborate and exchange information of grower enquiries on industry matters beyond the scope of this project. Such matters for referral to the industry association include agri-political issues beyond the scope of research and development activities, including:

- Labour supply, access to appropriate skills and industry elations
- Competition from land growth and urban encroachment
- Right to farm.

4.3 Researchers

Researchers address priority information gaps on technologies and practices. Researchers will be engaged in the project as required through the development of information products on new techniques, topics and issues as well as guest presenters at training events. They will provide up-to-date R&D information to be extended to industry stakeholders, and their engagement is important to ensure quality assurance, accuracy of information and recognition of intellectual property. The main research organisations include those who have undertaken R&D projects through the vegetable industry levy, include:

- Consulting firms including: RM Consulting Group, Applied Horticulture Research, Colmar Brunton, Freshlogic, MacTavish West
- Federal Government Agencies including:, CSIRO, Bureau of Meteorology, Australian Bureau of Agricultural & Resource Economics & Sciences
- State Government Agencies including: Agriculture Victoria, NSW Department of Primary Industries, Queensland Department of Agriculture and Fisheries Western Australian Agriculture Authority
- Industry Bodies including: AUSVEG Ltd, Northern Territory Farmers Association, Irrigation Australia
- Universities including: University of Sydney, University of Tasmania, University of Queensland

4.4 State Government agents

State government agency programs and officers will be engaged in the project as relevant in relation to information and knowledge exchange activities, and contribution to information products. Agency

initiatives to collaborate with will be identified based on grower group identified needs. Relevant state government agents to engage with will include:

- Department of Economic Development, Jobs, Transport and Resources
 - Agriculture Victoria
- Horticulture Centre of Excellence
- Relevant geographic Catchment Management Authorities

4.5 Supply chain participants

Supply chain will be a key audience to engage in project knowledge exchange and transfer activities. Supply chain participants will be involved in events/activities that focus on market and value chain development activities, and include groups such as:

- Input providers e.g. seed companies, fertiliser suppliers
- Nurseries
- Processors
- Packers
- Businesses providing vegetable growing contracts
- Contract service providers (planting, harvesting, labour0
- Cool stores and transport
- Wholesalers and markets
- Retailers.

4.6 National Vegetable Extension Network partners

Delivery partners of the Regional Capacity Building to Grow Vegetable project through the National Vegetable Extension Network (NVEN) provide an important peer learning opportunity for shared learning to inform program delivery. Organisations contracted through the NVEN program will be engaged during formal whole of program activities, and informally as required. Delivery organisations include:

- Gippsland, Victoria (East Gippsland Food Cluster Inc.)
- Bowen Gumlu and FNQ (Bowen Gumlu Growers Association)
- Wide Bay Burnett (Bundaberg Fruit and Vegetable Growers)
- Lockyer Valley and SW Queensland (Lockyer Valley Growers Inc.)
- NSW (Greater Sydney Local Land Services)
- WA (Vegetables WA)
- NT (NT Farmers Association Inc.)
- SA (AUSVEG SA)
- Tasmania (RMCG).

5 Communications Plan

5.1 Overview

Communication is central to the project activities to delivery regional capacity building services to the vegetable industry in Victoria, excluding East Gippsland, through increased knowledge and adoption of vegetable R&D. It is therefore essential to communicate with people about the topics that interest them, and through platforms where they already seek information.

The communication plan outlines:

- Target audiences and outcomes
- Mode, tools and purpose
- Delivery approach.

These are outlined in turn below.

5.2 Target audiences and outcomes

The target audiences for project communications include the main stakeholder groups outlined in the engagement plan, in the previous section. A desired outcome from communicating with each group is outlined below as adapted from the IAP2 framework.¹

Figure 5-1: Target audiences and outcomes

| Group | Inform | Consult | Involve | Collaborate | Empower |
|---|--------|--|---|---|---|
| Vegetable businesses (growers) | | | | | Improved aw areness, know ledge and adoption |
| Advisors and Agribusiness service providers | | | | Improved decision making and provision of advice | |
| Industry associations | | | Increased co- hosting of events and co-branding of resources | | |
| Researchers | | Increased collaboration to develop information products and run training events | | | |
| State Government Agents | | Increased collaboration in enabling know ledge transfer activities | | | |

¹ Refer to <u>http://c.ymcdn.com/sites/www.iap2.org/resource/resmgr/imported/IAP2%20Spectrum_vertical.pdf</u>

| Group | Inform | Consult | Involve | Collaborate | Empower |
|--|---|--|---------|-------------|---------|
| Supply chain participants | | Increased access to technical information and advice | | | |
| National Vegetable Extension Network Delivery Partners | | Increased awareness and advocacy of Regional Project | | | |
| Funding bodies (HIA and federal government) | Increased information about return on investment | | | | |

5.3 Mode, tools and purpose

Project communication will involve a mix of face-to-face delivery across the regional areas, as well as online, and both soft and hard copy resources. The different tools and purpose within each of these modes are outlined below.

Figure 5-2: Communication mode, tool and purpose

| Mode | ΤοοΙ | Purpose | | |
|---|---|---|--|--|
| | Extension & Training events | To build knowledge and capacity of growers and advisors on specific topics or issues | | |
| | Grower groups / grower and advisor networks | To foster collaboration and networks amongst growers in similar locations | | |
| Face-to-face T Workshops Ir | | Fo collaborate and discuss cutting edge knowledge in an mmersive and self-directed learning environment | | |
| | Regional demonstration sites / case studies | To showcase changes in practices from leading growers, host events, and/or understand the costs and benefits of change in practices | | |
| | Webinars | To build knowledge and capacity of growers and advisors on specific topics in an accessible and time saving environment. | | |
| | Website | To centrally house all project resources, events, updates and other information | | |
| Online To provide regular information Social media resources, events, demonstrat industry information | | To provide regular information and updates on project resources, events, demonstration sites, and other relevant industry information | | |
| | E-newsletter | To provide regular regional updates on issues of relevance to contact databases | | |
| Cott conv | Fact sheets | To prioritise and package the latest research and development for growers and advisors | | |
| | Articles and publications | To provide information on specific topics and/or project updates to the regional industry | | |

| Mode | ΤοοΙ | Purpose | | | | |
|-----------|---------------------------|--|--|--|--|--|
| | Video case studies | To showcase changes in practices, understand lessons learnt and provide practical real-life examples of growers | | | | |
| Hard copy | Fact sheets | To prioritise and package the latest research and development for growers and advisors | | | | |
| | Articles and publications | To provide information on specific topics and/or project updates to industry | | | | |

5.4 Delivery approach

The delivery approach for the project will be administered through a regional extension framework, with contact Field Officers located in each of the core focus regions as depicted in Figure 5-1, namely:

- Northern region
- Western region
- South-Eastern region.

The Field Officers will work with growers, advisors and industry partners across the regions to deliver regionally targeted services to address priorities and support the adoption of industry relevant R&D.



Figure 5-3: Delivery approach of the Growing Vegetable Businesses project in the Northern, Western and South-Eastern regions in Victoria

6 Year 1 Work Plan

Figure 6-1: Year 1 work plan

| Component | Jul-16 | Aug-16 | Sep-16 | Oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 | Mar-17 | Apr-17 | May-17 | Jun-17 |
|--|--|--|---|--|--|--|--|--|--|--|--|--|
| Training and events | | | | | | | | | | | | |
| | Crewing Verstehle | | Post-harvest management 7-Sep-16 Region: South-Eastern Responsibility: CL | | | | | | | | | |
| Workshop | Businesses project launch 27-Jul-16 Region: South-Eastern Responsibility: CL | | vegetation insectariums on your farm 14-Sep-16 Region: South-Eastern Responsibility: CM | Gain the business edge 18-Oct-16 Region: Western Responsibility: CM | Northern, Western and South-Eastern regions | | | | Northern, Western and South-Eastern regions | | Northern, Western and South-Eastern regions | |
| Grower group | | | | Northern, Western and South-Eastern regions | | Northern, Western and South-Eastern regions | | | | Northern, Western and South-Eastern regions | | Northern, Western and South-Eastern regions |
| Webinar | | | | | | | Webinar 1 | | | | Webinar 2 | |
| One-on-one farm visits | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required | Targetted in Northern, Western and South- Eastern regions as required |
| | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as | In collaboration with Hort Innovation, AHR, Coutts JR, AUSVEG, AUSVEG VIC and EGFC as |
| Other industry events | required | required | required | required | required | required | required | required | required | required | required | required |
| Strategic events calendar | Develop | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required |
| Extension material | | | | | | r | | | r | | r | |
| Fact sheet | | | | Fact sheet 1 | | Fact sheet 2 | | | Fact sheet 3 | | Fact sheet 4 | |
| Technical note | | | | | Technical note 1 | | Technical note 2 | | | Technical note 3 | | Technical note 4 |
| Case study | | | | | | | | Case study 1 | | | | Case study 2 |
| Communication material | | | | | | | | | | | | |
| Quarterly Growing Vegetable Businesses e-newsletter | | | Issue 1 | | | Issue 2 | | | Issue 3 | | | Issue 4 |
| Monthly AUSVEG VIC e-newsletter | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content |
| Content for AUSVEG VIC website | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content |
| Social media platforms | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required |
| Article for local newspapers | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required | Contribute content as required |
| SMS alert for events and issues | Distribute as required | Distribute as required | Distribute as required | Distribute as required | Distribute as required | Distribute as required | Distribute as required | Distribute as required | Distribute as required | Distribute as required | Distribute as required | Distribute as required |

Confirmed To be confirmed Appendix 2: Monitoring and Evaluation Plan



Regional capacity building to grow vegetable businesses - Victoria

Monitoring and Evaluation Plan

Horticulture Innovation Australia

September 2016

1 Project purpose

This project will provide regional capacity building services for the vegetable industry in Victoria (South-East, West and Northern regions, VG15048). The key objectives of the project are to:

- Deliver regional capacity building services to the vegetable industry in Victoria, excluding East Gippsland (serviced by East Gippsland Food Cluster)
- Increase knowledge of vegetable R&D and facilitate the adoption of R&D by vegetable businesses in Victoria
- Increase the reach of the vegetable R&D program by engaging stakeholders in the vegetable value chain and developing trusted networks at a regional level
- Provide linkages to national vegetable industry communications, knowledge management and industry development services.

This project contributes to the achievement of the Vegetable Industry Strategic Investment Plan (SIP) 2012 – 2017 objective:

 Increasing industry knowledge of R&D investments and providing a supporting environment to regional capacity building projects which aim to increase knowledge, engagement and adoption of the vegetable R&D program.

2 Project approach

Table 2-1: Project approach

| Delivery area | Activities |
|---------------------------|---|
| | Delivery of extension events |
| | Regional focus |
| | Analysis of industry information |
| | Understanding issue and needs based on conversations |
| Extension and knowledge | Workshops |
| transfer events | Grower groups |
| | Case studies |
| | Webinars |
| | Linking with existing demonstration sites (e.g. Soil Wealth (VG13076) and Integrated Crop Protection (VG13078)) |
| | Communication and engagement with growers and industry stakeholders |
| | Project brand: Growing Vegetable Businesses |
| | Contact database; growers, advisors and industry partners |
| Communication material | E-newsletter |
| | Video case studies |
| | Website |
| | Social media |
| | National coordination (VG15049) and evaluation (VG15100) of regional capacity building projects through Hort Innovation, AHR and Coutts JR |
| Industry coordination and | AUSVEG (linking with InfoVeg, R&D podcasts, Vegetables Australia magazine, Vegenotes, Weekly Update, website, social media through VG15027) |
| engagement | AUSVEG VIC liaison (linking with website, e-newsletter, social media) |
| | East Gippsland Food Cluster Inc. state-wide collaboration (Gippsland |
| | region) |
| | National Vegetable Education and Training Initiative linkage (VG15028) |
| | Development of annual work plans |
| Program design and | Design of extension activities targeting information needs of the target audience |
| management | Identifying gaps in adoption of knowledge and practices resulting from the vegetable R&D program |
| | Project evaluation and reporting |

3 Context

The SIP identified 'that development and extension has been a long held concern to the majority of stakeholders in the vegetable industry.' Development and extension capabilities are provided by a Development Drive Train function that underpins and supports all projects, within all categories:

- Consumer Alignment
- Market & Value Chain Development
- Farm Productivity, Resource Use and Management.

The Development Drive Train addresses capabilities such as knowledge, communications, industry extension, training and business skills. Key performance indicators include:

- Increase end user satisfaction of each R&D project provider
- Increase percentage of levy funded projects that have grower end user participation.



Figure 3-1: Priority topics for this project (and their alignment with each of the three strategic priorities for the Australian vegetable industry)

The key R&D-related issues for Victorian vegetable growers identified through a recent survey and additional consultation by the project team are:

Farm productivity

- Knowledge and experience with growing particular crops
- Biosecurity
- Minor use and access to chemicals
- Pest and disease management

Resource use

- Climate suitability
- Water availability and security

Business management

Cost of production

Markets

Knowledge and experience of marketing products

Technology

Labour saving.

The additional agri-political issues that will not be directly addressed by this project include:

- Labour supply, access to appropriate skills and industry relations
- Competition from land growth and urban encroachment
- Right to farm.

These will continue to be the responsibility of the state industry association, AUSVEG VIC.

4 Project log frame and monitoring and evaluation framework

This section outlines the program logic (Figure 4-1) and log frame and monitoring and evaluation framework (Table 4-1). These demonstrate the hierarchy and connection between activities and outcomes. Assumptions are outlined in the risk management section of the Project Plan (separate document).



Figure 4-1: Program logic for Growing Vegetable Businesses project 2016-2019

Table 4-1: Project log frame

| Evaluation level | Project details | Performance measures | Evaluation methods |
|------------------------------------|---|--|--|
| Broader goals | Increased size, efficiency, sustainability and profitability in the vegetable industry Australian community recognises and is supportive of the contribution of the vegetable industry | Extent to w hich the vegetable industry is grow ing, has increased efficiency and profitability Extent to w hich community are aw are and supportive of the vegetable industry | National and regional economic and production statistics for vegetable production Community surveys and media analysis [Not the responsibility of this project] |
| Long-term outcomes | Increasing industry know ledge of R&D investments and providing a supporting environment to regional capacity building projects w hich aim to increase know ledge, engagement and adoption of the vegetable R&D program (Vegetable Industry Strategic Investment Plan 2012 – 2017 objective) [To be updated post 2017] | Extent to w hich vegetable growers are aware and supportive of R&D investments and the trend over time Extent to w hich vegetable growers are engaged in capacity building activities and w ho accesses information and outputs | National and regional industry surveys Cumulative data from regional capacity building projects Feedback from industry representatives [Not the responsibility of this project] |
| | Know ledge and capacity gains Increased reach and know ledge of vegetable R&D Target: Most vegetable grow ers (>75% by number and/or >50% by area) in the region are aw are of Growing Vegetable Businesses program, events and/or materials by March 2019 Target: Majority of Grow ing Vegetable Businesses participants (>75%) have increased know ledge of the vegetable R&D program by March 2019 | Know ledge and capacity gains Number of grow ers, enterprise scale and vegetable grow ing area covered who have participated in Grow ing Vegetable Businesses and indicate increased know ledge of priority topics and ability to identify further information and address issues and opportunities | Know ledge and capacity gains Project activities, materials, participation and engagement database Event feedback form (Appendix 1) Mid-term and end of project impact survey (Appendix 4) |
| Immediate (project) outcomes | Practice change Increased adoption of improved practices and innovation through application of R&D Target: Majority of Grow ing Vegetable Businesses participants (>75%) are applying know ledge and implementing practice change, or intending to change, within 6 months of involvement Indicative Im pact Improved profitability and marketable yield amongst participating grow ers Target: More than half of Grow ing Vegetable Businesses participants (>50%) w ho apply knowledge or change practice improve their profitability and/or marketable yield to achieve their business goals by March 2019 | Practice change Number of grow ers, enterprise scale and vegetable grow ing area covered who have adopted one or more improved practices Indicative Im pact Evidence that grow ers who have made one or more changes have (potentially) increased profitability and/or marketable yield | Practice change Narratives capturing incidences of changes and indicative impacts (Appendix 2) Mid-term and end of project impact survey (Appendix 4) Indicative Im pact Case studies of farms having made changes with economic analysis (Appendix 3) Mid-term and end of project impact survey (Appendix 4) |
| Outputs | Extension and communication materials Develop grow er friendly R&D information and project results, | Extension and communication materials Number and topics of extension materials, their accuracy, details of circulation/requests, | Extension and communication materials Project records on outputs, feedback from |

| Evaluation level | Project details | Performance measures | Evaluation m e thods |
|---------------------------|---|---|---|
| | including: 4 fact sheets or technical notes per year based on vegetable R&D reports for specific regions and/or crop types 2 case studies (video or soft copy) per year on grower experiences, costs and benefits of changing practice and adopting R&D Develop strategic events calendar in conjunction with other regional capacity building teams (e.g. Tasmania) and industry stakeholders Project reports Develop Annual w ork plans Develop MER Plan (this document) Update Hort Innovation via 6 monthly milestone status reports Develop mid-term project review report Develop final report | perceived user-friendliness and usefulness to grow ers and consultants Extent to which calendar is comprehensive, practical and used by grow ers and other stakeholders Project reports Extent to which planned reports are completed in relation to project needs and timing, and are of required detail and quality | Hort Innovation, peer review of outputs Project details of calendar, as well as feedback from grow ers and consultants in usefulness and value Mid-term and end of project impact survey (Appendix 4) Project reports Acceptance and feedback from Hort Innovation |
| Influencing activities | Extension Deliver a minimum of 4 workshops or field days per year in each of the South-East, West and Northern regions Facilitate 4 quarterly grow er group meetings in each of the South-East, West and Northern regions that allow members to achieve their own goals and learning needs by being issue and/or crop type specific. Undertake farm walks of demonstration site trials/visits as determined by the group Undertake 2 webinars each year based on workshop, field day or grow er group content that could be of use to a broader industry audience Undertake targeted one-on-one farm visits with vegetable grow ers to assist with R&D take-up Assist and participate in other vegetable industry events (e.g. National Horticulture Convention, Trade Show, others as required) Communication Distribute quarterly Grow ing Vegetable Businesses enew sletter Contribute content to monthly AUSVEG VIC e-new sletter | Extension Number, type and topics of w orkshops and field days, participation by grow ers (type, size), usefulness and practicality of the information Details of number, frequency, participants (type and size), topics, process and perceived value of grow er groups and actions and decisions resulting Number and topics of one-one visits and extent to w hich these assisted uptake of R&D and facilitated change Type of assistance and participation in vegetable industry events and netw orking meetings, extent of added value, reaction by participants and usefulness and practicality of information Extent of distribution of new sletter, case studies and articles, aw areness and value perceived by grow ers, advisors and other industry stakeholders Type and extent of social media follow ers, | Extension Event feedback form for workshops, field days, grow er groups and webinars (Appendix 1) Project records on details and participants at events and meetings Case study template (Appendix 3) Communication Project and internet statistics on distribution and access of newsletter and w ebsite Social media analysis and statistics (as appropriate) |

| Evaluation level | Project details | Performance measures | Evaluation methods |
|----------------------------|---|--|---|
| | Distribute grow er and advisor video and/or soft copy case studies Contribute content to the AUSVEG VIC w ebsite Curate social media platforms such as Facebook and Tw itter for industry updates as required Contribute to articles in local new spapers as required Distribute SMS alerts for events or issues arising as required | interaction and value perceived by follow ers Type, number and reaction to SMS alerts by grow ers, advisors and other industry stakeholders Industry coordination and engagement | Project contact database and log records (including use of SMS alerts as required) Industry coordination and engagement |
| | Industry coordination and engagement Undertake 6-monthly update meetings with RMCG and AUSVEG VIC representatives as required Participate in relevant industry and regional coordination and netw orking meetings Target: Majority of Grow ing Vegetable Businesses participants (>75%) engaged have stronger relationships with stakeholders both up and dow n the value chain | Number, type and topics of meetings, participation by partners, value perceived and use made of information Type and extent of linkages established betw een national, regional and local industry stakeholders (e.g. via demonstration sites, AUSVEG VIC, EviroVeg, AUSVEG, Hort Innovation) | Field officer report on participation in industry and networking meetings Narrative capture template to document industry engagement (Appendix 2) |
| | Program design and development Undertake needs analysis and analysis of industry information to be regionally focussed Review program design annually to ensure activities and materials developed are fit-for-purpose Provide feedback to Hort Innovation on R&D gaps and needs | Program design and development Extent and usefulness of feedback from participants to Hort Innovation and extent of action taken | Program design and development Feedback from Growing Vegetable Businesses participants on activities and materials via the narrative capture template (Appendix 2) Feedback from Hort Innovation on R&D gaps |
| Foundational activities | Program management and governance Maintain contact database and project log of activities and events Collaborate with National Coordination (AHR) and Evaluation (Coutts JR) projects Coordinate 3 Field Officers in the South-East, West and Northern regions Link with Project Reference Group and AUSVEG VIC Executive Committee | Program management and governance Type and extent of collaboration with the National Coordination and Evaluation projects Engagement, role and time input from staff Composition of Project Reference Group and AUSVEG VIC Executive Committee, number of meetings, satisfaction of members with role, extent of input and their influence on the project | Program management and governance Project records from contact database and log Interview feedback from National Coordination and Evaluation project leaders Feedback sheets by Project Reference Group and AUSVEG VIC Executive Committee members Interview s with project staff Interview s with Hort Innovation staff |
5 Monitoring and evaluation action plan

Table 5-1: M&E action plan

| Evaluation method (from above) | Purpose/Focus | Details | Responsibility and Timing |
|--|--|--|--|
| Event feedback form – workshops, field days, consultant and committee meetings (Appendix 1) | To capture reactions, perceived value, gains in understanding, intentions to act and issues to be addressed | Feedback sheets follow a set structure to allow key information to be captured | Event/meeting organiser responsible for modifying feedback sheet for event purpose |
| Narrative capture template (Appendix 2) | To capture observed/ known change in practice resulting from project activities in a structured way | Narratives are short, structured observations detailing how growers/others participated in activities and then took action / made decisions based on outcomes from activities. They follow a set framework | Project staff to capture these as they observe or learn about them over time and upload them to the online M&E platform |
| Case study template (Appendix 3) | To provide a more in- depth analysis of changes made and their costs and benefits | Case studies follow a similar framework to narratives but require a farm visit and establishing quantitative details for analysis | Project leader to ensure that case studies are undertaken in the second and third year of the project |
| Mid-term and end of project impact survey (Appendix 4) | To capture extent of awareness, satisfaction, knowledge gains, changes made, influence of project activities, barriers and gaps | Short survey of vegetable businesses including growers, packers, processors, service providers, advisors and researchers | Project leader to initiate with support of project evaluation project in design Mid term and end of project |
| Project log | Record of meetings (external and internal), including feedback and discussion (adaptability) | Project records | Project Leader and Field Officer |
| Communications database | To record distribution of information and develop a database of vegetable businesses engaged | Communications database | Field Officer with support from other project team members |
| Website and social media statistics | To monitor engagement | Google Analytics Twitter Analytics | Field Officer with support from Project Leader |
| Interviews with staff, Advisory Group members, Hort Innovation staff, coordinating project leader | To gain feedback on what is working well, what needs attention, how input is provided and actioned | These will follow similar lines of questioning using a semi- structured format and summarised against main headings | Project leader to organise – preferably using non-project team staff to undertake the interviews |
| Network matrix (to be confirmed) | To show numbers, type and linkages between key stakeholders of regional vegetable industry | This lists key stakeholders in a table and the strength of linkages and the change over time. This could be done using social network analysis software | Project leader to undertake/manage – beginning and end of project |

Appendix 1: Event feedback form

Thanks for providing feedback. It is important that we are able to understand how useful this event was and how we can improve future ones.

| Date: | | | |
|----------------|--|--|--|
| Location: | | | |
| Field Officer: | | | |

- 1. Which group best describes your role? (Multiple choice, one answer)
 - Grower
 - Advisor or Agribusiness service provider
 - Industry association
 - Researcher
 - State Government agent
 - Supply chain participant
 - National Vegetable Extension Network partner
 - Other (please specify)
- 2. If you are a grower, please note the crop type, approximate area (in hectares) and number of properties. (*Short answer*)
 - Crop type: ______, area: ______ha, across ______farms
 - Crop type: ______, area: ______ ha, across ______ farms
 - Crop type: _____, area: _____ ha, across _____ farms
- 3. Please rate your knowledge and confidence of ______. (*Rating scale 1-5*, 1 = New in role / recently joined industry, 2 = More experience needed, 3 = Some knowledge and confidence, 4 = Adequate knowledge and confidence, 5 = Excellent knowledge and confidence)
 - Prior to the event
 - Following the event
- 4. Are you able to make more informed decisions about _______ following the event? (*Multiple choice, one answer*)
 - Yes
 - No
 - Unsure

- 5. Will you likely change farm practices or advice following the event? (Multiple choice, one answer)
 - Yes
 - No
 - Unsure
- 6. Please provide details of what you are planning to follow up and/or take actions on. (Comment box)
- 7. Overall, how would you rate the following aspects of the workshop? (*Rating scale 1-5*, 1 = Poor, 2 = Less than adequate, 3 = Adequate, 4 = Good, 5 = Excellent)
 - Topic and content
 - Delivery
 - Relevance to business
 - Venue location
 - Catering
 - Role of Field Officer (RMCG)
- 8. Please indicate what other information or assistance you might need to act on the information you have gained. (*Comment box*)
- 9. Please provide any other comments or feedback (e.g. what could have made the field day more beneficial to you?) (*Comment box*)

Thanks for your time.

| Area | Comment |
|--------------|--|
| Date | 11 July, 2016 |
| Submitted by | Carl Larsen |
| Crop type | Carrot |
| lssue | Fertiliser |
| Stakeholder | A carrot grower, George who grows on 50 ha of black soil in the B sub-catchment. |
| Engagement | He attended the annual field day which focused on calculating fertiliser rates on to maximise production and minimise losses and who also accessed the R&D report for growers in fertiliser optimisation. |
| Reaction | He was very interested in the implications for his farm and production efficiency and requested a one-one farm visit to discuss the use of a new fertiliser calculator and soil monitoring tool. |
| Actions | George subsequently purchased the calculator and soil monitoring tool and did a course on their use. He then paid for his consultant to use it in the annual planning cycle of the farm. |
| Impacts | After one year, George reports a reduction in fertiliser use of 20% with an increased yield of 10% from on his carrot crop. His consultant estimates that this will result in an increased profitability of 15% on the farm. |

Appendix 2: Narrative capture template

Appendix 3: Case study template

Case studies will be used to 'tell a story' or communicate project outcomes. This template will be used for developing case studies.

| Area | Comment |
|-----------------------|---|
| Issue | Usually case studies focus on one instance, site, activity or project to detail changes and outcomes that have been brought about by your project. Alternately, case studies can also be comparative, by comparing instances within or across sites or locations. A comparative study will often look for similarities and differences across cases or sites to develop generalisations and findings. |
| | Like any monitoring, evaluation or reporting activity it is necessary to be clear on why you are conducting a case study beforehand. Case studies can be used for a range of purposes including to: |
| | Illustrate and describe particular project events or achievements |
| Purpose | Explore issues of particular importance to a project or context |
| | Examine a specific and unique event in some detail |
| | Describe implementation processes. For instance, describing how the project or activities have been delivered |
| | An evaluation case study may be used for communications purposes but it is critical that evidence is used to support findings in an evaluation case study. |
| Context | Describe the setting including who was involved. What is the overall problem or issue being addressed? Why is this important? |
| Activity | What happened? Who was involved? Where? When? |
| Outcome | So what? What happened as a result of the activity or event? What changes in knowledge, attitude, skills and aspirations (KASA) or practices occurred? |
| Learning / reflection | What now? What are the implications or lessons from the instance(s) described? |
| Figures | Include media such as pictures, figures and graphs to convey findings |

Appendix 4: Mid-term and end of project impact survey

Introduction

- 1. Which group best describes your role? (Multiple choice, one answer)
 - Grower
 - Advisor or Agribusiness service provider
 - Industry association
 - Researcher
 - State Government agent
 - Supply chain participant
 - National Vegetable Extension Network partner
 - Other (please specify)
- 2. If you are a grower, please note the crop type, approximate area (in hectares) and number of properties. (*Short answer*)
 - Crop type: ______, area: ______ha, across ______farms
 - Crop type: ______, area: ______ha, across ______ farms
 - Crop type: ______, area: _____ ha, across ______ farms

Awareness and knowledge

- 3. Please identify how you have been involved in Growing Vegetable Businesses. (*Multiple choice, multiple answer*)
 - Attended a workshop, field day or training event
 - Grower group member
 - Participated in a webinar
 - One-on-one farm visit
 - None of the above
- 4. Have you received any of the following Growing Vegetable Businesses communications? (*Multiple choice, multiple answer*)
 - E-newsletter
 - Video case studies
 - Website material (via AUSVEG VIC)
 - Local newspaper articles
 - SMS alerts about events or issues
 - None of the above
- Please rate your level of knowledge on the following, <u>before</u> your involvement in Growing Vegetable Businesses (*Rating scale*, 1 = No knowledge, 2 = Limited knowledge, 3 = Some knowledge, 4 = Good level of knowledge, 5 = High level of knowledge)

- Farm productivity (marketable yield, pest and disease management, biosecurity)
- Resource use (water, soil, nutrients, waste)
- Business management (profitability, cost of production, labour savings)
- Markets (post harvest management, value adding, customer intelligence)
- Technology (equipment, precision farming, robotics)
- Other (please specify)
- Please rate your level of knowledge on the following, <u>after</u> your involvement in Growing Vegetable Businesses (*Rating scale*, 1 = No knowledge, 2 = Limited knowledge, 3 = Some knowledge, 4 = Good level of knowledge, 5 = High level of knowledge)
 - Farm productivity (marketable yield, pest and disease management, biosecurity)
 - Resource use (water, soil, nutrients, waste)
 - Business management (profitability, cost of production, labour savings)
 - Markets (post harvest management, value adding, customer intelligence)
 - Technology (equipment, precision farming, robotics)
 - Other (please specify)

Practice change or intent to change

- 7. Are you undertaking, or planning to undertake, activities aimed at improving profitability or marketable yield on your farm / or in the advice you provide? (*Multiple choice, one answer*)
 - Yes to a large extent
 - Yes to a small extent
 - No
 - Unsure
- 8. If no, why not? (Multiple choice, multiple answer)
 - I don't feel that I have enough knowledge or information
 - The potential financial returns for my business seem too low or uncertain
 - There's a lack of clear government policy
 - I have much higher priorities to contend with right now
 - Lack of support and information specific to my farming enterprise/s
 - I don't see this as a relevant part of my farming operation
 - I don't know
- 9. If yes, what are some of the types of activities you are doing or planning? Please describe (*Comment box*)
- 10. If yes, would you say that this is a result of your involvement in Growing Vegetable Businesses? (*Multiple choice, one answer*)

- Yes, definitely
- Yes, partly
- No, I'm doing it anyway
- Unsure
- 11. How likely is it that you will undertake these types of activities in the future, say in the next 2-3 years? (*Multiple choice, one answer*)
 - Very likely
 - Quite likely
 - Not likely
 - Unsure

Effectiveness of the project

- 12. How useful have you found the support and information provided through Growing Vegetable Businesses? (*Multiple choice, one answer*)
 - Very useful
 - Quite useful
 - Not very useful
 - Not at all useful
 - Unsure
- 13. How do you rate Growing Vegetable Businesses in keeping you informed about the latest advancements in the vegetable industry? (*Multiple choice, one answer*)
 - I feel well informed
 - I feel somewhat informed
 - I haven't been kept informed
 - Unsure
 - Not important to me
- 14. What have been the benefits for you in being involved in Growing Vegetable Businesses? Please describe (*Comment box*)
- 15. Have there been any issues or problems? (Comment box)
- 16. Do you have any further comments? (Comment box)

Thanks for your time.

This report has been prepared by:

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| 1.0 | Draft | 10/06/16 | C. Larsen | - | - | - | A-M. Boland | 1(e) |
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| 3.0 | Final | 29/09/16 | C. Larsen | A-M. Boland | H. Buck | A-M. Boland | B. Cairns (HIA) | 1(e) |

Note: (e) after number of copies indicates electronic distribution

Appendix 3: Annual work plans (completed)

Year 3 work plan_HIA VG15048 20190415.xlsx

| | Annual | | | | | | | | |
|----------------------------------|--------|--------|---|---|---|--|--|---|--|
| Output Knowledge transfer and | target | Actual | Activity | Who | Where | When | How | KPI/Target | Progress |
| events | 1 | 1 | | | | | | | |
| Workshop | 4 | 1 | CSIRO Extrusion Demo and Leafminer Workshop | CL Partner: CSIRO, AUSVEG | Region: South-Eastern Location: Taranto Farms, 57 The Crescent, Tyabb, VIC 3913 | Wed 28-Mar-18 3:30-5:00pm | Facilitate Coordinate researchers Access to R&D resources | >20 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 27 participants |
| | | 2 | HARPS workshop | CM Partners: HIA, HARPS Project Team | Region: all Location: Melbourne Markets 315 Cooper St, Epping, VIC 3076 | Wed 18-Apr-18 7:30-8:30am | Facilitate Coordinate researchers Access to R&D resources | >20 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed TBC participants |
| | | 3 | Future Farming Field Day | CL, CM Partners: UoS, DU, energy company, Fresh Select, AUSVEG | Region: Western Location: Fresh Select, 610 Duncans Road, Werribee South, VIC 3030 | Tue 24-Apr-18 3:00-5:00pm | Facilitate Coordinate researchers Link to project VG15059 Access to R&D resources | >20 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 35 participants |
| | | 4 | Leafminer workshop and market information | KO Partners: AUSVEG | Region: Northern Location: Lucky Khakh, Packing Shed, 430 Central Avenue, Orrvale, VIC 3631 | Wed 2 May-18 6:00-8:00pm | Facilitate Coordinate researchers Link to project MT16004 Access to R&D resources | >10 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 11 participants, 18 registered |
| | | 5 | Vegetable innovation trends: Opportunities for your business (VegInnovations 2018 Regional Roadshow) | CL, CM Partners: VegPRO, HM-W | Region: all Location: Melbourne Markets Conference Centre, Epping, VIC 3076 | Fri 3-Aug-18 8:30am-4:30pm | Facilitate Coordinate researchers Access to R&D resources | >20 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 15 participants, 25 registered |
| | | 6 | Irrigation training | CL Partners: VegPRO, AHR | Region: South-Eastern Location: Schreurs & Sons, 30 Twyford Rd, Clyde VIC 3978 | Wed 15-Aug-18 8:30am-3:00pm | Facilitate Coordinate researchers Access to R&D resources | >10 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 6 participants, 10 registered |
| | | 7 | Irrigation training | KO Partners: VegPRO, AHR, DEDJTR | Region: Northem Location: Redgold PTY Ltd. 3698 Hattah-Robinvale Road, Wemen VIC 3549 | Thu 16-Aug-18 9:30am-4:00pm | Facilitate Coordinate researchers Access to R&D resources | >10 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 6 participants, 13 registered |
| | | 8 | Breakdown on compost on- farm discussion | CM, CL Partners: Nathan Free, AHR | Region: South-Eastern Location: Peter Schreurs & Sons, 1380 North Road Devon Meadows, VIC 3977 | Thu 6-Sep-18 4:00-6:00pm | Facilitate Coordinate researchers Access to R&D resources | >20 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 21 participants |
| | | 9 | Chemical handling course | CM Partners: VegPRO, E.E. Muir & Sons | Region: Western Location: Fragapane Farms, Duncans Road, Werribee South Region: South-Eastern | Mon 24-Sep-18 to Tue 25-Sep-18 8:30am-4:30pm | Facilitate Coordinate researchers Access to R&D resources | >10 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 12 participants, 16 registered |
| | | 10 | Chemical handling course | CL Partners: VegPRO | Location: Cranbourne Public Hall, 166-178 South Gippsland Highway, Cranbourne, VIC 3977 | Wed 26-Sep-18 8:30am-4:30pm | Facilitate Coordinate researchers Access to R&D resources | >10 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 5 participants, 8 registered |
| | | 11 | Pest and disease identification workshop | CM Partners: VegPRO, E.E. Muir & Sons | Region: Western Location: Fresh Select, 610 Duncans Road, Werribee South, VIC 3030 | Tue 23-Oct-18 8:30am-4:30pm | Facilitate Coordinate researchers Access to R&D resources | >10 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 9 participants, 12 registered |
| | | 12 | Pest and disease identification workshop | CL Partners: VegPRO | Region: South-Eastern Location: Schreurs & Sons, 30 Twyford Rd, Clyde VIC 3978 | Tue 30-Oct-18 8:30am-4:30pm | Facilitate Coordinate researchers Access to R&D resources | >10 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 8 participants, 8 registered |
| | | 13 | Cover crops and soil & tissue testing for vegetables | KO, CL Partners: AHR | Location Lucky Khakh, Packing Shed, 430 Central Avenue, Orrvale, VIC 3631 | Wed 7-Nov-18 5:00-8:00pm | Facilitate Coordinate researchers Access to R&D resources | >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 4 participants |
| | | 14 | Post harvest management training | CM Partners: VegPRO | Region: Western Location: TBC Werribee Region: South-Eastern | CANCELLED TBC Nov- 18 | Facilitate Coordinate researchers Access to R&D resources | >50% improve understanding and intend to change practice >80% approval and relevance rating >10 participants | Cancelled by VegPRO, no service provider appointed |
| | | 15 | Nutgrass management on- farm discussion | CL Partners: UNE, Nufarm, E.E. Muir & Son | Location: Peter Schreurs & Sons, 1380 North Road Devon Meadows, VIC 3977 | Thu 14-Feb-19 | Facilitate Coordinate researchers Access to R&D resources | >50% improve understanding and intend to change practice >80% approval and relevance rating >10 participants | Completed 29 participants |
| | | 16 | Lettuce necrotic yellows virus workshop | CM Partners: QDAF, DEDJTR | Region: Werribee Location: TBC | Mon 18-Feb 1:30-3:30pm | Facilitate Coordinate researchers Access to R&D resources | >50% improve understanding and intend to change practice >80% approval and relevance rating >20 narticinants | Completed 25 participants |
| | | 17 | Spray application workshop | CL, CM Partners: Syngenta | Location: Boomaroo Nurseries, 105 St Andrews Drive, Lara, VIC 3212 | Wed 10-Apr-19 4:00-7:00pm | Facilitate Coordinate researchers Access to R&D resources | >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 15 participants Discussed opportunity and alignment with FIC, need to |
| | | 18 | Food Innovation Centre Capability Course | CM, CL Partners: FIC, MU | Region: Western Location: TBC | TBC Apr-19 | Facilitate Coordinate researchers Access to R&D resources | >20 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | confirm date, time and location. Inadequate FIC funding available to run course. |
| | | 19 | GAIN Vegetable group coaching | CL, CM Partner: Affectus, E.E. Muir & Sons | Region: all Location: TBC | TBC Apr-19 | Facilitate Connect GAIN Alumni Access to R&D resources | >20 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | alignment with Affectus, E.E. Muir & Sons and sample of Growing Leaders Alumni (e.g. priority issue of food safety and link with PMA- ANZ). Support for activity, but limited time and capacity to pursue. |
| Grower group / networking | 4 | 1 | LOTE Community of Practice networking event | CM Partners: AUSVEG VIC | Region: Western Location: Kooyong Lawn Tennis Club, 489 Glenferrie Road, Toorak VIC 3142 | CANCELLED Fri 13- Apr-18 5:00-6:00pm | Facilitate drinks preceding AUSVEG VIC Awards for Excellence Dinner Access to R&D resources | >10 participants Allow growers, advisors and researchers to network in informal environment | Did not proceed due to low numbers and interest in discussion with AUSVEG VIC State Manager |
| | | 2 | Biosecurity Capacity Building in Regional Communities | CL Partners: EGFC, AUSVEG, AgVic DEDJTR, AYV | Region: South-Eastern and Gippsland | Wed 2 May-18 10:00am-12:45pm | Member Facilitate discussion group at forum Provide R&D resources for councils | >20 participants >50% improve understanding and intend to change practice >80% approval and relevance rating | Completed 36 participants |
| | | 3 | Tullamarine airport export facility tour | CM Partner: AUSVEG | Region: all Location: Departure Dr, Melbourne Airport VIC 3045 | TBC Apr-19 | Facilitate Coordinate speakers Access to biosecurity R&D resources | >15 participants >80% approval and relevance rating | alignment with AUSVEG and gaining access to quarantine staff. Support for activity, but limited time and capacity to pursue. |
| | | 4 | VegNET regional exchange study tours | CL, CM Partners: EGFC, AUSVEG VIC, Lockyer Valley Growers Inc. | Region: all Location: TBC | TBC Apr-19 | Coordinate travel between regions Host growers and advisors on various farms and facilities | >15 participants >80% approval and relevance rating | Discussed opportunity with EGFC and Lockyer Valley Growers Inc. and the potential for Victorian growers to go to Queensland, Tasmania or New Zealand. Support for activity, but limited time and capacity to pursue. |
| | | 5 | Young grower group | CM, KO Partner: AUSVEG VIC KO | Region: Western Location: Werlbee, VIC Region: all | Ongoing | Facilitate Technical support Access to R&D resources Facilitate | Meet 2-4 times Membership of 5-8 growers Distribute quarterly updates | Identified need and willingness Made contact Determining best way to work with AUSVEG VIC as they want to ink with younger grower base in Wernbee Established in Year 2 |
| | | - 6 | Compost Community of Practice with Nathan Free | KO, CM Partners: Wattle Organic | Region: all | TRC | Facilitate | Meet 2-4 times | Identified need and willingness Made contact Support for activity, but limited time and capacity to pursue |
| Webinar | 2 | 1 | Are you ready? Biosecurity lessons in planning and response for the Australian vegetable industry | CL Partner: AHR | Region: all (national) Location: online | Thu 22-Mar-18 12:30-1:30pm (AEST) | Assist organise structure, content and speakers Facilitate and chair Record and distribute to industry Assist organise structure. | Successfully deliver webinar 1 of 4 in national series >30 participants | Completed 15 participants, 27 registered |
| | | 2 | Spray technology for vegetable growers: a guide to getting it right Future focus: robotics and | CL Partner: AHR | Region: all (national) Location: online | Thu 24-May-18 12:30-1:30pm (AEST) | content and speakers Facilitate and chair Record and distribute to industry Assist organise structure, content and speakers | Successfully deliver webinar 2 of 4 in national series >30 participants | Completed 25 participants, 54 registered |
| | | | intelligent systems in Australian vegetable | CL Pathon AUD | Region: all (national) | Thu 23-Aug-18 | Facilitate and chair Record and distribute to | Successfully deliver webinar 3 of 4 in national series | Completed |

| 1 | | | r | | T | | r | 1 | |
|---------------------------|---|--|--|---|--|-------------------------------|--|--|--|
| | | | Integrated Pest Management of vegetable pests: a more sustainable | CL | Region: all (national) | Thu 18-Oct-18 | Assist organise structure, content and speakers Facilitate and chair Record and distribute to | Successfully deliver webinar 4 of 4 in national series | Completed |
| One-on-one farm visits | | 4 | approach One-on-one farm visits and | Partner: AHR | Location: online Region: all | 12:30-1:30pm (AEST) | industry Engage with growers and | >30 participants 10-15 in Northern, Western and South-Eastern regions every 3 | 35 participants, 79 registered Schedule confirmed 1-2 |
| and meetings | - | 177 | meetings | CL, CM, KO | Locations: various | Ongoing | industry stakeholders | months | months in advance Established in Year 1 Continue operation |
| Other industry events | | 1 | Horticulture Industry Network (HIN) meetings | KO Partners: DEDJTR, cross- industry groups | Region: all Locations: various | Ongoing | Contribute relevant vegetable industry R&D perspective Technical support | Attend and contribute to quarterly meetings | Handover between RMCG and AUSVEG VIC to build capability of new State Manager |
| | | 2 | TPP stakeholder working group meetings | KO Partners: DEDJTR, cross- industry groups | Region: all Locations: various | Ongoing | vegetable industry R&D perspective Technical support | Attend and contribute to quarterly meetings | Established in Year 1 Continue operation |
| | | | Indian vegetable growers | ко | Region: Northern Location: 255 Ferguson | | Contribute relevant vegetable industry R&D perspective | Attend and contribute to quarterly | Established in Year 1 |
| | | 3 | workshop | Partners: DEDJTR | Road, Tatura, VIC 3616 Region: all Location: Corner Eleventh St | Ongoing | Technical support Contribute relevant vegetable industry R&D | meetings | Continue operation |
| | | 4 | Spray drift stakeholder workshop | KO Partners: DEDJTR | and Koorlong Ave, Irymple, VIC 3498 | Ongoing | perspective Technical support | Attend and contribute to quarterly meetings | Established in Year 1 Continue operation |
| | | 5 | AUSVEG VIC Executive Committee meeting | CL Partners: AUSVEG VIC, EGFC, BGGA | Region: all Location: Railway Club Hotel, 107 Raglan Street, Port Melbourne, VIC 3207 | Tue 27-Feb-18 | Provide update on project and AUSVEG VIC website redevelopment Nominate and shortlist | Attend and contribute to meeting | Completed |
| | | AUSVEG VIC Awards for 6 Excellence Dinner | | CL, CM, KO Partners: AUSVEG VIC, EGFC | Region: all Location: Kooyong Lawn Tennis Club, 489 Glenferrie Road, Toorak VIC 3142 | Fri 13-Apr-18 6:00-10:00pm | candidates for VegNET R&D Adoption Award Sponsor and present VegNET R&D Adoption Award | Successfully appoint and promote VegNET R&D Adoption Award to a Victorian vegetable grower | Completed |
| | | | | CL, CM, KO Partners: AUSVEG. Hort | Region: all (national) Location: Brisbane Convention Centre Glenelg Street & Merivale Street. South Brisbane OLD | Mon 18-Jun-18 to | Attend conference and engage with growers and stakeholders on R&D needs Promote project | >10 new contacts developed >5 new R&D topics identified and prioritised based on speaker | |
| | | 7 | Hort Connections 2018 | Innovation, AHR | 4101 Region: all | Wed 20-Jun-18 | Attend VegNET meeting Provide VegNET update to | sessions | Completed |
| | | 8 | AUSVEG VIC Annual General Meeting | KO, HW Partner: AUSVEG VIC, EGFC | Location: Fresh Select, 610 Duncans Road, Werribee South, VIC 3030 | Fri 12-Oct-18 4:00-6:00pm | | Improved awareness and engagement by Executive Committee | Completed |
| | | g | Western Victorian Growers Association meetings | CM, KO Partner: WVGA | Region: Western Location: TBC | Ongoing | Provide VegNET update to LOTE growers and advisors | Improved awareness and engagement by LOTE growers and advisors | To be confirmed with WVGA President |
| | | | AUSVEG VIC Awards for | CL, CM, KO Partners: AUSVEG VIC, | Region: all Location: Kooyong Lawn Tennis Club, 489 Glenferrie | Fri 3-May-19 | Nominate and shortlist candidates for VegNET R&D Adoption Award Sponsor and present VegNET R&D Adoption Award | Successfully appoint and promote VegNET R&D Adoption Award to a | Establised in Year 2 |
| | | 10 | Excellence Dinner Calendar developed and | EGFC CL. CM, KO Partner: EGFC, AUSVEG | Road, Toorak VIC 3142 Region: all Location: internal project | 7:00-11:00pm | Engage with Victorian project partners to | Victorian vegetable grower No duplication in event topics or dates All events promoted via combined | Continue operation Completed on AUSVEG VIC website redevelopment |
| Strategic events calendar | - | 1 | update as required | VIC | team | Feb-18 | coordinate events | calendar on AUSVEG VIC website | launched in late Apr-18 |
| | | | | | | | Review relevant research and summarise | Dessures developed and offectively | |
| Fact sheet | 4 | 1 | and options | CM, AC | Region: all | Apr-19 | Review relevant research | communicated to industry | Drafted |
| | | 2 | Clubroot management in vegetable production | CM, AC | Region: all | Apr-19 | and summarise Desktop publish Request peer review | Resource developed and effectively communicated to industry | Drafted |
| | | 3 | Precision Agriculture - current projects and areas of interest, what's in the pipeline | CM, HW | Region: all | Feb-19 | Review relevant research and summarise Desktop publish Request peer review | Resource developed and effectively communicated to industry | Completed |
| | | | Energy technology and options for the vegetable | | | | Review relevant research and summarise Desktop publish | Resource developed and effectively | |
| | | 4 | industry | KO, AC | Region: all | Apr-19 | Request peer review Review relevant research and summarise | communicated to industry | Drafted Not progressed, as greater need and resources diverted |
| Technical note | 4 | 1 | TBC, based on priority topics from needs analysis survey | CL | Region: all | TBC Apr-19 | Desktop publish Request peer review Review relevant research | Resource developed and effectively communicated to industry | to developing additional case studies Not progressed, as greater |
| | | 2 | TBC, based on priority topics from needs analysis survey | СМ | Region: all | TBC Apr-19 | and summarise Desktop publish Request peer review Review relevant research | Resource developed and effectively communicated to industry | need and resources diverted to developing additional case studies |
| | | 3 | TBC, based on priority topics from needs analysis survey | ко | Region: all | TBC Apr-19 | and summarise Desktop publish Request peer review | Resource developed and effectively communicated to industry | need and resources diverted to developing additional case studies |
| | | | TBC based on priority tor ice | | | | Review relevant research and summarise | Resource developed and officialization | Not progressed, as greater need and resources diverted to developing additional |
| | | 4 | from needs analysis survey | ко | Region: all | TBC Apr-19 | Request peer review Engage suitable | communicated to industry | case studies |
| Case study | 2 | 1 | Video showcasing AUSVEG VIC VegNET R&D Adoption Award | CL Partner: AUSVEG VIC, EGFC | Region: all | Jun-18 | production company Organise video shoot with successul grower recipient | 3-5 minute video produced and communicated to industry | Completed and communicated widely through industry channels |
| | | 2 | Grouping Growers in Greater Shepparton – the power of extension in the Indian community | ко | Region: Northern | Mar-19 | Use consistent template and provide qualitative/quantitative insights about impact of VegNET intervention | Resource developed and effectively communicated to industry | Completed and used to demonstrate impact in final report to Hort Innovation |
| | | 3 | Servicing organic growers in Swan Hill-Robinvale – the importance of connection in remote growing regions | ко | Region: Northern | Mar-19 | Use consistent template and provide qualitative/quantitative insights about impact of VegNET intervention | Resource developed and effectively communicated to industry | Completed and used to demonstrate impact in final report to Hort Innovation |
| | | 4 | Local context to national challenges - Lessons in club root sampling | СМ | Region: Western | Feb-19 | Use consistent template and provide qualitative/quantitative insights about impact of VegNET intervention | Resource developed and effectively communicated to industry | Completed and used to demonstrate impact in final report to Hort Innovation |
| | | | Timing is everything – targeted responses in | | Region: South-Eastern and | | Use consistent template and provide qualitative/quantitative insights about impact of | Resource developed and effectively | Completed and used to demonstrate impact in final |
| | | 6 | biosecurity management | CM, CL | statewide | Mar-19 | VegNET intervention Use consistent template | communicated to industry | report to Hort Innovation |
| | | | Digital action - reflecting on | CI | Pegion: all | Feb-19 | qualitative/quantitative insights about impact of | Resource developed and effectively | Completed and used to demonstrate impact in final |
| | | . 5 | Video showcasing AUSVEG | 05 | nagion, ai | 1.50-18 | Identify relevant grower and interview Develop content and request review and | Internation to moustry | |
| | | 7 | VIC VegNET R&D Adoption Award | CL | Region: all | May-19 | approval to desktop publish and release | 3-5 minute video produced and communicated to industry | твс |

| Communication material | | | | | | | | | |
|---|----|-----|---|------------|-------------|--|--|--|---|
| Growing Veg Businesses e-newsletter | 4 | 13 | Issues 18 to 30 | CM, CL, KO | Region: all | Monthly, second Wednesday of the month at 4pm (AEST) | Develop news, events and resources articles Share via MailChimp electronic platform | Distribute 12 editions on time to readership of >400 | Established in Year 1 Continue operation |
| AUSVEG Weekly Update e-newsletter | 12 | 40 | Articles on news, events and resources | CL | Region: all | Monthly | Develop news, events and resources articles Share via existing industry electronic platform | Minimum of 1 article per month | Established in Year 1 Continue operation |
| AUSVEG VIC website | - | 12 | Content on news, events and resources | CL | Region: all | Fortnightly | Develop news, events and resources content Share via existing industry electronic platform | Minimum of 1 update per fortnight | AUSVEG VIC redeveloped and launched in Apr-18 |
| Social media platforms (Twitter, LinkedIn, YouTube) | - | 56 | Content on news, events and resources | CL | Region: all | Fortnightly | Develop news, events and resources content Share via Tiwtter and other electronic platforms | Minimum of 1 update per fortnight | Established in Year 1 Continue operation |
| Article for local newspapers and/or industry publications | - | 8 | Articles on news, events and resources | CL | Region: all | Quarterly | Develop news, events and resources articles Share via existing industry or media platforms | Minimum of 1 article per quarter | Established in Year 1 Continue operation |
| SMS alert | - | 918 | Text growers and stakeholders about events and/or relevant issues | СМ | Region: all | As needs | Develop SMS based on news, events or resources Distribute via MessageMedia electronic olatform | Distribute >400 text messages in 12 months | Established in Year 1 Continue operation |

Confirmed To be confirmed

| Component | Annual target | Actual | Apr-17 | May-17 | Jun-17 | Jul-17 | Aug-17 | Sep-17 | Oct-17 | Nov-17 | Dec-17 | Jan-18 | Feb-18 | Mar-18 |
|--|---------------|--------|--|---|---|---|--|---|--|---|---|---|---|---|
| Knowledge transfer and events | | | | | | | | | | | | | | |
| Workshop | 4 | 5 | | | Tomato Potato Psyllid and Biosecurity Awareness workshop 13-Jun-17 Region: South-Eastern Partner: AUSVEG, DEDJTR, IPMT, EEM&S Responsbillity: CL, CM Attendance: 26 | | Spray application workshop 17-Aug-17 Region: South-Eastern Partner: Syngenta Responsibility: CL Attendance: 28 | Farm biosecurity planning workshop 7-Sep-17 Region: South-Eastern Partners: AUSVEG, DEDUTR Responsibility: CM, CL Attendance: 41 | Horticulture Code of Conduct workshop 6-0ct-17 Region: South-Eastern Partner: Rural Training Initiatives Responsibility: CM, CL Attendance: 18 Broccoli extrusion demonstration 24-0ct-17 Region: Western Partner: CSIRO Responsibility: CM Attendance: 21 | | | | | CSIRO Extrusion Demo and Leafminer Workshop 28-Mar-18 Region: South-Eastern Partners: CSIRO, AUSVEG AUSVEG Responsbillty: CL Attendance: TBC |
| | | | | | | | Nufarm crop protectant | | | LOTE Community of | | | | |
| Grower group / networking | 4 | 3 | Port of Melbourne export facility tour 5-Apr-17 Region: all Partner: AUSVEG Responsibility: CM, CL Attendance: 23 | | | | and seed warehouse facility tour 30-Aug-17 POSTPONED Region: Westem Responsibility: CM, KO Attendance: TBC | | | Practice Ongoing Region: Western Partner: WVGA, EEM, AUSVEG Responsibility: CM Attendance: TBC | | | Agronomy network facilitation Ongoing Region: all Partner: Incitec Pivot Responsibility: KO Attendance: TBC | |
| Webinar | 2 | 2 | | | APEN VegNET webinar 19-Jun-17 Partners: HA, GSLLS, NT Farmers, AHR Responsibility: CM, CL Attendance: 16 | | Precision agriculture technology in vegetable production systems 2-Aug-17 Partners: QDAF, TIA, TY, VegNET TAS Responsibility: CL Attendance: 42 | | | | Irrigation scheduling and making decisions webinar POSTPONED Partner: VegNET TAS Responsibility: CL Attendance: TBC | | | |
| One-on-one farm visits and meetings | | 282 | 32 | 36 | 8 | 26 | 39 | 27 | 7 | 14 | 19 | 19 | 48 | 7 |
| Other industry events | | 25 | AUSVEG VIC Awards for Excellence Dinner 8-Apr-17 Region: all Partner: AUSVEG VIC Role: support, develop award category Responsibility: CL, AMB Attendance: 115 | East Gippsland Vegetable Innovation Days & Industry Dinner 3 to 4.May-17 Region: Gippsland Partner: EGFC Role: support, consultation Responsibility: CL Attendance: 500 RIPPA robot field trials 3 to 4.May-17 Region: Gippsland Partner: UoS Role: facilitation, promotion Responsibility: CL Attendance: 500 Hort Connections SA 15 to 17-May-17 Region: all Partner: AUSVEG, HIA Region: Rugion: All Partner: AUSVEG, HIA Role: presentation, consultation, Trade Show booth Responsibility: CL, CM, KO, AMB | Westem Vegetable Growers Association meeting 29-Jun-17 Region: Westem Partner: WVGA Role: attendance, contribution Responsibility: KO Attendance: 40 | PMA A-NZ Science and Technology TECH EVENT 5-Ui-17 Region: all Partner: PMA A-NZ Robin: attendance, case atuly development Responsibility: CM Attendance: 30 Riverina Precision Apriculture Field Day 10-Ui-17 Region: Northern Partners: CSLLS (VegNET Robin, Ecolitation, promotion Attendance: 86 Gippstand Growers' Forum 27-Ui-17 Region: South Eastern Partners: VegNET Gippstand Role: presentation, Inikages with SE region Inikages with SE region Inikages with SE region | Destanti Age of Townson and Age | Food Innovation Certie workshop 16 Sep-17 Region: Cippeland Parhen: Velyde'T Cippeland, MU Ride promotion Responsibility: CL Attendance: 25 Aprichenical geal management Andra dryforitheir workshop 20 Sep-17 Region: Western Parter: AUSVEG Ride promotion, costitution Ramponsibility: CV Attendance: 4 Aprichenical peat management Agrichenical peat management Agrichenical peat management Agrichenical peat management Responsibility: CL Attendance: 10 Horticulture Industry Network meeting 28 Sep-17 Responsibility: KD Attendance: 20 | AUSVEG VIC Annual General Meeting project update 6-Oct-17 Region: all Partner: AUSVEG VIC Role: update, participation Responsibility: CL Attendance: 23 TPP stakeholder working group meeting 6-Oct-17 Region: all Partner: DEDJTR Responsibility: KO Attendance: 12 Rutherglen Bug round table R&D development discussion 17-Oct-17 Region: Western Partner: SARDI, AUSVEG, IPMT Responsibility: CM Attendance: 14 | Wembee Food Safety Field Day, Pre-harvest water risk miljation 2-Nov-17 Region: Wester Partner: UoS, AG ARC, ARC TCFSPF), Fresh Select Responsibility: CM, KO Attendance: 20 | | VegNET mid-term review interviews and data provision 30-Jan-13 Partner: Coutts J&R Role: feedback, data analysis, resources, communication outputs Responsibility: CL Attendance: 5 | CSIRO Eliminate Food Loss Workshop 22-feb-18 Region: all Partner: CSIRO Role: participation, industly linkage Responsibility: CM Attendance: 40 AUSVEG VIC Executive Committee meeting project update 27-feb-18 Region: all Partner: AUSVEG VIC Role: update, RAD link Responsibility: CL Attendance: 12 | |
| Strategic events calendar | - | 1 | Calendar developed | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required | Update as required |
| Extension material | | | · · · | ••••• | • • • • | ••••• | •••••• | ••••• | | ••••• | | | | |
| Fact sheet | 4 | 5 | | | | | | | Irrigation water quality Responsibility: KO, KS | Recycled water classes Responsibility: KO, KS | Assessing the Costs Associated with Vegetable Production Responsibility: CL Energy technology and options for the | Food safety and transitioning to HARPS Partners: Freshcare, HARPS, AV Responsibility: CL, KM Waste management: sources and options Partner: Matt Genever, | Protecting IP and R&D tax incentives Partner: Watemark Responsibility: CL, KM | Guidelines and standards for using recycled organics in vegetable production (with CBA tool) Partner: EPA NSW Responsibility: CM, BB |
| Technical note | 4 | 2 | | | | Lessons from the Field Chemical free sanitation: Schreurs & Sons Responsibility: CM | | | | | vegetable ndustry Responsibility: KO, CM | local government Responsibility: CM, BB Lessons from the Field: - Emma Germano - I Lover Farms - David Wallace - Wallace Vegetable Farm - Andrew Fragapane Farms - Fargapane Farms - Sean CrOf - Anahura Farms Responsibility: CM | | Technical notes 3 and 4 |
| Communication material | . 2 | 5 | | | | | | | | | | | | |
| Monthly Growing Veg Businesses e-newsletter (second Wednesday of the month) | 4 | 8 | Issue 6 Region: all Responsibility: CM, CL, KO | Issue 7 Region: all Responsibility: CM, CL, KO | Issue 8 Region: all Responsibility: CM, CL, KO | Issue 9 Region: all Responsibility: CM, CL, KO | Issue 10 Region: all Responsibility: CM, CL, KO | Issue 11 Region: all Responsibility: CM, CL, KO | Issue 12 Region: all Responsibility: CM, CL, KO | Issue 13 Region: all Responsibility: CM, CL, KO | Issue 14 Region: all Responsibility: CM, CL, KO | Issue 15 Region: all Responsibility: CM, CL, KO | Issue 16 Region: all Responsibility: CM, CL, KO | Issue 17 Region: all Responsibility: CM, CL, KO |
| Weekly AUSVEG e-newsletter | | 35 | 1 | 2 | 1 | 1 | R | 4 | 3 | 3 | 2 | 0 | 3 | 7 |
| | 12 | 0 | | - | | | 0 | | | l i | - | , second s | | |
| Content for AUSVEG VIC website Social media platforms (Twitter, LinkedIn, YouTube) | - 12 | 0 | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content |
| Content for AUSVEG VIC website Social media platforms (Twitter, LinkedIn, YouTube) Article for local newspapers | | 0 | Contribute content 6 | Contribute content 5 | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content |

Confirmed To be confirmed

| Component | Annual target | Actual | Apr-16 | May-16 | Jun-16 | Jul-16 | Aug-16 | Sep-16 | oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 | Mar-17 |
|--|---------------|--------|-------------------------------------|-------------------------------------|-------------------------------------|--|-------------------------------------|--|---|---|---|---|--|---|
| Knowledge transfer and events | | | | | | | | | | 1 | 1 | | 1 | |
| Workshop | 4 | 4 | | | | Growing Vegetable Businesses project launch 27-Jul-16 Region: South-Eastern Responsibility: CL Attendance: 40 | | Post-harvest management 7-Sep-16 Region: South-Eastern Partner: AHR Responsibility: CL Attendance: 12 | Gain the business edge 18-Oct-16 Region: Western Partner: HIA, WM, EEM Responsibility: CM, CL Attendance: 9 | | | | | Farm walk and Vegetable Strategic Investment Plan consultation 8-Mar-17 Region: Western Partner: CIS, UNE, HIA Responsibility: CM, CL Attendance: 20 |
| | | | | | | | | | | | | | | Agronomy network facilitation |
| Grower group / networking | 4 | 1 | | | | | | | | | | | | vanous Region: all Responsibility: KO Attendance: 5 |
| Webinar | 2 | 0 | | | | | | | | | | | | |
| One-on-one farm visits and meetings | | 189 | 0 | 0 | 10 | 7 | 24 | 31 | 24 | 21 | 21 | 13 | 15 | 23 |
| Other industry events | | 9 | | | | AUSVEG VIC Executive Committee project briefing 7-Jun-16 Region: all Partner: AUSVEG VIC Role: presentation Responsibility: AMB, CL | | Creating native vegetation insectariums on your fam 14-Sep-16 Region: South-Eastern Partner: PPWCMA Role: facilitation Responsibility: CM | Intractature industry network ² project presentation 11-Oct-16 Region: all Partner: DEDJTR Role: presentation Responsibility: CL Vegetable Strategic Investment Plan assistance with consultation 17 and 18-Oct-16 Region: South-Eastern and Northern Partner: HIA & CIS Role: support Responsibility: CL RIPPA robot field trials 18-Oct-16 Region: South-Eastern Partner: Uni of Syd. Role: facilitation, promotion Responsibility: CL AUSVEG VIC Annual General Meeting project update 28-Oct-16 Region: all Partner: AUSVEG VIC Role: presentation | Victorian Agribusiness Council Annual General Meeting 30-Nov-16 Region: all Partner: VAC Role: presentation Responsibility: CM | Goulbum Valley vegetable growers information session 8-Dec-16 Region: North Partner: DEDJTR AV Role: presentation Responsibility: KO | | | Sale Irrigation Expo and Irrigation Master Class 15-Mar-17 Region: Gippsland Partner: EGFC, AHR Role: support Responsibility: CL |
| Strategic events calendar | | 1 | Project initiated | Work plan developed | Work plan developed | Calendar developed | Updated as required | Updated as required | Updated as required | Updated as required | Updated as required | Updated as required | Updated as required | Updated as required |
| Extension material Fact sheet Technical note | 4 | 3 | | | | | | | | | BizCheck: benchmarking for vegetable businesses Responsibility: CM, EE | | Water quality management and testing Responsibility: CM, KO, AMB | Biosecurity Responsibility: CM Andrew Fragapane and winning the inaugural R&D Adoption Award at the AUSVEC VIC Awards. |
| Case study | 2 | 1 | | | | | | | | | | | | for Excellence Responsibility: CL Format: video |
| Communication material | | | | | | | | | | | | | | |
| Monthly Growing Veg Businesses e-newsletter | 4 | 5 | Assessed need and scoped options | Assessed need and scoped options | Assessed need and scoped options | Assessed need and scoped options | Issue 1 Region: all Responsibility: CM, CL, KO | Issue 2 Region: all Responsibility: CM, CL, KO | Issue 3 Region: all Responsibility: CM, CL, KO | Issue 4 Region: all Responsibility: CM, CL, KO | Issue 5 Region: all Responsibility: CM, CL, KO |
| Weekly AUSVEG e-newsletter | 12 | 17 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 0 | 0 | 2 | 5 | 4 |
| Content for AUSVEG VIC website Social media platforms (Twitter, LinkedIn, YouTube) | | 0 | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content | Contribute content |
| and/or industry publications | - | 607 | 0 Assessed need and | 0 Assessed need and | 0 Assessed need and | Assessed need and scoped system | 0 Assessed need and | 1 System initiated (distribute as required) | 1 | 0 | 0 | 2 | 1 | 1 |

Confirmed To be confirmed



Appendix 4: Needs analysis survey results

Q1 Please provide your details so we can keep you informed: (optional)

Answered: 133 Skipped: 0

| ANSWER CHOICES | RESPONSES | |
|----------------------------------|-----------|-----|
| Name | 100.00% | 133 |
| Position | 75.19% | 100 |
| Company | 96.99% | 129 |
| Address 2 | 0.00% | 0 |
| City/Town | 0.00% | 0 |
| State | 0.00% | 0 |
| Postcode | 75.19% | 100 |
| Email address | 57.14% | 76 |
| Mobile number | 61.65% | 82 |
| Date of discussion or site visit | 81.20% | 108 |

| # | NAME | DATE |
|----|--------------------------------|--------------------|
| 1 | Tim Burrell | 2/1/2019 9:06 AM |
| 2 | James | 12/14/2018 2:27 PM |
| 3 | James | 12/14/2018 2:19 PM |
| 4 | James | 12/14/2018 2:18 PM |
| 5 | Sigurd Howard | 9/27/2018 4:31 PM |
| 6 | Mark Schruers | 7/25/2018 3:21 PM |
| 7 | Wayne Shields | 7/25/2018 3:19 PM |
| 8 | Jaramail Rai | 7/25/2018 3:18 PM |
| 9 | Lucky Khakh | 7/25/2018 3:16 PM |
| 10 | Marino Pasin | 6/12/2018 2:07 PM |
| 11 | Adam Foley | 4/24/2018 10:37 AM |
| 12 | Mike Fielden | 4/24/2018 10:33 AM |
| 13 | Lucky Khakh | 3/23/2018 4:25 PM |
| 14 | Lucky Khakh | 3/23/2018 4:24 PM |
| 15 | Steve Bruynen | 3/22/2018 1:56 PM |
| 16 | Sam Cosentino | 3/22/2018 1:49 PM |
| 17 | Con Raffa | 3/22/2018 1:40 PM |
| 18 | Mark Schreurs | 3/22/2018 12:54 PM |
| 19 | Jodie Larmen | 3/22/2018 12:39 PM |
| 20 | Silvio Favero | 3/22/2018 11:26 AM |
| 21 | Gavin Arnott | 3/22/2018 10:32 AM |
| 22 | Vince Doria | 3/14/2018 2:50 PM |
| 23 | Rick Butler | 3/14/2018 2:48 PM |
| 24 | AUSVEG VIC Executive Committee | 3/12/2018 3:50 PM |
| 25 | Gary Chislett | 2/28/2018 12:42 PM |

| 26 | Joseph Ruffo | 2/22/2018 8:32 AM |
|----|-----------------------|--------------------|
| 27 | Matt Johnson | 2/15/2018 1:22 PM |
| 28 | Nathan Bischa | 11/16/2017 9:43 AM |
| 29 | Abdullah Allabadi | 11/16/2017 9:42 AM |
| 30 | Loch | 10/18/2017 7:53 AM |
| 31 | Carolyn | 10/18/2017 7:52 AM |
| 32 | Nathan Bischa | 10/18/2017 7:51 AM |
| 33 | Anthony Mason | 10/18/2017 7:50 AM |
| 34 | Giovani Mason | 10/18/2017 7:48 AM |
| 35 | Stephen Moore | 10/18/2017 7:47 AM |
| 36 | Deng | 9/21/2017 8:17 AM |
| 37 | Sam | 9/21/2017 8:16 AM |
| 38 | Giovani Mason | 9/21/2017 8:13 AM |
| 39 | Ben Schreurs | 9/13/2017 11:25 AM |
| 40 | Steven Winters | 9/13/2017 11:25 AM |
| 41 | Jo Vanniekerk | 9/13/2017 11:24 AM |
| 42 | Jo Vanniekerk | 9/13/2017 11:11 AM |
| 43 | Lisa Brassington | 9/13/2017 11:07 AM |
| 44 | Jason | 9/13/2017 11:05 AM |
| 45 | Juurgen | 9/13/2017 11:02 AM |
| 46 | Stephen Moore | 9/13/2017 10:58 AM |
| 47 | James Dickson | 9/13/2017 10:55 AM |
| 48 | Angeline Achariya | 9/7/2017 9:43 AM |
| 49 | John Said | 9/7/2017 9:41 AM |
| 50 | David Wallace | 9/7/2017 9:40 AM |
| 51 | James Muir | 9/7/2017 9:40 AM |
| 52 | Michael Tran | 9/7/2017 9:38 AM |
| 53 | Kaushik Mulukutla | 9/7/2017 9:37 AM |
| 54 | Marie-Astrid Ottenhof | 9/7/2017 9:37 AM |
| 55 | Hugh Reardon | 9/7/2017 9:35 AM |
| 56 | Lisa Brassington | 9/6/2017 1:07 PM |
| 57 | Jim Forsyth | 9/6/2017 1:04 PM |
| 58 | Emma Germano | 9/6/2017 1:03 PM |
| 59 | Kane Busch | 9/6/2017 1:01 PM |
| 60 | Shane Cox | 9/6/2017 12:59 PM |
| 61 | Andrew Bulmer | 9/6/2017 12:57 PM |
| 62 | Michael Evans | 9/6/2017 12:56 PM |
| 63 | Nigel | 8/18/2017 3:43 PM |
| 64 | Daryl Pearl | 8/16/2017 10:05 AM |
| 65 | Jenny Treeby | 8/16/2017 10:00 AM |
| 66 | Leading hand | 8/16/2017 9:57 AM |
| 67 | Greg moulds | 8/16/2017 9:55 AM |
| 68 | Sean Croft | 8/16/2017 9:51 AM |
| 69 | Andrew Young | 8/16/2017 9:48 AM |

| 70 | Andrew Young | 8/16/2017 9:47 AM |
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| 71 | Ewam | 8/16/2017 9:44 AM |
| 72 | Adam | 8/16/2017 9:41 AM |
| 73 | Emren Velisha | 5/25/2017 4:40 PM |
| 74 | Lisa Dillion | 5/25/2017 3:30 PM |
| 75 | Gary Jeans | 5/25/2017 2:38 PM |
| 76 | lan Guss | 5/25/2017 12:38 PM |
| 77 | Robert Hayes | 5/25/2017 12:36 PM |
| 78 | Rohan Davies | 5/25/2017 12:32 PM |
| 79 | Andrew Fragapane | 4/20/2017 2:06 PM |
| 80 | Sean Croft | 4/12/2017 7:58 PM |
| 81 | Chris Fyfe | 4/12/2017 7:55 PM |
| 82 | John Said | 3/24/2017 11:22 AM |
| 83 | Alvin Gopal | 3/24/2017 11:15 AM |
| 84 | Bart Keogh | 2/1/2017 3:03 PM |
| 85 | Jerome Thompson | 2/1/2017 2:42 PM |
| 86 | Michael Tran | 2/1/2017 2:35 PM |
| 87 | Harry Velisha | 2/1/2017 2:26 PM |
| 88 | Bart Keogh | 1/13/2017 9:39 AM |
| 89 | John Said | 1/10/2017 10:11 AM |
| 90 | Greg Young | 12/14/2016 7:41 AM |
| 91 | Luke Grayling | 12/14/2016 7:39 AM |
| 92 | Jarmail . S. Rti | 12/12/2016 11:29 AM |
| 93 | lucky Khakh | 12/12/2016 11:24 AM |
| 94 | Rajpseet Aulath | 12/12/2016 11:20 AM |
| 95 | Darshansin Ghmanget | 12/12/2016 11:15 AM |
| 96 | Sukhwindor Singh | 12/9/2016 2:22 PM |
| 97 | Gayathri Mekala | 12/9/2016 2:15 PM |
| 98 | Meetiy Vanapodia | 12/9/2016 2:11 PM |
| 99 | Sidney Aspaland | 12/9/2016 2:06 PM |
| 100 | Paul Kristiansen | 12/5/2016 1:14 PM |
| 101 | Peter, Phil and Chris Cochrane | 12/5/2016 1:13 PM |
| 102 | Paul and Vince Doria | 12/5/2016 1:11 PM |
| 103 | Gregory Moulds | 11/21/2016 2:59 PM |
| 104 | Brenton Frahm | 11/16/2016 10:37 AM |
| 105 | Geoff Morrow | 10/21/2016 8:51 AM |
| 106 | Kerry Murphy | 10/7/2016 8:37 AM |
| 107 | Edwina Olver | 10/4/2016 7:57 AM |
| 108 | Declan McDonald | 9/22/2016 10:30 AM |
| 109 | Matthew Plunkett | 9/22/2016 10:23 AM |
| 110 | Adam Buzza | 9/22/2016 10:19 AM |
| 111 | Dorin Gupta | 9/22/2016 10:14 AM |
| 112 | Richard Kelly | 9/22/2016 10:06 AM |
| 113 | Ken Orr | 9/22/2016 9:40 AM |

| 114 | Renee White | 9/19/2016 9:58 AM |
|--|---|--|
| 115 | Vivienne Waller | 9/19/2016 9:55 AM |
| 116 | Fiona Constable | 9/19/2016 9:54 AM |
| 117 | Kyle McFarland | 9/19/2016 9:52 AM |
| 118 | Adam Schreurs | 9/19/2016 9:50 AM |
| 119 | Paul Gazzola | 9/19/2016 9:36 AM |
| 120 | Adam Sali | 9/16/2016 11:43 AM |
| 121 | Tony Kourmouzis | 9/16/2016 11:11 AM |
| 122 | Andrew Young | 9/16/2016 11:03 AM |
| 123 | Matt Wilson | 9/16/2016 10:57 AM |
| 124 | Carlo Niutta | 9/16/2016 10:36 AM |
| 125 | David Wallace | 9/16/2016 10:19 AM |
| 126 | Frank Ruffo | 9/16/2016 10:07 AM |
| 127 | Phil Lamattina | 9/16/2016 9:52 AM |
| 128 | Andrew Claessens | 9/15/2016 2:24 PM |
| 129 | Stephen Moore | 9/12/2016 5:17 PM |
| 130 | Anthony Mason | 8/19/2016 10:47 AM |
| 131 | David Wallace | 8/19/2016 10:44 AM |
| 132 | Jeff | 8/3/2016 3:55 PM |
| 133 | Jeff Beavis | 7/29/2016 9:10 PM |
| # | POSITION | DATE |
| 1 | Grower | 2/1/2019 9:06 AM |
| | | |
| 2 | Sales agronomist | 12/14/2018 2:27 PM |
| 2 3 | Sales agronomist Sales agronomist | 12/14/2018 2:27 PM 12/14/2018 2:19 PM |
| 2 3 4 | Sales agronomist Sales agronomist Sales agronomist | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM |
| 2 3 4 5 | Sales agronomist Sales agronomist Sales agronomist Hort Account manger | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM |
| 2 3 4 5 6 | Sales agronomist Sales agronomist Sales agronomist Hort Account manger Farm manager | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM |
| 2 3 4 5 6 7 | Sales agronomist Sales agronomist Sales agronomist Hort Account manger Farm manager Grower | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM |
| 2 3 4 5 6 7 8 | Sales agronomist Sales agronomist Sales agronomist Hort Account manger Farm manager Grower Field representative | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM |
| 2 3 4 5 6 7 8 9 | Sales agronomistSales agronomistSales agronomistHort Account mangerFarm managerGrowerField representativeOwner | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM |
| 2 3 4 5 6 7 8 9 10 | Sales agronomistSales agronomistSales agronomistHort Account mangerFarm managerGrowerField representativeOwnerOwner | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:24 PM |
| 2 3 4 5 6 7 8 9 10 11 | Sales agronomistSales agronomistSales agronomistHort Account mangerFarm managerGrowerField representativeOwnerOwnerGrowerGrower | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:24 PM 3/22/2018 1:56 PM |
| 2 3 4 5 6 7 8 9 10 11 12 | Sales agronomistSales agronomistSales agronomistHort Account mangerFarm managerGrowerField representativeOwnerOwnerGrowerGrowerGrowerGrowerOwnerOwnerGrowerGrowerGrowerGrowerGrowerGrowerGrowerGrowerGrowerGrowerGrowerGrowerGrower | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:24 PM 3/22/2018 1:56 PM 3/22/2018 1:49 PM |
| 2 3 4 5 6 7 8 9 10 11 12 13 | Sales agronomistSales agronomistSales agronomistHort Account mangerFarm managerGrowerField representativeOwnerOwnerGrower | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:19 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:24 PM 3/22/2018 1:56 PM 3/22/2018 1:49 PM 3/22/2018 1:40 PM |
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| 2 3 4 5 6 7 8 9 10 11 12 13 13 14 | Sales agronomistSales agronomistSales agronomistHort Account mangerFarm managerGrowerField representativeOwnerOwnerGrower | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:24 PM 3/22/2018 1:56 PM 3/22/2018 1:49 PM 3/22/2018 1:49 PM 3/22/2018 1:254 PM 3/22/2018 12:39 PM |
| 2 3 4 5 6 7 8 9 10 11 12 13 13 14 15 16 | Sales agronomistSales agronomistSales agronomistHort Account mangerFarm managerGrowerField representativeOwnerOwnerGrowerG | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:19 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:25 PM 3/22/2018 1:56 PM 3/22/2018 1:49 PM 3/22/2018 1:40 PM 3/22/2018 12:54 PM 3/22/2018 12:39 PM 3/22/2018 11:26 AM |
| 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 | Sales agronomist Sales agronomist Sales agronomist Hort Account manger Farm manager Grower Field representative Owner Owner Grower Grower < | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:19 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:24 PM 3/22/2018 1:56 PM 3/22/2018 1:49 PM 3/22/2018 1:49 PM 3/22/2018 1:49 PM 3/22/2018 1:40 PM 3/22/2018 1:54 PM 3/22/2018 1:254 PM |
| 2 3 4 5 6 7 8 9 10 11 12 13 13 14 15 16 17 18 | Sales agronomist Sales agronomist Sales agronomist Sales agronomist Hort Account manger Farm manager Grower Owner Owner Owner Grower Grower Grower Grower Grower Grower Grower Grower Grower Director | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:18 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:37 AM 3/23/2018 4:25 PM 3/23/2018 4:24 PM 3/22/2018 1:56 PM 3/22/2018 1:49 PM 3/22/2018 1:49 PM 3/22/2018 1:254 PM 3/22/2018 12:39 PM 3/22/2018 11:26 AM 3/22/2018 10:32 AM 3/14/2018 2:50 PM |
| 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 | Sales agronomist Sales agronomist Sales agronomist Hort Account manger Farm manager Grower Field representative Owner Owner Grower Grower Grower Grower Grower Grower Director Managing Director | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:19 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:25 PM 3/22/2018 1:56 PM 3/22/2018 1:49 PM 3/22/2018 1:49 PM 3/22/2018 12:54 PM 3/22/2018 12:39 PM 3/22/2018 11:26 AM 3/22/2018 10:32 AM 3/14/2018 2:50 PM 3/14/2018 2:48 PM |
| 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 | Sales agronomistSales agronomistSales agronomistHort Account mangerFarm managerGrowerField representativeOwnerOwnerGrowerGrowerGrowerGrowerGrowerGrowerDirectorManaging DirectorVarious | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:19 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:24 PM 3/22/2018 1:56 PM 3/22/2018 1:49 PM 3/22/2018 1:49 PM 3/22/2018 1:254 PM 3/22/2018 12:39 PM 3/22/2018 11:26 AM 3/22/2018 10:32 AM 3/14/2018 2:50 PM 3/14/2018 2:48 PM 3/12/2018 3:50 PM |
| 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 | Sales agronomistSales agronomistSales agronomistHort Account mangerFarm managerGrowerField representativeOwnerOwnerGrowerGrowerGrowerGrowerGrowerDownerDirectorManaging DirectorVariousOwnerOwner | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:19 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:25 PM 3/22/2018 1:56 PM 3/22/2018 1:40 PM 3/22/2018 1:40 PM 3/22/2018 12:54 PM 3/22/2018 12:54 PM 3/22/2018 11:26 AM 3/22/2018 10:32 AM 3/14/2018 2:50 PM 3/14/2018 2:50 PM 3/14/2018 2:48 PM |
| 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 | Sales agronomist Sales agronomist Sales agronomist Hort Account manger Farm manager Grower Field representative Owner Owner Grower Managing Director Various Owner Logistics manager | 12/14/2018 2:27 PM 12/14/2018 2:19 PM 12/14/2018 2:19 PM 9/27/2018 4:31 PM 6/12/2018 2:07 PM 4/24/2018 10:37 AM 4/24/2018 10:33 AM 3/23/2018 4:25 PM 3/23/2018 4:25 PM 3/22/2018 1:56 PM 3/22/2018 1:49 PM 3/22/2018 1:49 PM 3/22/2018 12:54 PM 3/22/2018 12:39 PM 3/22/2018 11:26 AM 3/22/2018 10:32 AM 3/14/2018 2:50 PM 3/14/2018 2:50 PM 3/12/2018 3:50 PM 2/28/2018 12:42 PM 2/28/2018 12:42 PM |

| 24 | Business Manager | 11/16/2017 9:43 AM |
|----|-----------------------------------|---------------------|
| 25 | Agronomist | 10/18/2017 7:53 AM |
| 26 | QA Manager | 10/18/2017 7:52 AM |
| 27 | Business Manager | 10/18/2017 7:51 AM |
| 28 | Agronomist | 9/21/2017 8:17 AM |
| 29 | Land and Water Manager | 9/13/2017 11:07 AM |
| 30 | Sherrin | 9/13/2017 11:05 AM |
| 31 | Paar | 9/13/2017 11:02 AM |
| 32 | Agronomist | 9/13/2017 10:58 AM |
| 33 | Head Grower | 9/13/2017 10:55 AM |
| 34 | Chief Executive Officer | 9/7/2017 9:43 AM |
| 35 | Managing Director | 9/7/2017 9:41 AM |
| 36 | Chairman | 9/7/2017 9:40 AM |
| 37 | President | 9/7/2017 9:38 AM |
| 38 | Quality Control Co-ordinator | 9/7/2017 9:37 AM |
| 39 | Managing Director | 9/7/2017 9:35 AM |
| 40 | Land and Water Manager | 9/6/2017 1:07 PM |
| 41 | Managing Director | 9/6/2017 1:03 PM |
| 42 | Managing Director | 9/6/2017 12:57 PM |
| 43 | Farm Manager | 9/6/2017 12:56 PM |
| 44 | Bodinnar | 8/18/2017 3:43 PM |
| 45 | Land Management Extension Officer | 8/16/2017 10:05 AM |
| 46 | Owner | 8/16/2017 9:51 AM |
| 47 | Leighton | 8/16/2017 9:44 AM |
| 48 | Foley | 8/16/2017 9:41 AM |
| 49 | Sales | 5/25/2017 3:30 PM |
| 50 | Owner | 5/25/2017 2:38 PM |
| 51 | Manager Harvest Labour | 5/25/2017 12:36 PM |
| 52 | Develop Manager Crop protection | 5/25/2017 12:32 PM |
| 53 | Production Manager | 4/20/2017 2:06 PM |
| 54 | General Manager | 4/12/2017 7:58 PM |
| 55 | Researcher | 4/12/2017 7:55 PM |
| 56 | Operations Supervisor - West | 2/1/2017 3:03 PM |
| 57 | Store Manager | 2/1/2017 2:42 PM |
| 58 | Sales Manager / President | 2/1/2017 2:35 PM |
| 59 | Operations Supervisor West | 1/13/2017 9:39 AM |
| 60 | Managing Director | 1/10/2017 10:11 AM |
| 61 | Agronomist | 12/14/2016 7:41 AM |
| 62 | Agronomist | 12/14/2016 7:39 AM |
| 63 | Grower | 12/12/2016 11:29 AM |
| 64 | Grower | 12/12/2016 11:24 AM |
| 65 | Director | 12/12/2016 11:20 AM |
| 66 | Grower | 12/12/2016 11:15 AM |
| | | |

| 68 | Project Offcier | 12/9/2016 2:15 PM |
|-----|--|---------------------|
| 69 | Grower | 12/9/2016 2:11 PM |
| 70 | Field Manager | 12/9/2016 2:06 PM |
| 71 | Senior Lecturer | 12/5/2016 1:14 PM |
| 72 | Grower | 12/5/2016 1:13 PM |
| 73 | Directors | 12/5/2016 1:11 PM |
| 74 | Senior Land Services Officer- Horticultural Extension | 11/21/2016 2:59 PM |
| 75 | Agronomist | 11/16/2016 10:37 AM |
| 76 | Agronomist | 10/21/2016 8:51 AM |
| 77 | Owner | 10/4/2016 7:57 AM |
| 78 | Senior Soil Scientist Horticultural Scientist | 9/22/2016 10:30 AM |
| 79 | Senior Land Services Officer (Irrigation) | 9/22/2016 10:23 AM |
| 80 | Senior Policy Analyst Drought Team Primary Industries Policy | 9/22/2016 10:19 AM |
| 81 | Researcher | 9/22/2016 10:14 AM |
| 82 | Consultant | 9/22/2016 9:40 AM |
| 83 | IP Professional | 9/19/2016 9:58 AM |
| 84 | Senior Lecturer | 9/19/2016 9:55 AM |
| 85 | Senior Plant Virologist | 9/19/2016 9:54 AM |
| 86 | Agronomist | 9/19/2016 9:52 AM |
| 87 | Managing Director | 9/19/2016 9:50 AM |
| 88 | Managing Director | 9/19/2016 9:36 AM |
| 89 | Manager | 9/16/2016 11:43 AM |
| 90 | Principle | 9/16/2016 11:11 AM |
| 91 | Owner | 9/16/2016 11:03 AM |
| 92 | Senior Technical Officer Irrigation Extension | 9/16/2016 10:57 AM |
| 93 | Agronomist | 9/16/2016 10:36 AM |
| 94 | Owmer | 9/16/2016 10:19 AM |
| 95 | Owner | 9/16/2016 10:07 AM |
| 96 | Partner | 9/16/2016 9:52 AM |
| 97 | Station Manager | 9/15/2016 2:24 PM |
| 98 | Agronomist | 9/12/2016 5:17 PM |
| 99 | Beavis | 8/3/2016 3:55 PM |
| 100 | Head Grower - Vegetables | 7/29/2016 9:10 PM |
| # | COMPANY | DATE |
| 1 | Mallee Organics | 2/1/2019 9:06 AM |
| 2 | Biosys Agribussiness | 12/14/2018 2:27 PM |
| 3 | Landmark | 9/27/2018 4:31 PM |
| 4 | Peter Schruers & Sons | 7/25/2018 3:21 PM |
| 5 | Peninsula Fresh Organics | 7/25/2018 3:19 PM |
| 6 | Dasmesly Farms | 7/25/2018 3:18 PM |
| 7 | Khakh Farms | 7/25/2018 3:16 PM |
| 8 | Tripod Farms | 6/12/2018 2:07 PM |
| 9 | Foley organics | 4/24/2018 10:37 AM |
| 10 | One Harvest | 4/24/2018 10:33 AM |

| 11 | L & R Khakh, Pty Ltd | 3/23/2018 4:25 PM |
|----|--|--------------------|
| 12 | L & R Khakh, Pty Ltd | 3/23/2018 4:24 PM |
| 13 | Steve Bruynen Farms P/L | 3/22/2018 1:56 PM |
| 14 | S.F. Cosentino P/L | 3/22/2018 1:49 PM |
| 15 | Raffa Fields Pty. Ltd. | 3/22/2018 1:40 PM |
| 16 | Peter Schreurs & Sons | 3/22/2018 12:54 PM |
| 17 | G. & J. Larman | 3/22/2018 12:39 PM |
| 18 | Favero Gardens | 3/22/2018 11:26 AM |
| 19 | Arnotts Vegetable Farms | 3/22/2018 10:32 AM |
| 20 | Freni & Doria | 3/14/2018 2:50 PM |
| 21 | Butler Market Gardens | 3/14/2018 2:48 PM |
| 22 | Various | 3/12/2018 3:50 PM |
| 23 | Chislett Farms | 2/28/2018 12:42 PM |
| 24 | Tripod Farms | 2/22/2018 8:32 AM |
| 25 | Coolibah Herbs | 2/15/2018 1:22 PM |
| 26 | Riverside Produce | 11/16/2017 9:43 AM |
| 27 | HM.Clause / Henderson Seed Group | 11/16/2017 9:42 AM |
| 28 | Tripod Farms | 10/18/2017 7:53 AM |
| 29 | Fresh Select | 10/18/2017 7:52 AM |
| 30 | Riverside Produce | 10/18/2017 7:51 AM |
| 31 | Masons | 10/18/2017 7:50 AM |
| 32 | Mason Brothers | 10/18/2017 7:48 AM |
| 33 | E.E. Muir & Sons | 10/18/2017 7:47 AM |
| 34 | Stuart Griggs Consulting | 9/21/2017 8:17 AM |
| 35 | Harvest Moon | 9/21/2017 8:16 AM |
| 36 | Mason Brothers | 9/21/2017 8:13 AM |
| 37 | Schreurs & Sons | 9/13/2017 11:25 AM |
| 38 | Boomaroo Nurseries | 9/13/2017 11:25 AM |
| 39 | Boomaroo Nurseries | 9/13/2017 11:24 AM |
| 40 | Boomaroo Nurseries | 9/13/2017 11:11 AM |
| 41 | Peninsula Fresh Organics | 9/13/2017 11:07 AM |
| 42 | Gibsons Groundspread | 9/13/2017 11:05 AM |
| 43 | Rijk Zwaan | 9/13/2017 11:02 AM |
| 44 | E.E. Muir & Sons | 9/13/2017 10:58 AM |
| 45 | GroLink | 9/13/2017 10:55 AM |
| 46 | Food Innovation Centre | 9/7/2017 9:43 AM |
| 47 | Fresh Select | 9/7/2017 9:41 AM |
| 48 | AUSVEG Vic | 9/7/2017 9:40 AM |
| 49 | EE Muir & Sons | 9/7/2017 9:40 AM |
| 50 | Western Victoria Vegetable Growers Association | 9/7/2017 9:38 AM |
| 51 | Fresh Select | 9/7/2017 9:37 AM |
| 52 | Schreurs & Sons | 9/7/2017 9:37 AM |
| 53 | Dicky Bill Farms | 9/7/2017 9:35 AM |
| 54 | Peninsula Fresh Organics | 9/6/2017 1:07 PM |

| 55 | Forsyth Farms | 9/6/2017 1:04 PM |
|----|---|---------------------|
| 56 | I Love Farms / Germano Produce | 9/6/2017 1:03 PM |
| 57 | Busch Organics | 9/6/2017 1:01 PM |
| 58 | Riveria Farms | 9/6/2017 12:59 PM |
| 59 | Bulmer Farms | 9/6/2017 12:57 PM |
| 60 | Mulgowie Farms | 9/6/2017 12:56 PM |
| 61 | Incitec Pivot Ltd | 8/18/2017 3:43 PM |
| 62 | Department of Economic Development, Jobs, Transport and Resources | 8/16/2017 10:05 AM |
| 63 | Ag Vic | 8/16/2017 10:00 AM |
| 64 | Tripodia Farms Robinvale | 8/16/2017 9:57 AM |
| 65 | NSW Lands extension | 8/16/2017 9:55 AM |
| 66 | Arahura Farms | 8/16/2017 9:51 AM |
| 67 | Redgold produce | 8/16/2017 9:48 AM |
| 68 | Redgold produce | 8/16/2017 9:47 AM |
| 69 | R. Lamattina & Sons P/L | 8/16/2017 9:44 AM |
| 70 | Coolabah Herbsl | 8/16/2017 9:41 AM |
| 71 | Velisha H & Sons | 5/25/2017 4:40 PM |
| 72 | Syngenta | 5/25/2017 3:30 PM |
| 73 | Swan Hill Chemicals | 5/25/2017 2:38 PM |
| 74 | Agrilever | 5/25/2017 12:38 PM |
| 75 | MADEC | 5/25/2017 12:36 PM |
| 76 | BASF | 5/25/2017 12:32 PM |
| 77 | Fragapane Farms | 4/20/2017 2:06 PM |
| 78 | Arahura Farms | 4/12/2017 7:58 PM |
| 79 | University of New England | 4/12/2017 7:55 PM |
| 80 | Fresh Select | 3/24/2017 11:22 AM |
| 81 | ACAH | 3/24/2017 11:15 AM |
| 82 | Southern Rural Water | 2/1/2017 3:03 PM |
| 83 | CRT Rural / Werribee South Store | 2/1/2017 2:42 PM |
| 84 | EE Muir & Sons / Western Victoria Vegetable Association | 2/1/2017 2:35 PM |
| 85 | E&F Velisha | 2/1/2017 2:26 PM |
| 86 | SRW | 1/13/2017 9:39 AM |
| 87 | Fresh Select | 1/10/2017 10:11 AM |
| 88 | Mildura Ag supplies | 12/14/2016 7:41 AM |
| 89 | EE Muir & Sons | 12/14/2016 7:39 AM |
| 90 | Dasmesin Farms | 12/12/2016 11:29 AM |
| 91 | Khakh Farms | 12/12/2016 11:24 AM |
| 92 | D & R Aulatch Veggies | 12/12/2016 11:20 AM |
| 93 | D.S.Manet | 12/12/2016 11:15 AM |
| 94 | Singh Vegetables | 12/9/2016 2:22 PM |
| 95 | University of Melbourne | 12/9/2016 2:15 PM |
| 96 | Matteo | 12/9/2016 2:11 PM |
| 97 | University of Melbourne Dookie | 12/9/2016 2:06 PM |
| 98 | University of New England | 12/5/2016 1:14 PM |

| 99 | P&J Cochrane Vegetable Growers | 12/5/2016 1:13 PM |
|-----|---|---------------------|
| 100 | Freni and Doria Vegetables | 12/5/2016 1:11 PM |
| 101 | Local Land Services Western Region | 11/21/2016 2:59 PM |
| 102 | Landmark Mildura | 11/16/2016 10:37 AM |
| 103 | EE. Muir & sons | 10/21/2016 8:51 AM |
| 104 | TAFCO Rural Supplies | 10/7/2016 8:37 AM |
| 105 | High Country Farm | 10/4/2016 7:57 AM |
| 106 | SESL | 9/22/2016 10:30 AM |
| 107 | Greater Sydney Local Land Services | 9/22/2016 10:23 AM |
| 108 | Department of Economic Development, Jobs, Transport and Resources | 9/22/2016 10:19 AM |
| 109 | Melbourne University - Dookie campus | 9/22/2016 10:14 AM |
| 110 | Kelly Bros | 9/22/2016 10:06 AM |
| 111 | Soils and solutions | 9/22/2016 9:40 AM |
| 112 | Watermark | 9/19/2016 9:58 AM |
| 113 | Swinburne University | 9/19/2016 9:55 AM |
| 114 | DEDJTR VIC | 9/19/2016 9:54 AM |
| 115 | E.E. Muir & Sons | 9/19/2016 9:52 AM |
| 116 | Schreurs & Sons | 9/19/2016 9:50 AM |
| 117 | Gazzola Farms | 9/19/2016 9:36 AM |
| 118 | Coolibah Herbs | 9/16/2016 11:43 AM |
| 119 | Redearth consultants | 9/16/2016 11:11 AM |
| 120 | Redgold produce | 9/16/2016 11:03 AM |
| 121 | Lower Murray Water | 9/16/2016 10:57 AM |
| 122 | EE Muir & Sons | 9/16/2016 10:36 AM |
| 123 | Wallace Farms | 9/16/2016 10:19 AM |
| 124 | Tripod farms | 9/16/2016 10:07 AM |
| 125 | Lamattina Farms | 9/16/2016 9:52 AM |
| 126 | Rijk Zwann | 9/15/2016 2:24 PM |
| 127 | E.E. Muir & Sons Pty Ltd | 9/12/2016 5:17 PM |
| 128 | Boomaroo Nurseries | 8/3/2016 3:55 PM |
| 129 | Boomaroo | 7/29/2016 9:10 PM |
| # | ADDRESS 2 | DATE |
| | There are no responses. | |
| # | CITY/TOWN | DATE |
| | There are no responses. | |
| # | STATE | DATE |
| | There are no responses. | |
| # | POSTCODE | DATE |
| 1 | 3590 | 2/1/2019 9:06 AM |
| 2 | 3435 | 12/14/2018 2:27 PM |
| 3 | 3139 | 9/27/2018 4:31 PM |
| 4 | 3977 | 7/25/2018 3:21 PM |
| 5 | 3911 | 7/25/2018 3:19 PM |
| 6 | 3630 | 7/25/2018 3:18 PM |

| 7 | 3630 | 7/25/2018 3:16 PM |
|----|------|--------------------|
| 8 | 3549 | 6/12/2018 2:07 PM |
| 9 | 3594 | 4/24/2018 10:37 AM |
| 10 | 3631 | 3/23/2018 4:25 PM |
| 11 | 3631 | 3/23/2018 4:24 PM |
| 12 | 3977 | 3/14/2018 2:50 PM |
| 13 | 3202 | 3/14/2018 2:48 PM |
| 14 | - | 3/12/2018 3:50 PM |
| 15 | 3494 | 2/28/2018 12:42 PM |
| 16 | 3549 | 2/22/2018 8:32 AM |
| 17 | 3549 | 2/15/2018 1:22 PM |
| 18 | 3030 | 11/16/2017 9:43 AM |
| 19 | 3107 | 11/16/2017 9:42 AM |
| 20 | 3340 | 10/18/2017 7:53 AM |
| 21 | 3030 | 10/18/2017 7:52 AM |
| 22 | 3030 | 10/18/2017 7:51 AM |
| 23 | 3030 | 10/18/2017 7:50 AM |
| 24 | 3030 | 10/18/2017 7:48 AM |
| 25 | 3030 | 10/18/2017 7:47 AM |
| 26 | 3030 | 9/21/2017 8:17 AM |
| 27 | 3030 | 9/21/2017 8:16 AM |
| 28 | 3030 | 9/21/2017 8:13 AM |
| 29 | 3030 | 9/13/2017 10:58 AM |
| 30 | 3030 | 9/13/2017 10:55 AM |
| 31 | 3850 | 9/7/2017 9:35 AM |
| 32 | 3911 | 9/6/2017 1:07 PM |
| 33 | 3860 | 9/6/2017 1:04 PM |
| 34 | 3871 | 9/6/2017 1:03 PM |
| 35 | 3860 | 9/6/2017 1:01 PM |
| 36 | 3860 | 9/6/2017 12:59 PM |
| 37 | 3865 | 9/6/2017 12:57 PM |
| 38 | 3860 | 9/6/2017 12:56 PM |
| 39 | 3500 | 8/16/2017 10:00 AM |
| 40 | 3459 | 8/16/2017 9:57 AM |
| 41 | 3500 | 8/16/2017 9:55 AM |
| 42 | 3594 | 8/16/2017 9:51 AM |
| 43 | 3549 | 8/16/2017 9:48 AM |
| 44 | 3549 | 8/16/2017 9:47 AM |
| 45 | 3549 | 8/16/2017 9:44 AM |
| 46 | 3549 | 8/16/2017 9:41 AM |
| 47 | 3030 | 5/25/2017 4:40 PM |
| 48 | 3585 | 5/25/2017 2:38 PM |
| 49 | 3006 | 5/25/2017 12:38 PM |
| 50 | 3500 | 5/25/2017 12:36 PM |

| 51 | 3006 | 5/25/2017 12:32 PM |
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| 52 | 3030 | 4/20/2017 2:06 PM |
| 53 | 3595 | 4/12/2017 7:58 PM |
| 54 | 2351 | 4/12/2017 7:55 PM |
| 55 | 3130 | 3/24/2017 11:22 AM |
| 56 | 3030 | 3/24/2017 11:15 AM |
| 57 | 3030 | 2/1/2017 3:03 PM |
| 58 | 3030 | 2/1/2017 2:42 PM |
| 59 | 3030 | 2/1/2017 2:35 PM |
| 60 | 3030 | 2/1/2017 2:26 PM |
| 61 | 3030 | 1/13/2017 9:39 AM |
| 62 | 3030 | 1/10/2017 10:11 AM |
| 63 | 3498 | 12/14/2016 7:41 AM |
| 64 | 3549 | 12/14/2016 7:39 AM |
| 65 | 3631 | 12/12/2016 11:29 AM |
| 66 | 3631 | 12/12/2016 11:24 AM |
| 67 | 3631 | 12/12/2016 11:20 AM |
| 68 | 3631 | 12/12/2016 11:15 AM |
| 69 | 3630 | 12/9/2016 2:22 PM |
| 70 | 3630 | 12/9/2016 2:11 PM |
| 71 | 2351 | 12/5/2016 1:14 PM |
| 72 | 3978 | 12/5/2016 1:13 PM |
| 73 | 3977 | 12/5/2016 1:11 PM |
| 74 | 2739 | 11/21/2016 2:59 PM |
| 75 | 3500 | 11/16/2016 10:37 AM |
| 76 | 3676 | 10/21/2016 8:51 AM |
| 77 | 3737 | 10/7/2016 8:37 AM |
| 78 | 3722 | 10/4/2016 7:57 AM |
| 79 | 2750 | 9/22/2016 10:23 AM |
| 80 | 3340 | 9/22/2016 10:19 AM |
| 81 | 3730 | 9/22/2016 10:06 AM |
| 82 | 3351 | 9/22/2016 9:40 AM |
| 83 | 3122 | 9/19/2016 9:58 AM |
| 84 | 3122 | 9/19/2016 9:55 AM |
| 85 | 3083 | 9/19/2016 9:54 AM |
| 86 | 3977 | 9/19/2016 9:52 AM |
| 87 | 3978 | 9/19/2016 9:50 AM |
| 88 | 3912 | 9/19/2016 9:36 AM |
| 89 | 3549 | 9/16/2016 11:43 AM |
| 90 | 5290 | 9/16/2016 11:11 AM |
| 91 | 3549 | 9/16/2016 11:03 AM |
| 92 | 3500 | 9/16/2016 10:57 AM |
| 93 | 3500 | 9/16/2016 10:36 AM |
| 94 | 30336 | 9/16/2016 10:19 AM |

| 95 | 3340 | 9/16/2016 10:07 AM |
|-----|------------------------------------|--------------------|
| 96 | 3549 | 9/16/2016 9:52 AM |
| 97 | 3460 | 9/15/2016 2:24 PM |
| 98 | 3030 | 9/12/2016 5:17 PM |
| 99 | 3212 | 8/3/2016 3:55 PM |
| 100 | 3212 | 7/29/2016 9:10 PM |
| # | EMAIL ADDRESS | DATE |
| 1 | leeburrell@internode.on.net | 2/1/2019 9:06 AM |
| 2 | james@biosysab.com.au | 12/14/2018 2:27 PM |
| 3 | james@biosysab.com.au | 12/14/2018 2:19 PM |
| 4 | james@biosysab.com.au | 12/14/2018 2:18 PM |
| 5 | Sigurd.howard@landmark.com.au | 9/27/2018 4:31 PM |
| 6 | marino@happyvalleyproduce.com.au | 6/12/2018 2:07 PM |
| 7 | adf1@live.com.au | 4/24/2018 10:37 AM |
| 8 | michael.fielden@oneharvest.com.au | 4/24/2018 10:33 AM |
| 9 | khakhs@optusnet.com.au | 3/23/2018 4:25 PM |
| 10 | khakhs@optusnet.com.au | 3/23/2018 4:24 PM |
| 11 | frenidoria@bigpond.com.au | 3/14/2018 2:50 PM |
| 12 | rick@butlermarketgardens.com.au | 3/14/2018 2:48 PM |
| 13 | - | 3/12/2018 3:50 PM |
| 14 | chizz1@bigpond.com | 2/28/2018 12:42 PM |
| 15 | joseph@tripodfarmers.com.au | 2/22/2018 8:32 AM |
| 16 | wemen@coolibah.com.au | 2/15/2018 1:22 PM |
| 17 | nathan.bischa@harvestmoon.com.au | 11/16/2017 9:43 AM |
| 18 | abdullah.allabadi@hmclause.com | 11/16/2017 9:42 AM |
| 19 | agperiurban@gmail.com | 9/6/2017 1:07 PM |
| 20 | emmagermano@gmail.com | 9/6/2017 1:03 PM |
| 21 | andrewbulmer@bigpond.com | 9/6/2017 12:57 PM |
| 22 | bp07farm@mulgowie.com.au | 9/6/2017 12:56 PM |
| 23 | nigel.bodinnar@incitecpivot.com.au | 8/18/2017 3:43 PM |
| 24 | darryl.pearl@ecodev.vic.gov.au | 8/16/2017 10:05 AM |
| 25 | seancroft@arahurafarms.com | 8/16/2017 9:51 AM |
| 26 | agronomist@lamattinafarms.com.au | 8/16/2017 9:44 AM |
| 27 | efv@velisha.net.au | 5/25/2017 4:40 PM |
| 28 | lisa.dillon@syngenta.com | 5/25/2017 3:30 PM |
| 29 | gary@shc.com.au | 5/25/2017 2:38 PM |
| 30 | ian@agrilever.com | 5/25/2017 12:38 PM |
| 31 | rhayes@madec.edu.au | 5/25/2017 12:36 PM |
| 32 | rohan.davies @basf.com | 5/25/2017 12:32 PM |
| 33 | andrew@fragapanefarms.com.au | 4/20/2017 2:06 PM |
| 34 | seancroft@arahurafarms.com | 4/12/2017 7:58 PM |
| 35 | cfyfe3@une.edu.au | 4/12/2017 7:55 PM |
| 36 | bartk@srw.com.au | 2/1/2017 3:03 PM |
| 37 | mtran@eem.com.au | 2/1/2017 2:35 PM |

| 38 | bartk@srw.com.au | 1/13/2017 9:39 AM |
|----|------------------------------------|---------------------|
| 39 | john.said@freshselect.com.au | 1/10/2017 10:11 AM |
| 40 | gregy@shc.com.au | 12/14/2016 7:41 AM |
| 41 | lgrayling@eem.com.au | 12/14/2016 7:39 AM |
| 42 | jarmailrti@hotmail.com | 12/12/2016 11:29 AM |
| 43 | singhdsaulth@gmail.com | 12/12/2016 11:20 AM |
| 44 | amanpreetkaur72@yahoo.com | 12/9/2016 2:22 PM |
| 45 | gayathri.meala@unimelbounre.edu.au | 12/9/2016 2:15 PM |
| 46 | saspand@live.com | 12/9/2016 2:06 PM |
| 47 | paul.kristiansen@une.edu.au | 12/5/2016 1:14 PM |
| 48 | cochrane@i.net.au | 12/5/2016 1:13 PM |
| 49 | paul@frenidoria.com.au | 12/5/2016 1:11 PM |
| 50 | gregory.moulds@lls.nsw.gov.au | 11/21/2016 2:59 PM |
| 51 | brenton.frahm@landmark.com.au | 11/16/2016 10:37 AM |
| 52 | gmorrow@eem.com.au | 10/21/2016 8:51 AM |
| 53 | kerry@tafco.com.au | 10/7/2016 8:37 AM |
| 54 | info@highcountryfarm.com.au | 10/4/2016 7:57 AM |
| 55 | declan@sesl.com.au | 9/22/2016 10:30 AM |
| 56 | matthew.plunkett@lls.nsw.gov.au | 9/22/2016 10:23 AM |
| 57 | adam.buzza@ecodev.vic.gov.au | 9/22/2016 10:19 AM |
| 58 | dorin.gupta@unimelb.edu.au | 9/22/2016 10:14 AM |
| 59 | richardk@kelly-bros.com.au | 9/22/2016 10:06 AM |
| 60 | ken.orr54@bigpond.com | 9/22/2016 9:40 AM |
| 61 | r.white@watermark.com.au | 9/19/2016 9:58 AM |
| 62 | vwaller@swin.edu.au | 9/19/2016 9:55 AM |
| 63 | iona.constable@ecodev.vic.gov.au | 9/19/2016 9:54 AM |
| 64 | kj4mcfarland@gmail.com | 9/19/2016 9:52 AM |
| 65 | Adam@schreurs.com.au | 9/19/2016 9:50 AM |
| 66 | paul@gazzolafarms.com.au | 9/19/2016 9:36 AM |
| 67 | wemen@coolibah.com.au | 9/16/2016 11:43 AM |
| 68 | tony@redearthagco.com.au | 9/16/2016 11:11 AM |
| 69 | andrew@redgold.com.au | 9/16/2016 11:03 AM |
| 70 | Matt.Wilson@Imw.vic.gov.au | 9/16/2016 10:57 AM |
| 71 | cniutta@eem.com.au | 9/16/2016 10:36 AM |
| 72 | wallaceveg@bigpond.com | 9/16/2016 10:19 AM |
| 73 | frank@tripodfarmers.com.au | 9/16/2016 10:07 AM |
| 74 | phil@lamattinafarms.com.au | 9/16/2016 9:52 AM |
| 75 | andrew.claessens@rijkzwaan.com.au | 9/15/2016 2:24 PM |
| 76 | smoore@eem.com.au | 9/12/2016 5:17 PM |
| # | MOBILE NUMBER | DATE |
| 1 | 0411440673 | 2/1/2019 9:06 AM |
| 2 | 042830125 | 12/14/2018 2:27 PM |
| 3 | 042830125 | 12/14/2018 2:19 PM |
| 4 | 042830125 | 12/14/2018 2:18 PM |

| 5 | 03 5964 3566 | 9/27/2018 4:31 PM |
|----|----------------|---------------------|
| 6 | 0412629339 | 7/25/2018 3:18 PM |
| 7 | 0423680007 | 7/25/2018 3:16 PM |
| 8 | 0447844281 | 6/12/2018 2:07 PM |
| 9 | 0409521842 | 4/24/2018 10:37 AM |
| 10 | 0484004080 | 4/24/2018 10:33 AM |
| 11 | 0423680007 | 3/23/2018 4:25 PM |
| 12 | 0423680007 | 3/23/2018 4:24 PM |
| 13 | 0417 455 610 | 3/22/2018 11:26 AM |
| 14 | 0417 578 700 | 3/22/2018 10:32 AM |
| 15 | 0418 374 168 | 3/14/2018 2:50 PM |
| 16 | 0408 078 828 | 3/14/2018 2:48 PM |
| 17 | - | 3/12/2018 3:50 PM |
| 18 | 0427927606 | 2/28/2018 12:42 PM |
| 19 | 0413029391 | 2/22/2018 8:32 AM |
| 20 | 0448104238 | 2/15/2018 1:22 PM |
| 21 | 0433501051 | 9/6/2017 1:07 PM |
| 22 | 0428 300 113 | 9/6/2017 1:04 PM |
| 23 | 0423 774 477 | 9/6/2017 1:03 PM |
| 24 | 0434 905 601 | 9/6/2017 1:01 PM |
| 25 | 0438 009 850 | 9/6/2017 12:59 PM |
| 26 | 0409 518 425 | 9/6/2017 12:57 PM |
| 27 | 0427 659 604 | 9/6/2017 12:56 PM |
| 28 | 0408 500 216 | 8/18/2017 3:43 PM |
| 29 | 0417432711 | 8/16/2017 10:05 AM |
| 30 | (03) 5021 9444 | 8/16/2017 9:55 AM |
| 31 | 0409 485 558 | 8/16/2017 9:51 AM |
| 32 | 0415 869 632 | 8/16/2017 9:44 AM |
| 33 | 0438379278 | 5/25/2017 4:40 PM |
| 34 | 0407 499 946 | 5/25/2017 3:30 PM |
| 35 | 0428500066 | 5/25/2017 2:38 PM |
| 36 | 0413832777 | 5/25/2017 12:38 PM |
| 37 | 0439651511 | 5/25/2017 12:36 PM |
| 38 | 0408506326 | 5/25/2017 12:32 PM |
| 39 | 0412147433 | 4/20/2017 2:06 PM |
| 40 | 0409 485 558 | 4/12/2017 7:58 PM |
| 41 | 0401 200 045 | 4/12/2017 7:55 PM |
| 42 | 0401716523 | 2/1/2017 3:03 PM |
| 43 | 0399744713 | 1/13/2017 9:39 AM |
| 44 | 0419563164 | 12/14/2016 7:41 AM |
| 45 | 0412629339 | 12/12/2016 11:29 AM |
| 46 | 0423680007 | 12/12/2016 11:24 AM |
| 47 | 0433878973 | 12/12/2016 11:20 AM |
| 48 | 0413494932 | 12/12/2016 11:15 AM |

| 49 | 0469306163 | 12/9/2016 2:22 PM |
|----|----------------------------------|---------------------|
| 50 | 0405961110 | 12/9/2016 2:15 PM |
| 51 | 0429337522 | 12/9/2016 2:11 PM |
| 52 | 0411577111 | 12/9/2016 2:06 PM |
| 53 | 0421 950 026 | 12/5/2016 1:14 PM |
| 54 | 0418 392 113 | 12/5/2016 1:13 PM |
| 55 | 0402 455 980 | 12/5/2016 1:11 PM |
| 56 | 0427 311445 | 11/21/2016 2:59 PM |
| 57 | 0407 012 778 | 11/16/2016 10:37 AM |
| 58 | 0408 089276 | 10/21/2016 8:51 AM |
| 59 | 03 57 521 800 | 10/7/2016 8:37 AM |
| 60 | 0401237898 | 10/4/2016 7:57 AM |
| 61 | 0407 871 391 | 9/22/2016 10:30 AM |
| 62 | 0428 978390 | 9/22/2016 10:23 AM |
| 63 | 0447 525457 | 9/22/2016 10:19 AM |
| 64 | 0419886430 | 9/22/2016 10:06 AM |
| 65 | 0428502936 | 9/22/2016 9:40 AM |
| 66 | 0402 431 475 | 9/19/2016 9:58 AM |
| 67 | +61 3 9214 5752 | 9/19/2016 9:55 AM |
| 68 | 0407 723 086 | 9/19/2016 9:54 AM |
| 69 | 0401 871 344 | 9/19/2016 9:52 AM |
| 70 | 0418 379 418 | 9/19/2016 9:50 AM |
| 71 | 0418 556 366 | 9/19/2016 9:36 AM |
| 72 | 409521842 | 9/16/2016 11:43 AM |
| 73 | 0429 390816 | 9/16/2016 11:11 AM |
| 74 | 5026 0257 | 9/16/2016 11:03 AM |
| 75 | 0427 909 712 | 9/16/2016 10:57 AM |
| 76 | 0408547708 | 9/16/2016 10:19 AM |
| 77 | 0427265269 | 9/16/2016 10:07 AM |
| 78 | 0427500997 | 9/16/2016 9:52 AM |
| 79 | +61 447489015 | 9/15/2016 2:24 PM |
| 80 | 0407 551 113 | 9/12/2016 5:17 PM |
| 81 | jeff@boomaroo.com | 8/3/2016 3:55 PM |
| 82 | jeff@boomaroo.com | 7/29/2016 9:10 PM |
| # | DATE OF DISCUSSION OR SITE VISIT | DATE |
| 1 | 31-1-2019 | 2/1/2019 9:06 AM |
| 2 | 7-11-2018 | 12/14/2018 2:27 PM |
| 3 | 24-9-2018 | 9/27/2018 4:31 PM |
| 4 | 24/07/18 | 7/25/2018 3:21 PM |
| 5 | 24/07/18 | 7/25/2018 3:19 PM |
| 6 | 16/07/18 | 7/25/2018 3:18 PM |
| 7 | 16/07/18 | 7/25/2018 3:16 PM |
| 8 | 6//6/2018 | 6/12/2018 2:07 PM |
| 9 | 24-4-2018 | 4/24/2018 10:37 AM |

| 10 | 24-4-2018 | 4/24/2018 10:33 AM |
|----|------------------|--------------------|
| 11 | 13 March 2018 | 3/14/2018 2:50 PM |
| 12 | 13 March 2018 | 3/14/2018 2:48 PM |
| 13 | 27 February 2018 | 3/12/2018 3:50 PM |
| 14 | 19-2-2018 | 2/28/2018 12:42 PM |
| 15 | 20-2-2018 | 2/22/2018 8:32 AM |
| 16 | 12-2-2018 | 2/15/2018 1:22 PM |
| 17 | 14/11/2017 | 11/16/2017 9:43 AM |
| 18 | 16/11/2017 | 11/16/2017 9:42 AM |
| 19 | 17/10/2017 | 10/18/2017 7:53 AM |
| 20 | 17/10/2017 | 10/18/2017 7:52 AM |
| 21 | 17/10/2017 | 10/18/2017 7:51 AM |
| 22 | 17/10/2017 | 10/18/2017 7:48 AM |
| 23 | 18/10/17 | 10/18/2017 7:47 AM |
| 24 | 20/09/2017 | 9/21/2017 8:16 AM |
| 25 | 20/09/2017 | 9/21/2017 8:13 AM |
| 26 | 25/07/2017 | 9/13/2017 11:25 AM |
| 27 | 25/07/2017 | 9/13/2017 11:24 AM |
| 28 | 25/07/2017 | 9/13/2017 11:11 AM |
| 29 | 07/09/2017 | 9/13/2017 11:07 AM |
| 30 | 07/09/2017 | 9/13/2017 11:05 AM |
| 31 | 07/09/2017 | 9/13/2017 11:02 AM |
| 32 | 12/09/2017 | 9/13/2017 10:58 AM |
| 33 | 12/07/2017 | 9/13/2017 10:55 AM |
| 34 | 18/08/2017 | 9/7/2017 9:43 AM |
| 35 | 17/04/2017 | 9/7/2017 9:41 AM |
| 36 | 17/04/2017 | 9/7/2017 9:40 AM |
| 37 | 17/04/2017 | 9/7/2017 9:40 AM |
| 38 | 17/04/2017 | 9/7/2017 9:38 AM |
| 39 | 05/07/2017 | 9/7/2017 9:37 AM |
| 40 | 05/07/2017 | 9/7/2017 9:37 AM |
| 41 | 30/08/2017 | 9/7/2017 9:35 AM |
| 42 | 18/08/2017 | 9/6/2017 1:07 PM |
| 43 | 04/09/17 | 9/6/2017 1:04 PM |
| 44 | 06/09/2017 | 9/6/2017 1:03 PM |
| 45 | 04/09/17 | 9/6/2017 1:01 PM |
| 46 | 05/09/2017 | 9/6/2017 12:59 PM |
| 47 | 06/09/17 | 9/6/2017 12:57 PM |
| 48 | 06/09/2017 | 9/6/2017 12:56 PM |
| 49 | 17-8-2017 | 8/18/2017 3:43 PM |
| 50 | 9-8-2017 | 8/16/2017 10:05 AM |
| 51 | 8-8-2017 | 8/16/2017 9:51 AM |
| 52 | 8-8-2017 | 8/16/2017 9:48 AM |
| 53 | 8-82017 | 8/16/2017 9:44 AM |

| 54 | 88-2017 | 8/16/2017 9:41 AM |
|----|------------------|---------------------|
| 55 | 5-5-2017 | 5/25/2017 4:40 PM |
| 56 | 5-5-2017 | 5/25/2017 3:30 PM |
| 57 | 14-5-2017 | 5/25/2017 2:38 PM |
| 58 | 5-5-2017 | 5/25/2017 12:38 PM |
| 59 | 5-5-2017 | 5/25/2017 12:36 PM |
| 60 | 5-5-2017 | 5/25/2017 12:32 PM |
| 61 | 20/04/2017 | 4/20/2017 2:06 PM |
| 62 | 4 April 2017 | 4/12/2017 7:58 PM |
| 63 | 9 March 2017 | 4/12/2017 7:55 PM |
| 64 | 08/03/2017 | 3/24/2017 11:22 AM |
| 65 | 08/03/17 | 3/24/2017 11:15 AM |
| 66 | 01/02/2017 | 2/1/2017 3:03 PM |
| 67 | 01/02/2017 | 2/1/2017 2:42 PM |
| 68 | 01/02/2017 | 2/1/2017 2:35 PM |
| 69 | 01/02/2017 | 2/1/2017 2:26 PM |
| 70 | 12-1-2016 | 1/13/2017 9:39 AM |
| 71 | 10/01/2017 | 1/10/2017 10:11 AM |
| 72 | 8-12-2016 | 12/12/2016 11:24 AM |
| 73 | 8-12-2016 | 12/12/2016 11:20 AM |
| 74 | 8-12-2016 | 12/12/2016 11:15 AM |
| 75 | 8-12-2016 | 12/9/2016 2:22 PM |
| 76 | 8-12-2016 | 12/9/2016 2:15 PM |
| 77 | 8-12-2016 | 12/9/2016 2:11 PM |
| 78 | 8-12-2016 | 12/9/2016 2:06 PM |
| 79 | 29 November 2016 | 12/5/2016 1:14 PM |
| 80 | 29 November 2016 | 12/5/2016 1:13 PM |
| 81 | 29 November 2016 | 12/5/2016 1:11 PM |
| 82 | 21-11-2016 | 11/21/2016 2:59 PM |
| 83 | 14-112016 | 11/16/2016 10:37 AM |
| 84 | 17-10-2016 | 10/21/2016 8:51 AM |
| 85 | 7-10-206 | 10/7/2016 8:37 AM |
| 86 | 21-9-2016 | 9/22/2016 10:30 AM |
| 87 | 7-8-2016 | 9/22/2016 10:23 AM |
| 88 | 15-7-2016 | 9/22/2016 10:19 AM |
| 89 | 7-8-2016 | 9/22/2016 10:06 AM |
| 90 | 1-7-2016 | 9/22/2016 9:40 AM |
| 91 | 01/09/2016 | 9/19/2016 9:58 AM |
| 92 | 02/09/2016 | 9/19/2016 9:55 AM |
| 93 | 16/09/2016 | 9/19/2016 9:54 AM |
| 94 | 13/09/2016 | 9/19/2016 9:52 AM |
| 95 | 13/09/2016 | 9/19/2016 9:50 AM |
| 96 | 07/09/2016 | 9/19/2016 9:36 AM |
| 97 | 24 -08-2016 | 9/16/2016 11:43 AM |

| 98 | 7-8-2016 | 9/16/2016 11:11 AM |
|-----|--------------|--------------------|
| 99 | 25-8-2016 | 9/16/2016 11:03 AM |
| 100 | 7-8-2016 | 9/16/2016 10:57 AM |
| 101 | 29-8-2016 | 9/16/2016 10:36 AM |
| 102 | 1-8-2016 | 9/16/2016 10:19 AM |
| 103 | 24-8-2016 | 9/16/2016 10:07 AM |
| 104 | 25-8-2016 | 9/16/2016 9:52 AM |
| 105 | 26-8-2016 | 9/15/2016 2:24 PM |
| 106 | 12/08/16 | 9/12/2016 5:17 PM |
| 107 | 0409514472 | 8/3/2016 3:55 PM |
| 108 | 0409 514 472 | 7/29/2016 9:10 PM |



| # | OTHER (PLEASE SPECIFY) | DATE |
|---|---------------------------|--------------------|
| 1 | Field rep for salad crops | 4/24/2018 10:33 AM |
| 2 | Researcher | 9/22/2016 10:14 AM |
| 3 | Trademark Attorney | 9/19/2016 9:58 AM |
| 4 | Consultuant | 9/16/2016 11:11 AM |
| 5 | Seedling raiser | 8/3/2016 3:55 PM |

Q2 Which group best describes your role?

Q3 Where are you located?

Answered: 123 Skipped: 10



34% (42)

| ANSWER CHOICES | RESPONSES | |
|--|-----------|-----|
| South-Eastern region (e.g. Cranbourne, Mornington Peninsula) | 26% | 32 |
| Western region (e.g. Werribee, Bacchus Marsh) | 34% | 42 |
| Northern region (e.g. Swan Hill, Robinvale) | 33% | 40 |
| Gippsland region (e.g. Lindenow) | 7% | 9 |
| TOTAL | | 123 |

Q4 If you are a grower, please note the crop type, approximate area (in hectares) and number of properties.

Answered: 48 Skipped: 85

| ANSWER CHOICES | RESPONSES | |
|----------------|-----------|----|
| Crop type: | 100.00% | 48 |
| Area (ha): | 50.00% | 24 |
| Farms (#): | 50.00% | 24 |

| 1Organic vegetables2/12/01 9:06 AM2Leaf salad crops, brassica6/12/2018 2:07 PM3Organic ledy crops4/24/018 1:037 AM4zucchini com and brassica3/23/2018 4:24 PM6Sale, carrots, lettuce, spring onlons3/14/2018 2:05 PM7Herbs and bunching lines3/14/2018 2:05 PM8Braccoll, celery, leeks, herbs, carrots, bunching lines3/12/2018 3:26 PM9Beans and Broccoli2/22/018 3:25 PM10Salad mix2/22/2018 3:23 PM11Herbs and leaf yaslad2/22/2018 3:22 AM12Lettuce and Brassica1/18/2017 7:55 AM13Lettuce and Brassica1/18/2017 7:55 AM14Lettuce and BrassicaS1/18/2017 7:55 AM15Carrots1/18/2017 7:55 AM16BrassicaS1/18/2017 7:55 AM17Herba schlexs, berbcoc, broccoli1/18/2017 7:55 AM18Carrots1/22/2017 2:05 PM19BrassicaS1/12/2017 7:55 PM19BrassicaS1/12/2017 7:55 PM10Lettuce & BrassicaS1/12/2017 7:55 PM11Lettuce & BrassicaS1/12/2017 7:55 PM12Lettuce & BrassicaS1/12/2017 7:55 PM13Dirace & BrassicaS1/12/2017 7:55 PM14Lettuce & BrassicaS1/12/2017 7:55 PM15Lettuce & BrassicaS1/12/2017 7:55 PM16Lettuce & BrassicaS1/12/2017 7:55 PM17Lettuce & BrassicaS1/12/2017 7:55 PM18Lettuce & | # | CROP TYPE: | DATE |
|--|----|---|---------------------|
| 2Laf salad rops, brassica6/12/018 207 PM3Organic leafy crops4/24/018 10.37 AM4ucchini com and brassic3/23/018 4/25 PM5zucchini com and brassic3/23/018 4/24 PM6Kale, carrots, lettuce, spring onions3/14/2018 2/30 PM7Hefts and bunching lines3/14/2018 2/30 PM8Roccoli, celery, leeks, herbs, carrots, bunching lines3/12/2018 3/20 PM9Beans and Broccoli2/22/018 3/20 PM10Salad misis2/22/018 3/20 PM11Hefts and leafy salad2/12/2018 1/22 PM12Lettuce and Brassica1/01/82/017 7/53 AM13Lettuce and Brassica1/01/82/017 7/53 AM14Lettuce and Brassica1/01/82/017 7/53 AM15Garots1/01/82/017 7/53 PM16Lettuce and Brassica1/01/82/017 7/53 PM17Ictuce and Brassica1/01/82/017 7/53 PM18Lettuce and Brassica1/01/82/017 7/53 PM19Lettuce and Brassica1/01/82/017 7/53 PM11Lettuce and Brassica1/01/82/017 7/53 PM13Lettuce and Brassica1/22/017 7/59 PM14Lettuce and Brassica1/21/217 7/59 PM16Garots, Lettuce, beetrod, broccoli1/21/217 7/59 PM17Intel Ant regenhouse production1/21/217 7/59 PM18Lettuce and Brassica1/21/217 7/59 PM19Lettuce and Brassica1/21/217 7/59 PM19Lettuce and Brassica1/21/217 7/59 PM10Lettuce | 1 | Organic vegetables | 2/1/2019 9:06 AM |
| 3Organic leafy crops4/24/218 10:37 AM4zucchini com and brassica3/23/218 4:25 PM5zucchini com and brassic3/23/218 4:25 PM6Kale, carots, lettuce, spring onions3/14/2018 2:50 PM7Herbs and bunching lines3/14/2018 2:30 PM7Berocoll, celery, leeks, herbs, carots, bunching lines3/12/2018 3:30 PM9Bens and Brocoli2/22/218 3:32 AM10Salad mixs2/22/218 3:32 AM11Herbs and leafy salad2/15/2018 1:22 PM12Lettuce and Brassicas10/18/2017 7:53 AM13Lettuce and Brassicas10/18/2017 7:53 AM14Lettuce and Brassicas10/18/2017 7:54 AM15CarotsKarota Mice16Brassica10/18/2017 7:54 AM17Lettuce and Brassicas10/18/2017 7:54 AM18CarotsKarota Mice19Ictuce da Brassicas4/20/21 2:06 PM11Lettuce and Brassicas10/18/2017 7:54 PM19Ictuce & brassicas4/20/21 2:06 PM19Ictuce & Brassicas2/12/21 7:55 PM19Ictuce & Brassicas1/12/21 7:55 PM20Lettuce & Brassicas1/12/21 7:55 PM21Lettuce & Brassicas1/12/21 7:15 PM22Lettuce & Brassicas1/12/21 7:15 PM23Need hort-greenhouse production1/12/2017 1:32 PM24Lettuce & Brassicas1/12/21 7:15 PM25Lettuce & Brassicas1/12/21 7:15 PM26Lettuce & Brassi | 2 | Leaf salad crops, brassica | 6/12/2018 2:07 PM |
| 4zucchini com and brassica3/32/018/426 PM5Zucchini com and brassic3/32/018/424 PM6Kale, carots, lettuce, spring onions3/14/2018/2.50 PM7Herbs and bunching lines3/14/2018/2.50 PM8Boccoli, celery, lees, herbs, carots, bunching lines3/22/018/3.20 PM9Beans and Drocoli2/22/018/3.24 PM10Stado mixa2/22/018/3.24 PM11Herbs and leafy saled2/22/018/3.24 PM12Lettuce and Brassicas2/22/018/3.24 PM13Lettuce and Brassicas2/15/2018/1.24 PM14Herbs and leafy saled2/15/2018/1.24 PM15Lettuce and Brassicas10/18/2017.55 AM16Lettuce and Brassicas10/18/2017.55 AM17Lettuce and Brassicas10/18/2017.55 AM18Lettuce and Brassicas10/18/2017.55 AM19Lettuce and Brassicas10/18/2017.56 AM16Garots, lettuce, beetroot, broccoli4/202017.205 PM17Intex & brassicas4/202017.205 PM18Carots, lettuce, beetroot, broccoli4/12/2017.235 PM19Mixed hort-greenhouse production2/12/2017.235 PM20Lettuce & Brassicas1/12/2017.235 PM21Lettuce & Brassicas1/12/2017.236 PM22Lettuce & Brassicas1/12/2017.236 PM23Lettuce & Brassicas1/12/2017.236 PM24Vegetables and horticulture1/12/201825CurcubitsLettuce Atrassica1/12/2018.127 AM26 <td>3</td> <td>Organic leafy crops</td> <td>4/24/2018 10:37 AM</td> | 3 | Organic leafy crops | 4/24/2018 10:37 AM |
| 5zucchini corn and brassic3/23/2018 4/:24 PM6Kale, carrots, lettuce, spring onions3/14/2018 2:50 PM7Herbs and bunching lines3/14/2018 2:48 PM8Broccoli, celery, leeks, herbs, carrots, bunching lines3/202018 1:20 PM9Beans and Broccoli2/20218 8:32 PM10Salad mixs2/20218 8:32 AM11Herbs and leary salad2/15/2018 1:22 PM12Lettuce and Brassicas1/01/82/17 7:53 AM13Lettuce and Brassicas1/01/82/17 7:53 AM14Lettuce and Brassicas1/01/82/17 7:50 AM15Carrots8/16/2017 9:44 AM16Brassica5/25/2/17 4:40 PM17Iettuce and Brassicas1/01/82/17 7:50 AM18Carrots8/16/2017 9:44 AM19Imixed hort-greenhouse production1/21/2017 7:50 FM19Imixed hort-greenhouse production3/24/2017 1:15 AM19Imixed hort-greenhouse production1/10/2017 7:50 FM19Imixed hort-greenhouse production1/10/2017 1:11 AM19Imixed hort-greenhouse production1/10/2017 1:11 AM19Lettuce & Brassicas1/10/2017 1:11 AM19Lettuce & Brassicas1/10/2017 1:11 AM19Lettuce & Brassicas1/10/2017 1:11 AM19Lettuce & Brassicas1/10/2017 1:11 AM19Lettuce & Brassicas1/10/2014 1:12 AM19Lettuce & Brassica1/10/2014 1:12 AM19Lettuce & Brassica1/10/2014 1:12 AM19Le | 4 | zucchini corn and brassica | 3/23/2018 4:25 PM |
| 6Kale, carrots, lettuce, spring onions9/14/2018 2:50 PM7Horbs and bunching lines9/14/2018 2:48 PM8Broccoli, celery, leeks, herbs, carrots, bunching lines9/12/2018 3:50 PM9Beans and Broccoli2/28/2018 12:42 PM10Salad mixs2/28/2018 12:42 PM11Horbs and lefty salad2/28/2018 12:42 PM12Lettuce and Brassicas10/18/2017 7:53 AM13Lettuce and Brassicas10/18/2017 7:51 AM14Lettuce and Brassicas10/18/2017 7:51 AM15Carrots8/16/2017 9:44 AM16Brassica5/25/2017 4:40 PM17Iettuce and Brassicas5/25/2017 4:40 PM18Carrots, lettuce, beetroot, broccoli4/2012 17:05 PM19mixed hort-greenhouse production3/24/2017 11:15 AM20mixed hort-greenhouse production3/24/2017 11:15 AM21Lettuce & Brassicas1/10/2017 10:11 AM23Vegetables and horiculture1/11/2016 11:20 AM24Vegetables and horiculture1/11/2016 11:20 AM24Vegetables and horiculture1/11/2016 11:20 AM25Curcubits & brassica1/11/2016 11:20 AM26cucubits1/21/2016 11:20 AM27Jacchini1/21/2016 11:20 AM28cucubits1/21/2016 11:20 AM29Locubits1/21/2016 11:20 AM29Locubits1/21/2016 11:20 AM29Locubits1/21/2016 11:20 AM29Locubits1/21/2016 11:20 AM <t< td=""><td>5</td><td>zucchini corn and brassic</td><td>3/23/2018 4:24 PM</td></t<> | 5 | zucchini corn and brassic | 3/23/2018 4:24 PM |
| 7Herbs and bunching lines3/14/2018 2:48 PM8Broccoli, cellery, leeks, herbs, carrots, bunching lines3/12/2018 3:50 PM9Beans and Broccoli2/28/2018 12:42 PM10Salad mixs2/28/2018 12:42 PM11Herbs and leafy salad2/15/2018 11:22 PM12Lettuce and Brassicas10/18/2017 7:53 AM13Lettuce and Brassicas10/18/2017 7:53 AM14Lettuce and Brassicas10/18/2017 7:53 AM15Carrots8/6/2017 9:44 APM16Brassica5/25/2017 4:40 PM17Ittuce & brassicas4/20/2017 2:06 PM18Carrots, lettuce, beetroot, broccoli4/12/2017 7:58 PM19mixed hort - greenhouse production3/24/2017 11:15 AM20mixed1/10/2017 7:35 PM21Lettuce & Brassicas2/1/2017 2:36 PM21Lettuce & Brassicas2/1/2017 2:36 PM21Lettuce & Brassicas2/1/2017 2:36 PM22Lettuce & Brassicas2/1/2017 2:36 PM23Lettuce & Brassicas2/1/2017 2:36 PM24Lettuce & Brassicas1/10/2017 1:11 AM25Lettuce & Brassicas1/2/1/2016 11:20 AM26cucubits1/2/2016 11:20 AM27Gucubits & brassica1/2/2/2016 11:20 AM28cucubits & brassica1/2/2/2016 11:20 AM29Lucubits & brassica1/2/2/2016 11:20 AM29Lucubits & brassica1/2/2/2/16 11:13 PM20Lucubits & brassica1/2/2/2/16 11:13 PM <t< td=""><td>6</td><td>Kale, carrots, lettuce, spring onions</td><td>3/14/2018 2:50 PM</td></t<> | 6 | Kale, carrots, lettuce, spring onions | 3/14/2018 2:50 PM |
| 8Broccoli, celery, leeks, herbs, carrots, bunching lines3/12/2018 3:30 PM9Beans and Broccoli2/28/2018 12:42 PM10Salad mixs2/22/2018 8:32 AM11Herbs and leafy salad2/15/2018 1:22 PM12Lettuce and Brassicas10/18/2017 7:53 AM13Lettuce and Brassicas10/18/2017 7:50 AM14Lettuce and Brassicas10/18/2017 7:50 AM15Carrots8/16/2017 9:44 AM16Brassica5/25/2017 4:40 PM17lettuce, barssicas4/20/2017 2:60 PM18Carrots, lettuce, beetroot, broccoli4/12/2017 7:53 PM19mixed hort - greenhouse production3/24/2017 1:15 AM20mixed2/12/2017 2:36 PM21Lettuce & Brassicas2/1/2017 2:36 PM21Lettuce & Brassicas1/10/2017 1:35 PM21Lettuce & Brassicas1/1/2017 1:35 PM21Lettuce & Brassicas1/1/2017 1:31 FM22Lettuce & Brassicas1/1/2017 1:31 PM23Vegetables and horticulture1/1/2016 1:12 PM24Vegetables and horticulture1/1/2016 1:12 PM25Curcubits & brassica1/1/2016 1:12 PM26acuchits & brassica1/1/2016 1:12 PM27acuchits & brassica1/1/2016 1:12 PM28acuchitis1/2/2016 1:12 PM29acuchitis1/2/2016 1:12 PM29acuchitis1/2/2016 1:12 PM29Jing Cauchini1/2/2016 1:13 PM20Jing Cauchini1 | 7 | Herbs and bunching lines | 3/14/2018 2:48 PM |
| 9Beans and Broccoli2/28/2018 12:42 PM10Salad mixs2/22/2018 8:32 AM11Herbs and leafy salad2/15/2018 1:22 PM12Lettuce and Brassicas10/18/2017 7:53 AM13Lettuce and Brassicas10/18/2017 7:50 AM14Lettuce and Brassicas10/18/2017 7:50 AM15Carrots8/16/2017 9:44 AM16Brassica5/2/2017 4:40 PM17Iettuce & brassicas4/2/2017 2:06 PM18Carrots4/2/2017 7:50 AM19Indico & brassicas4/2/2017 2:06 PM19Indico & brassicas4/2/2017 7:50 PM19Indico & brassicas4/2/2017 7:50 PM20Carrots, lettuce, beetroot, broccoli4/12/2017 7:50 PM21Indico & brassicas2/1/2017 2:06 PM21Indico & Brassicas2/1/2017 2:36 PM21Lettuce & Brassicas1/1/2017 0:11 AM23Lettuce & Brassicas1/1/2017 0:11 AM24Vegetabes and hortulture1/1/2/2016 7:39 AM25Lorubits1/2/1/2016 7:39 AM26Juchini1/2/2/16 11:20 AM27ucurbits Abrassica1/2/2/2016 11:20 AM28Juchini1/2/2/2016 11:20 AM29Jucuhini1/2/2/2016 11:20 AM29Jucuhini1/2/2/2016 11:20 AM20Jucuhini1/2/2/2016 11:20 AM21Jucuhini1/2/2/2016 11:20 AM29Jucuhini1/2/2/2016 11:20 AM20Jucuhini1/2/2/2016 11:20 AM <tr< td=""><td>8</td><td>Broccoli, celery, leeks, herbs, carrots, bunching lines</td><td>3/12/2018 3:50 PM</td></tr<> | 8 | Broccoli, celery, leeks, herbs, carrots, bunching lines | 3/12/2018 3:50 PM |
| 10 Salad mixs 2/2/2018 8:32 AM 11 Herbs and leafy salad 2/15/2018 1:22 PM 12 Lettuce and Brassicas 10/18/2017 7:53 AM 13 Lettuce and Brassicas 10/18/2017 7:51 AM 14 Lettuce and Brassicas 10/18/2017 7:50 AM 15 Carrots 8/16/2017 9:44 AM 16 Brassica 5/25/2017 4:40 PM 17 lettuce & brassicas 4/20/2017 2:06 PM 18 Carrots, lettuce, beetroot, broccoli 4/12/2017 7:53 PM 19 mixed hort - greenhouse production 3/24/2017 11:15 AM 20 mixed 2/1/2017 2:36 PM 21 Lettuce & Brassicas 2/1/2017 2:36 PM 21 Lettuce & Brassicas 2/1/2017 1:15 AM 22 Lettuce & Brassicas 1/10/2017 1:0:11 AM 23 Vegetables and horticulture 1/1/2017 0:0:14 AM 24 Vegetables 1/21/2016 1:1:2 AM 25 Curcubits 1/21/2016 1:1:2 AM 26 zuccubits 1/21/2016 1:1:2 AM 27 cucubits | 9 | Beans and Broccoli | 2/28/2018 12:42 PM |
| 11 Herbs and leafy salad 2/15/2018 1:22 PM 12 Lettuce and Brassicas 10/18/2017 7:53 AM 13 Lettuce and Brassicas 10/18/2017 7:51 AM 14 Lettuce and Brassicas 10/18/2017 7:50 AM 15 Carrots 8/16/2017 9:44 AM 16 Brassica 5/25/2017 4:40 PM 17 Iettuce & brassicas 4/20/2017 2:06 PM 18 Carrots, lettuce, beetroot, broccoli 4/12/2017 7:53 PM 19 mixed hort - greenhouse production 3/24/2017 11:15 AM 20 mixed 2/1/2017 2:36 PM 21 Lettuce & Brassicas 2/1/2017 2:36 PM 21 Lettuce & Brassicas 2/1/2017 2:36 PM 22 Lettuce & Brassicas 2/1/2017 2:36 PM 23 Vegetables and horticulture 1/1/0/2017 10:11 AM 24 Vegetables and horticulture 1/1/1/2016 7:41 AM 25 Curcubits 1/21/2016 11:20 AM 26 zucchini 1/21/2016 11:20 AM 27 cucubits 1/21/2016 11:20 AM 28 zucchini 1/21/2016 11:20 AM 29 zucchini | 10 | Salad mixs | 2/22/2018 8:32 AM |
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| 17 lettuce & brassicas 4/20/2017 2:06 PM 18 Carrots, lettuce, beetroot, broccoli 4/12/2017 7:58 PM 19 mixed hort - greenhouse production 3/24/2017 11:15 AM 20 mixed 2/1/2017 2:36 PM 21 Lettuce & Brassicas 2/1/2017 2:36 PM 22 Lettuce & Brassicas 2/1/2017 10:11 AM 23 Vegetables and horticulture 12/14/2016 7:41 AM 24 Vegetables and horticulture 12/14/2016 7:39 AM 25 Curcubits 12/12/2016 11:29 AM 26 zucchini 12/12/2016 11:29 AM 27 cucubits & brassica 12/12/2016 11:20 AM 28 cucubits & brassica 12/12/2016 11:20 AM 29 zucchini 12/12/2016 11:20 AM 29 zucchini 12/12/2016 11:15 AM 30 Zucuhini 12/9/2016 2:22 PM 31 Zucuhini 12/9/2016 2:11 PM 32 Zucuhini 12/9/2016 2:06 PM 32 Spring onion, lettuce, spinach 12/9/2016 1:13 PM | 16 | Brassica | 5/25/2017 4:40 PM |
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| 20 mixed 2/1/2017 2:35 PM 21 Lettuce & Brassicas 2/1/2017 2:26 PM 22 Lettuce & Brassicas 1/10/2017 10:11 AM 23 Vegetables and horticulture 12/14/2016 7:34 AM 24 Vegetables 12/14/2016 7:39 AM 25 Curcubits 12/12/2016 11:29 AM 26 zucchini 12/12/2016 11:29 AM 27 cucurbits & brassica 12/12/2016 11:20 AM 28 zucchini 12/12/2016 11:20 AM 29 zucurbits 12/12/2016 11:15 AM 29 zucurbits 12/12/2016 11:15 AM 30 Zucurbita 12/9/2016 2:22 PM 31 Zucuhini 12/9/2016 2:21 PM 31 Zucuhini 12/9/2016 2:06 PM 32 Spring onion, lettuce, spinach 12/9/2016 1:13 PM | 19 | mixed hort - greenhouse production | 3/24/2017 11:15 AM |
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| 32 Spring onion, lettuce, spinach 12/5/2016 1:13 PM | 31 | Zuccuhini | 12/9/2016 2:06 PM |
| | 32 | Spring onion, lettuce, spinach | 12/5/2016 1:13 PM |
Growing Vegetable Businesses needs analysis

| 33 | Kale, wombok, spring onion and other bunching lines | 12/5/2016 1:11 PM |
|----|---|--------------------|
| 34 | Vegetables and horticulture | 11/21/2016 2:59 PM |
| 35 | Peppers, Pumpkin | 10/7/2016 8:37 AM |
| 36 | Garlic | 10/4/2016 7:57 AM |
| 37 | Leeks, parsnips, spinach, lettuce | 9/22/2016 10:06 AM |
| 38 | Celery, leeks, spinach | 9/19/2016 9:50 AM |
| 39 | Celery, leafy, asian veg | 9/19/2016 9:36 AM |
| 40 | Mixed salad, Herbs | 9/16/2016 11:43 AM |
| 41 | Mixed salad , lettuce | 9/16/2016 11:03 AM |
| 42 | Capsicum | 9/16/2016 10:19 AM |
| 43 | Mix salads | 9/16/2016 10:07 AM |
| 44 | carrots | 9/16/2016 9:52 AM |
| 45 | Lettuce, Brassica, Spinach | 9/15/2016 2:24 PM |
| 46 | Brassicas, Leafy greens | 8/19/2016 10:47 AM |
| 47 | Capsicums (protective cropping) | 8/19/2016 10:44 AM |
| 48 | Lettuce, brassicas,herbs, alliums, celery, fruiting veg | 8/3/2016 3:55 PM |
| # | AREA (HA): | DATE |
| 1 | 50 | 2/1/2019 9:06 AM |
| 2 | 400 | 6/12/2018 2:07 PM |
| 3 | 70 ha | 3/23/2018 4:25 PM |
| 4 | 70 ha | 3/23/2018 4:24 PM |
| 5 | 75 | 3/14/2018 2:50 PM |
| 6 | 81 | 3/14/2018 2:48 PM |
| 7 | 2000 | 3/12/2018 3:50 PM |
| 8 | 200ha | 2/22/2018 8:32 AM |
| 9 | 50 | 4/20/2017 2:06 PM |
| 10 | 200 | 4/12/2017 7:58 PM |
| 11 | 26 | 12/5/2016 1:13 PM |
| 12 | 48 | 12/5/2016 1:11 PM |
| 13 | NSW side of the Sunraysia | 11/21/2016 2:59 PM |
| 14 | 1/2 ha / 1 acre | 10/4/2016 7:57 AM |
| 15 | 400 | 9/22/2016 10:06 AM |
| 16 | 1,300 | 9/19/2016 9:50 AM |
| 17 | 485 | 9/19/2016 9:36 AM |
| 18 | 800 ha | 9/16/2016 11:43 AM |
| 19 | 150 | 9/16/2016 11:03 AM |
| 20 | Glass house | 9/16/2016 10:19 AM |
| 21 | 1000 ha | 9/16/2016 10:07 AM |
| 22 | 2400 | 9/16/2016 9:52 AM |
| 23 | 15 plus | 9/15/2016 2:24 PM |
| 24 | 10 | 8/3/2016 3:55 PM |
| # | FARMS (#): | DATE |
| 1 | 1 | 2/1/2019 9:06 AM |
| 2 | 1 | 4/24/2018 10:37 AM |

Growing Vegetable Businesses needs analysis

| 3 | 2 | 3/23/2018 4:25 PM |
|----|---|--------------------|
| 4 | 2 | 3/23/2018 4:24 PM |
| 5 | 4 | 3/14/2018 2:50 PM |
| 6 | 10 | 3/14/2018 2:48 PM |
| 7 | 20 | 3/12/2018 3:50 PM |
| 8 | 1 | 2/28/2018 12:42 PM |
| 9 | 3 | 2/22/2018 8:32 AM |
| 10 | 27 | 4/20/2017 2:06 PM |
| 11 | 6 | 4/12/2017 7:58 PM |
| 12 | 2 | 12/5/2016 1:13 PM |
| 13 | 3 | 12/5/2016 1:11 PM |
| 14 | 1 | 10/4/2016 7:57 AM |
| 15 | Yarawonga | 9/22/2016 10:06 AM |
| 16 | 6 | 9/19/2016 9:50 AM |
| 17 | 2 | 9/19/2016 9:36 AM |
| 18 | Clyde, Wemen | 9/16/2016 11:43 AM |
| 19 | Wemen | 9/16/2016 11:03 AM |
| 20 | Keilor | 9/16/2016 10:19 AM |
| 21 | Bacchus Marsh, Wemen , Mildura, Boyesdale | 9/16/2016 10:07 AM |
| 22 | Wemen, Kaniva | 9/16/2016 9:52 AM |
| 23 | 3 farms - Vic, Qld | 9/15/2016 2:24 PM |
| 24 | 2 | 8/3/2016 3:55 PM |



Q5 What are your priority issues?

| | VERY LOW | LOW | MODERATE | HIGH | VERY HIGH | TOTAL | WEIGHTED AVERAGE | |
|---------------|-------------|------------|-------------|--------------|--------------|-------|---------------------|------|
| Water | 0.00% 0 | 3.77% 2 | 9.43% 5 | 35.85% 19 | 50.94% 27 | 53 | | 4.34 |
| Profitability | 0.00% 0 | 2.56% 1 | 17.95% 7 | 33.33% 13 | 46.15% 18 | 39 | | 4.23 |

Growing Vegetable Businesses needs analysis

| Pest and disease | 0.00% | 5.36% | 10.71% | 44.64% | 39.29% | | |
|-------------------------|--------|--------|--------|--------|--------|----|------|
| management | 0 | 3 | 6 | 25 | 22 | 56 | 4.18 |
| Cost of production | 0.00% | 0.00% | 16.67% | 50.00% | 33.33% | | |
| | 0 | 0 | 7 | 21 | 14 | 42 | 4.17 |
| Soil | 4.44% | 6.67% | 8.89% | 48.89% | 31.11% | | |
| | 2 | 3 | 4 | 22 | 14 | 45 | 3.96 |
| Marketable yield | 0.00% | 5.56% | 27.78% | 36.11% | 30.56% | | |
| | 0 | 2 | 10 | 13 | 11 | 36 | 3.92 |
| Nutrients | 0.00% | 7.32% | 17.07% | 56.10% | 19.51% | | |
| | 0 | 3 | 7 | 23 | 8 | 41 | 3.88 |
| Labour savings | 0.00% | 8.57% | 22.86% | 45.71% | 22.86% | | |
| | 0 | 3 | 8 | 16 | 8 | 35 | 3.83 |
| Biosecurity | 8.11% | 5.41% | 35.14% | 35.14% | 16.22% | | |
| | 3 | 2 | 13 | 13 | 6 | 37 | 3.46 |
| Precision farming | 7.41% | 7.41% | 33.33% | 37.04% | 14.81% | | |
| | 2 | 2 | 9 | 10 | 4 | 27 | 3.44 |
| Robotics | 14.81% | 3.70% | 22.22% | 40.74% | 18.52% | | |
| | 4 | 1 | 6 | 11 | 5 | 27 | 3.44 |
| Post harvest management | 6.67% | 13.33% | 30.00% | 40.00% | 10.00% | | |
| | 2 | 4 | 9 | 12 | 3 | 30 | 3.33 |
| Value adding | 6.90% | 13.79% | 37.93% | 27.59% | 13.79% | | |
| | 2 | 4 | 11 | 8 | 4 | 29 | 3.28 |
| Equipment | 0.00% | 24.14% | 27.59% | 44.83% | 3.45% | | |
| | 0 | 7 | 8 | 13 | 1 | 29 | 3.28 |
| Customer intelligence | 14.81% | 14.81% | 25.93% | 29.63% | 14.81% | | |
| | 4 | 4 | 7 | 8 | 4 | 27 | 3.15 |
| Waste | 4.35% | 17.39% | 56.52% | 8.70% | 13.04% | | |
| | 1 | 4 | 13 | 2 | 3 | 23 | 3.09 |

| # | OTHER (PLEASE SPECIFY) | DATE |
|----|--|--------------------|
| 1 | Soil ameliorants | 7/25/2018 3:22 PM |
| 2 | Land values/price, soil ameilorants | 7/25/2018 3:20 PM |
| 3 | Water: access to recycled water | 3/22/2018 1:49 PM |
| 4 | labour issues: finding the right people for the job | 3/22/2018 1:40 PM |
| 5 | Weed management: controlling grass | 3/22/2018 12:54 PM |
| 6 | General farm costs, electricity etc. | 3/22/2018 12:39 PM |
| 7 | Rising costs across the farm: power, water, wages etc. | 3/22/2018 11:26 AM |
| 8 | Gavin said he'd like to see more promotion of fresh fruit and veg to shift consumers from buying produce once a week to twice a week | 3/22/2018 10:34 AM |
| 9 | Food safety and compliance, compost | 3/14/2018 2:50 PM |
| 10 | Organics, business management standard operating procedures | 3/14/2018 2:48 PM |
| 11 | Export, energy | 3/12/2018 3:51 PM |
| 12 | Sanitation | 11/16/2017 9:44 AM |
| 13 | Workplace Health and Safety | 11/16/2017 9:42 AM |
| 14 | Quality Assurance | 10/18/2017 7:52 AM |
| 15 | Energy | 9/21/2017 8:13 AM |
| 16 | Energy | 9/7/2017 9:41 AM |
| 17 | Succession | 9/7/2017 9:41 AM |
| 18 | LOTE Extension | 9/7/2017 9:39 AM |
| 19 | Young grower / industry engagement | 9/7/2017 9:38 AM |

Growing Vegetable Businesses needs analysis

| 20 | Greenhouse production | 3/24/2017 11:16 AM |
|----|---|--------------------|
| 21 | Energy - electricity costs | 2/1/2017 2:37 PM |
| 22 | Apps - nutrient management | 2/1/2017 2:27 PM |
| 23 | Weed management | 12/5/2016 1:14 PM |
| 24 | Weed management | 12/5/2016 1:13 PM |
| 25 | Regulation of growers selling into Melbourne Market | 12/5/2016 1:12 PM |
| 26 | simple export regulations | 10/21/2016 8:53 AM |
| 27 | Skilled workers, apps/automation, nematodes in brassicas, soil moisture retention | 8/19/2016 10:49 AM |
| 28 | Apps/automated irrigation | 8/19/2016 10:46 AM |
| | | |

Q6 How would you prefer to know more about these issues through Growing Vegetable Businesses? (tick all that are relevant)



| ANSWER CHOICES | RESPONSES | |
|---------------------------------------|-----------|----|
| Workshop, field day or training event | 84% | 53 |
| One-on-one farm visit | 67% | 42 |
| Grower group | 56% | 35 |
| As part of other industry events | 49% | 31 |
| Webinar | 24% | 15 |
| None of the above | 2% | 1 |
| Total Respondents: 63 | | |

| # | OTHER (PLEASE SPECIFY) | DATE |
|---|--|--------------------|
| 1 | Regional study tour | 3/12/2018 3:51 PM |
| 2 | E-newsletter | 4/12/2017 7:56 PM |
| 3 | Practical demonstrations | 2/1/2017 2:37 PM |
| 4 | consultant | 9/16/2016 11:04 AM |
| 5 | If running event - needs to be ground breaking information to justify attendance | 8/19/2016 10:49 AM |
| 6 | AusVeg Vic newsletter | 8/19/2016 10:46 AM |

Q7 Where do you currently get information about the vegetable industry? (tick all that are relevant)



| ANSWER CHOICES | RESPONSES | |
|------------------------|-----------|----|
| Agronomists | 81% | 47 |
| Other growers | 52% | 30 |
| Resellers | 50% | 29 |
| AUSVEG | 48% | 28 |
| Internet | 40% | 23 |
| Government | 36% | 21 |
| Other (please specify) | 19% | 11 |
| AUSVEG VIC | 16% | 9 |
| Family or friends | 12% | 7 |
| Total Respondents: 58 | | |

| # | OTHER (PLEASE SPECIFY) | DATE |
|---|-----------------------------------|-------------------|
| 1 | Study tours | 3/14/2018 2:48 PM |
| 2 | Overseas study tours | 3/12/2018 3:51 PM |
| 3 | Agricultural companies / supplies | 5/25/2017 2:39 PM |
| 4 | Universities | 4/12/2017 7:56 PM |

Growing Vegetable Businesses needs analysis

| sampling via Tony Pitt | 2/1/2017 3:04 PM |
|--------------------------------|--|
| ultant | 9/16/2016 11:45 AM |
| seas eg USA , South Africa | 9/16/2016 11:12 AM |
| sultant | 9/16/2016 10:20 AM |
| sultants | 9/16/2016 10:08 AM |
| sultant | 9/16/2016 9:53 AM |
| d Agronomist at EE Muir & Sons | 9/12/2016 5:18 PM |
| | sampling via Tony Pitt sultant seas eg USA , South Africa sultant sultants sultants d Agronomist at EE Muir & Sons |

Q8 What information would you prefer from Growing Vegetable Businesses? (tick all that are relevant)



| ANSWER CHOICES | RESPONSES | |
|-----------------------------------|-----------|----|
| E-newsletter | 90% | 52 |
| Website material (via AUSVEG VIC) | 43% | 25 |
| SMS alerts about events or issues | 43% | 25 |
| Video case studies | 12% | 7 |
| Local newspaper articles | 7% | 4 |
| None of the above | 3% | 2 |
| Total Respondents: 58 | | |

| # | OTHER (PLEASE SPECIFY) | DATE |
|---|---|---------------------|
| 1 | Summary of R&D Projects | 2/1/2017 2:50 PM |
| 2 | Translated information - Vietnamese | 2/1/2017 2:38 PM |
| 3 | on e to one | 12/12/2016 11:30 AM |
| 4 | Joint Grower event with EE Muir & Sons | 9/12/2016 5:18 PM |
| 5 | Information via agronomist (Steve Moore, EE Muir) | 8/19/2016 10:49 AM |

Q9 Please provide any other comments or feedback

Answered: 80 Skipped: 53

| # | RESPONSES | DATE |
|----|--|--------------------|
| 1 | Organic grower | 2/1/2019 9:09 AM |
| 2 | Sales agronomist with sustainable product, composts and knowledge | 12/14/2018 2:28 PM |
| 3 | Covers vegetable in southern Victoria | 9/27/2018 4:32 PM |
| 4 | Clinton - Visit/discussion as part of Veg Benchmarking | 7/25/2018 3:22 PM |
| 5 | Clinton - Visit/discussion as part of Veg Benchmarking | 7/25/2018 3:20 PM |
| 6 | Clinton - Visit/discussion as part of Veg Benchmarking | 7/25/2018 3:19 PM |
| 7 | Clinton - Visit/discussion as part of Veg Benchmarking | 7/25/2018 3:18 PM |
| 8 | Manager of Tripod farms at Happy Valley. Brand is Happy Valley Produce | 6/12/2018 2:08 PM |
| 9 | Has his own property at swan Hill. Left Coolibah Herbs at Wemen were he was manager | 4/24/2018 10:39 AM |
| 10 | Service growers through out Victoria- Provide advice and purchase crops | 4/24/2018 10:34 AM |
| 11 | Matt has taken over management of the Wemen Property from Adam Foley | 2/15/2018 1:23 PM |
| 12 | Interest in Hort Innovation project on Cold Plasma | 11/16/2017 9:44 AM |
| 13 | Posted VegWHS USB | 11/16/2017 9:42 AM |
| 14 | Roundtable discussion on Rutherglen Bug and impacts on lettuce in Werribee South | 10/18/2017 7:53 AM |
| 15 | Roundtable discussion on Rutherglen Bug and impacts on lettuce in Werribee South | 10/18/2017 7:52 AM |
| 16 | Roundtable discussion on Rutherglen Bug and impacts on lettuce in Werribee South | 10/18/2017 7:51 AM |
| 17 | Roundtable discussion on Rutherglen Bug and impacts on lettuce in Werribee South | 10/18/2017 7:50 AM |
| 18 | Clubroot testing in nursery - onsite discussion | 10/18/2017 7:49 AM |
| 19 | Half day discussion with Michael Rettke, SARDI in relation to Clubroot testing arrangements | 10/18/2017 7:48 AM |
| 20 | AUSVEG Agrichemical pest management needs and priorities workshop | 9/21/2017 8:17 AM |
| 21 | AUSVEG Agrichemical pest management needs and priorities workshop - Rutherglen bug | 9/21/2017 8:16 AM |
| 22 | AUSVEG Agrichemical pest management needs and priorities workshop - discussion on recycled water (preferred over bore), business plan to not move to Balliang (forecast water price through Western Water would have cost \$65m in infrastructure for the 2,000 mg/L - reckon they only needed 1,000mg/L and would have cost around \$10m in infrastructure then), interest in energy savings through solar panels | 9/21/2017 8:15 AM |
| 23 | Negotiation + Influencing Course | 9/13/2017 11:26 AM |
| 24 | Negotiation + Influencing Course | 9/13/2017 11:25 AM |
| 25 | Negotiation + Influencing Course | 9/13/2017 11:24 AM |
| 26 | Discussion at Biosecurity Workshop | 9/13/2017 11:08 AM |
| 27 | Discussion at Biosecurity Workshop on growth of horticulture in Gippsland region, compost quality and irrigation demand assessment. | 9/13/2017 11:06 AM |
| 28 | Discussion at Biosecurity Planning Workshop - key challenges around new nursery development and weather related pest problems, including Tomato spotted wilt virus through wind dispersal. | 9/13/2017 11:04 AM |
| 29 | Discussion of Club Root incidence levels across Werribee as part of SARDI monitoring project. | 9/13/2017 11:01 AM |
| 30 | Discussion with James for SARDI Club Root Trials. Opportunitity for a broader research project to explore risk and transmission pathways of club root in Werribee, including through air and bore water (irrigation). James also interested in beneficial pest monitoring opportunities. | 9/13/2017 10:56 AM |
| 31 | Victorian Agribusiness Council Summit: Smart Technologies for Food | 9/7/2017 9:43 AM |
| 32 | AUSVEG VIC Awards for Excellence | 9/7/2017 9:41 AM |

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| 33 | AUSVEG VIC Awards for Excellence | 9/7/2017 9:41 AM |
|----|---|----------------------|
| 34 | AUSVEG VIC Awards for Excellence | 9/7/2017 9:40 AM |
| 35 | AUSVEG VIC Awards for Excellence | 9/7/2017 9:39 AM |
| 36 | PMA A-NZ Science and Technology TECH EVENT | 9/7/2017 9:38 AM |
| 37 | PMA A-NZ Science and Technology TECH EVENT | 9/7/2017 9:37 AM |
| 38 | Engaged through SRW Irrigation Demand Assessment / West Gippsland CMA Workshop | 9/7/2017 9:35 AM |
| 39 | Discussion to progress Cost of Production and Business Benchmarking | 9/6/2017 1:08 PM |
| 40 | Engaged through SRW Irrigation Demand Assessment / West Gippsland CMA Workshop | 9/6/2017 1:05 PM |
| 41 | Engaged through SRW Irrigation Demand Assessment | 9/6/2017 1:03 PM |
| 42 | Engaged through SRW Irrigation Demand Assessment / West Gippsland CMA Workshop | 9/6/2017 1:01 PM |
| 43 | Engaged through SRW Irrigation Demand Assessment / West Gippsland CMA Workshop | 9/6/2017 12:59 PM |
| 44 | Engaged through SRW Irrigation Demand Assessment | 9/6/2017 12:58 PM |
| 45 | Engaged through SRW Irrigation Demand Assessment | 9/6/2017 12:56 PM |
| 46 | Attended a workshop on spray drift in horticultural crops representing vegetable industry | 8/16/2017 10:06 AM |
| 47 | Visit. Discussed HIN group and possible workshop on Horticultural code of Practice. | 8/16/2017 10:00 AM |
| 48 | Farm visit No management about. Most winter salad crops finished | 8/16/2017 9:58 AM |
| 49 | Farm Visit cuccurbit growers consider themselves not as vegetable growers especially melon growers | 8/16/2017 9:56 AM |
| 50 | Farm Visit - Sampling soil DNA pathogen | 8/16/2017 9:52 AM |
| 51 | Farm Visit | 8/16/2017 9:48 AM |
| 52 | Farm Visit | 8/16/2017 9:46 AM |
| 53 | Farm visit. Issue labour | 8/16/2017 9:42 AM |
| 54 | - interested in study tours including to NuFarm and Incitec Pivot - mid-morning time is best - possible interest in future robotic trials for weed control - trialled something similar 10years ago, but overall cost will be main driver. | 4/20/2017 2:08 PM |
| 55 | Opportunities for collaboration (shared events) and review of water related information products. SRW rarely run forums, find one:on:one or small group meetings work best | 2/1/2017 3:05 PM |
| 56 | Observation in recent years that growers are increasingly accessing extension advice and services from their supply agents such as Fresh Select, Riverside rather than resellers. | 2/1/2017 3:02 PM |
| 57 | Western Victoria Vegetable Association represents approximately 40-50 growers | 2/1/2017 2:38 PM |
| 58 | Water quality and security is the biggest challenge Labour issues - quality not cost. Rely on Vietnamese and Pakistani workers Gaps around access to training - forklift licenses, chemical accreditation | 2/1/2017 2:30 PM |
| 59 | Operations Supervisor for irrigators in the Werribee - Bacchus Marsh irrigation districts | 1/13/2017 9:41 AM |
| 60 | Discussion following inclusion of Lessons from Field in January NVEN e-News Issues to note include: - Rutherglen Bug - Weather related challenges through mould & rot with humidity spike - Discoloration in Broccoli - varietal challenge - Browning off of Cauliflowers | 1/10/2017 10:13 AM |
| 61 | Large Indain grower who would have infleuence in the Indaian community | 12/12/2016 11:26 AM |
| 62 | Extension support for growers on the NSW side of the Sunraysia eg Buronga, Wentworth, Euston etc | 11/21/2016 3:00 PM |
| 63 | Has several veggie growers in the Mildura region as clients | 11/16/2016 10:39 AM |
| 64 | Provides services to growers in the north east of Victoria; Kelly bros, vegetable seed growers, vegetable cash crops etc. Aproximately 15 growers | 10/21/2016 8:55 AM |
| 65 | Tafco are a growers supply agency who have had HIA projects. Are VEE members. They do not | 10/7/2016 8·40 AM |
| | service or represent many vegetable growers http://www.tafco.com.au/contact-us | 10/1/2010 0.40 / 10/ |

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| 67 | Involved in a HIA project with vermiculture. Looking for growers interested in developing worm populations - soil management practices in vegetable crops . Inquired about Soilwealth project Declan McDonald Senior Soil Scientist Horticultural Scientist BSc, M SustAg, CPSS, SSA L 1300 30 40 80 F 1300 64 46 89 E declan@sesl.com.au M 0407 871 391 | 9/22/2016 10:33 AM |
|----|--|--------------------|
| 68 | Involved in the NSW capacity project for the region South West NSW eg Dareton, Euston, Kylite vegetable production areas north of the Murray river on the NSW side. | 9/22/2016 10:26 AM |
| 69 | Adam Buzza Senior Policy Analyst Drought Team Primary Industries Policy Department of Economic Development, Jobs, Transport and Resources 219A Main St Bacchus Marsh Vic 3340 T: 03 5366 0018 M: 0447 525457 E: adam.buzza@ecodev.vic.gov.au | 9/22/2016 10:20 AM |
| 70 | Dorin Gupta Melbourne University - Dookie campus Vegetable feasibility Project Goulburn valley dorin.gupta@unimelb.edu.au | 9/22/2016 10:15 AM |
| 71 | Visited farm Issues Soil management labor Chemical registration Water retention - irrigation practices | 9/16/2016 11:46 AM |
| 72 | Consultant to Lamattina Farms Tony Kourmouzis Agricultural Consultants P.O. Box 3569, Mt. Gambier S.A. 5290 Ph: (08) 8726 8060 Fax: (08) 8726 8062 Mobile: 0429 390816 e-mail: tony@redearthagco.com.au | 9/16/2016 11:13 AM |
| 73 | Visited farm Issues Soil management labor saving regimes Road transport Pest and disease Nematode control | 9/16/2016 11:07 AM |
| 74 | Responsible for irrigation water extension for Sunraysia - Robinvale region | 9/16/2016 10:58 AM |
| 75 | Growers have a lot of commitments these days and therefore need simple and precise information that's relevant to their business. Interested in how other growers solve their problems Succession planing Water and energy supply issues eg costs Has intensive glass house set up | 9/16/2016 10:26 AM |
| 76 | Visited Farm Managers a number of properties mainly mixed salad crops. Packing facility at Bacchus Marsh Post harvest concerns Labor is a major issue Frank Ruffo Jr looks after the technical side of growing mobile 0408074435. He is based a t Bacchus Marsh Interested in profitability - bench marking Planting materila | 9/16/2016 10:15 AM |
| 77 | Visited Farm Interested in labor saving equipment robotics Any activities to be short and local Looking at weeding of beds with robotics Better returns for carrots Soil management important Uses consultants and have their own graduate staff Have their own R&D program Fairly self sufficient Activities to be local and short 2 hrs | 9/16/2016 10:00 AM |
| 78 | Visited property - a research facility for breeding Issues Need more awareness concerning virus problems, published information not extended to the industry . Lack of understanding of vectors and transmission of viruses with growers, field officers etc more training. More awareness of aphids and control measures Regulation and awareness of biological agents and biostimulents. Awareness of seed coating veggie seed Extension of soil borne diseases in veggie crops both nursery and commercial crops | 9/15/2016 2:34 PM |
| 79 | Issues around beet cyst nematode and high EC levels in soils. Increasing soil moisture is a priority need also. | 9/12/2016 5:19 PM |
| 80 | Hi Carl, Thanks for the invite and information given this afternoon. Most interesting and was definitely good to get over the other side of the bay again. Will discuss with the team here any areas that are of concern to us and potentially also have an effect on the farmers. Would be great to keep in touch and be more involved in these projects as what we do to the seedlings in the nursery can very much impact on how the plants perform in the ground. We are working hard to integrate more with growers in regards the insecticides and fungicides used so as to complement IPM programs rather than hinder them or delay start dates in paddock as a result of in nursery applications. Again was well worth the trip across and if you or others on the team venture down the highway to Geelong please let as know as would be a good opportunity to catch up, show you around and work out how we can help each other. Jeff | 7/29/2016 9:10 PM |

Appendix 5: One-on-one farm visits and meeting register

| Date 07-Ju | Name n-16 Kurt Herman | n | Company AUSVEG VIC | Location / mode Port Melbourne | Industry role | Region Statewide | Team member AMB, CL | Comments / follow up AUSVEG VIC Executive Committee meeting |
|-------------------------|--|---------------|---|--|--|--------------------------------|------------------------|---|
| 07-Ju | n-16 David Wallac n-16 Rocky Lamat | e tina | Wallace Vegetable Farm R. Lamattina & Sons | Port Melbourne Port Melbourne | Grower Grower | Western South Eastern | AMB, CL AMB, CL | AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting |
| 07-Ju | n-16 Craig Arnott n-16 Peter Cochra | ine | Arnott's Vegetable Farm Cochrane Vegetables | Port Melbourne Port Melbourne | Grower Grower | South Eastern South Eastern | AMB, CL AMB, CL | AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting |
| 07-Ju | n-16 Deborah Cor n-16 Emma Germa | rigan ano | Corrigans Produce Farms Germano Farms | Port Melbourne Port Melbourne | Grower Grower | South Eastern Gippsland | AMB, CL AMB, CL | AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting |
| 07-Ju | n-16 Frank Lamat | son | Mason Farms | Port Melbourne | Grower Grower | Western | AMB, CL AMB, CL | AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting |
| 07-50 06-Ju | ul-16 Kurt Herman | n | AUSVEG AUSVEG VIC DED ITR Agriculture Victoria | Phone | Industry association | Statewide | AMB, CL | AUSVEG VIC Executive Committee meeting |
| 15-Ju 15-Ju | ul-16 Aimee McCu ul-16 Matt Wilson | tcheon | DEDJTR Agriculture Victoria | Phone Phone | State Government Agent / Catch State Government Agent / Catch | Statewide | | |
| 15-Ju 27-Ju | ul-16 Maxine Scha ul-16 Shavne Hym | che an | DEDJTR Agriculture Victoria East Gippsland Food Cluster | Phone Melbourne | State Government Agent / Catch | Statewide | KO AMB, CL | |
| 29-Ju 1-Au | ul-16 Jeff Beavis g-16 David Wallac | e | Boomaroo Wallace Vegetable Farm | Need analysis survey Phone | Grower Grower | Western Western | CM KO | |
| 1-Au 1-Au | g-16 Leo Kelly g-16 Phil Lamattin | а | Kelly Brothers R. Lamattina & Sons | Phone Phone | Grower Grower | Northern Northern | KO KO | |
| 1-Au 1-Au | g-16 Adam Sali g-16 Frank Ruffo | | Coolibah Herbs Tripod Farmers | Phone Phone | Grower Grower | Northern Western | KO KO | |
| 1-Au 1-Au | g-16 Andrew Your g-16 Rick Butler | ng | Redgold Butler Market Gardens | Phone Phone | Grower Grower | Northern South Eastern | KO KO | |
| 7-Au | g-16 Matt Wilson g-16 Tony Kormou | Isis | Lower Murray Water | Phone . | State Government Agent / Catch Advisor or extension provider | Northern Northern | KO KO | |
| 12-Au | g-16 Matthew Plui g-16 David Wallac | e | Wallace Vegetable Farm | Keilor | State Government Agent / Catch Grower | Western | KO KO, CM | |
| 12-Au | g-16 Anthony Mas | son | Mason Farms Wallace Vegetable Farm | Wernbee Werribee | Grower Grower | Western | | |
| 19-Au | g-16 Anthony Mas g-16 Adam Sali | son | Mason Farms Coolibah Herbs | Need analysis survey Robinvale | Grower Grower | Western | CM KO | |
| 24-Au | g-16 Frank Ruffo g-16 Matt Wilson | | Tripod Farmers Lower Murray Water | Robinvale | Grower State Government Agent / Catch | Northern Northern | KO KO | |
| 25-Au 25-Au | g-16 Phil Lamattin g-16 Andrew Your | a ng | R. Lamattina & Sons Redgold | Wemen Wemen | Grower Grower | Northern Northern | KO KO | |
| 25-Au 26-Au | g-16 Geoff Morrov g-16 Andrew Clae | v ssens | E.E. Muir & Sons Rijk Zwaan | Wemen | Agribusiness service provider Agribusiness service provider | Northern Western | KO KO | |
| 29-Au | g-16 Carlo Nuttia g-16 Greg Moulds | | - NSW Local Land Services | Phone Phone | Grower State Government Agent / Catch | Northern Interstate | KO KO | |
| 2-Se 2-Se | p-16 Anthony Mas p-16 Enzo | son | Werribee South Farm Supplies | werribee Werribee | Grower Agribusiness service provider | Western | KO KO | Re: weather station and growing condition data |
| 2-Se 8-Se | p-16 Jon Kay p-16 Shayne Hym | an | East Gippsland Food Cluster | Melbourne | nginbusiness service provider | Western Western | AMB, CL | |
| 15-Se | p-16 John Blackm | an | - Wallace Vegetable Farm | Werribee Keilor | Grower Grower | Western | KO KO | |
| 15-Se 15-Se | p-16 Andrew Clae p-16 Phil Lamattin | ssens | Rijk Zwann Lamattina Farms | Need analysis survey | Agribusiness service provider | South Eastern | | |
| 16-Se 16-Se | p-16 Frank Ruffo p-16 David Wallac | e | Tripod farms Wallace Vegetable Farm | Need analysis survey | Grower Grower | Northern Western | KO CM | |
| 16-Se 16-Se | p-16 Carlo Nuttia p-16 Matt Wilson | | EE Muir & Sons Lower Murray Water | Need analysis survey . Need analysis survey . | Agribusiness service provider Advisor or extension provider | Northern Northern | KO KO | |
| 16-Se 16-Se | p-16 Andrew Your p-16 Tony Kourmo | ng Duzis | Redgold produce Redearth consultants | Need analysis survey Need analysis survey | Grower Other (please specify) | Northern Northern | ко ко | |
| 16-Se 18-Se | p-16 Adam Sali p-16 Paul Gazzola | a | Coolibah Herbs Gazzola Farms | Need analysis survey Need analysis survey | Grower Grower | Northern South Eastern | KO CL | |
| 18-Se 18-Se | p-16 Adam Schrei p-16 Kyle McFarla | urs nd | Schreurs & Sons E.E. Muir & Sons | Need analysis survey | Grower Agribusiness service provider | South Eastern South Eastern | | |
| 18-Se 18-Se | p-16 Fiona Consta p-16 Vivienne Wa | ller | Swinburne University | Need analysis survey | Researcher Researcher | South Eastern | | |
| 19-Se 21-Se | p-16 Julio Vargas p-16 Ken Orr | | DEDJTR Agriculture Victoria | Phone Need analysis survey | State Government Agent / Catch | Statewide | | |
| 21-Se 22-Se | p-16 Richard Kelly p-16 Dorin Gupta | r | Kelly Bros Melbourne University - Dookie campu | Need analysis survey | Grower Other (please specify) | Northern | KO KO | |
| 22-Se 22-Se | p-16 Adam Buzza p-16 Matthew Plur | nkett | DEDJTR Agriculture Victoria Greater Sydney Local Land Services | Need analysis survey Need analysis survey | Advisor or extension provider State Government Agent / Catch | Western Northern | CM KO | |
| 22-Se 27-Se | p-16 Declan McDo p-16 Declan McDo | onald | SESL Australia SESL Australia | Need analysis survey . Phone | Agribusiness service provider Agribusiness service provider | South Eastern Statewide | CL KO | |
| 27-Se 03-Oc | p-16 Geoff Morrov ct-16 Edwina Olve | v r | E.E. Muir & Sons High Country Farm | Phone Need analysis survey | Agribusiness service provider Grower | Northern Northern | KO KO | |
| 04-Oc 04-Oc | ct-16 Dorin Gupta ct-16 Lis Blandame | ər | University of Melbourne VFF Horticulture | Ballarat Ballarat | Researcher Industry association | Northern Statewide | KO KO | |
| 06-00 | ct-16 Kerry Murphy ct-16 John Whiting | / | TAFCO Rural Supplies EE. Muir & sons | Need analysis survey . Ballarat | Agribusiness service provider Agribusiness service provider | Northern Northern | | Des UN executation and actor |
| 13-00 | ct-16 Sze Flett | У | DEDJTR Agriculture Victoria DEDJTR Agriculture Victoria | Phone Phone | State Government Agent / Catch State Government Agent / Catch | Statewide | | Re: Initian growers in Goulburn Valley and potential workshop Re: Indian growers in Goulburn Valley and potential workshop Re: robotics and intelligent systems in yearstable production systems |
| 20-00 | ct-16 Geoff Morrov | v | EE. Muir & sons | Need analysis survey | Agribusiness service provider State Government Agent / Catch | Northern | | Re: confirmation of venetable provers in Mildura district and issues in the past |
| 20-00 | ct-16 David Wallac ct-16 Joe La Spina | e | Wallace Vegetable Farm | Phone | Grower Grower | Western | KO KO | Re: pepper production Re: foods and management issues |
| 26-Oc | ct-16 Ian Gamble ct-16 Lucy Marriot | | DEDJTR Agriculture Victoria South Eastern Rural Water | Phone Phone | State Government Agent / Catch State Government Agent / Catch | Northern South Eastern | KO KO | Re: vegetable production in the Ovens region Re: SRW Annual Report 2015-16 and Hume flood issues |
| 28-Oc 28-Oc | ct-16 Frank Lamat ct-16 Vince Doria | tina | Lamattina Farms Freni and Doria Vegetables | Dandenong Dandenong | Grower Grower | South Eastern South Eastern | CL CL | AUSVEG VIC Annual General Meeting AUSVEG VIC Annual General Meeting |
| 28-Oc 28-Oc | ct-16 Peter Cochra ct-16 Rick Butler | ine | Cochrane Vegetables Butler Market Gardens | Dandenong Dandenong | Grower Grower | South Eastern South Eastern | CL CL | AUSVEG VIC Annual General Meeting AUSVEG VIC Annual General Meeting |
| 28-Oc 28-Oc | ct-16 Deborah Cor ct-16 David Wallac | ngan e | Corrigans Produce Farms Wallace Vegetable Farm | Dandenong Dandenong | Grower Grower | South Eastern | | AUSYEG VIC Annual General Meeting |
| 28-00 | ct-16 Bill Bulmer | 15 | Bulmer Farms | Dandenong Dandenong | Grower | Gippsland | | AUSVEG VIC Annual General Meeting AUSVEG VIC Annual General Meeting AUSVEG VIC Annual General Meeting |
| 28-00 | t-16 Kurt Herman | n an | AUSVEG VIC East Gippsland Food Cluster | Dandenong | Industry association | Statewide Gippsland | | AUSVEG VIC Annual General Meeting AUSVEG VIC Annual General Meeting |
| 03-No 07-No | v-16 David Wallac v-16 Adam Buzza | e | Wallace Vegetable Farm DEDJTR Agriculture Victoria | Ballarat | Grower State Government Agent / Catch | Western Western | KO KO | Re: list of vegetable grower contacts for the north east region Re: issues at Bacchus Marsh |
| 07-No 09-No | v-16 Matt Wilson v-16 Siobhan de l | _ittle | Lower Murray Water cesar | Phone Parkville | State Government Agent / Catch Researcher | Northern Statewide | | Re: water market update Re: applied pest research and workshop opportunities |
| 09-No 15-No | v-16 Paul Umina v-16 Michael Tran | | cesar E.E. Muir & Sons | Parkville Phone | Researcher Advisor or extension provider | Statewide Western | CL KO | Re: applied pest research and workshop opportunities Re: contact details and potential collaboration opportunities |
| 16-No 21-No | v-16 Brenton Frah v-16 Gregory Mou | ım Ids | Landmark Mildura Local Land Services Western Region | Need analysis survey Need analysis survey | Agribusiness service provider Advisor or extension provider | Northern Interstate | KO KO | |
| 29-No 29-No | v-16 Paul Kristian | ine | University of New England P&J Cochrane Vegetable Growers | Clyde Devon Meadows | Researcher Grower | National South Eastern | | Re: potential nut grass taskforce with 4-year project VG15070 |
| 29-No 29-No | v-16 Phil Cochran | e ne | P&J Cochrane Vegetable Growers P&J Cochrane Vegetable Growers | Devon Meadows Devon Meadows Devon Meadows | Grower Grower | South Eastern | | Re: potential young grower group focussing on cost of production |
| 29-No 29-No 30-No | v-16 Vince Doria | ım | Freni and Doria Vegetables | Devon Meadows Mildura | Grower Advisor or extension provider | South Eastern | | rie, potential young grower group rocussing on cost of production |
| 30-No 30-No | v-16 Greg Moulds | | Local Land Services Western Region | Mildura | Advisor or extension provider Grower | Interstate | ко | |
| 30-No 30-No | v-16 Greg Young v-16 Carlo Nuttia | | Redgold | Mildura Mildura | Grower | Northern Northern | KO KO | |
| 30-No 30-No | v-16 Nick Petrolo v-16 Ron Dowdy | | - | Mildura Mildura | Grower | Northern Northern | ко | |
| 01-De 01-De | c-16 Adam Farley c-16 Geoff Morrov | v | Coolibah Herbs E.E. Muir & Sons | Wemen Wemen | Grower Agribusiness service provider | Northern Northern | ко | |
| 01-De 01-De | c-16 Andrew Your c-16 Luke Graylin | ng g | Redgold Produce | | Grower Grower | Northern Northern | | |
| 01-De 01-De | c-16 John Blackm c-16 Sam Puleio | an | - | | Grower Grower | Northern Northern | KO KO | |
| 01-De 02-De | c-16 Adam Schrei | uova Jrs | - Schreurs & Sons Fast Gippeland Food Chuston | Phone | Grower Grower | South Eastern | | Re: potential nut grass taskforce with 4-year project VG15070 |
| 05-De 06-De | c-16 Adam Buzza | land | DEDJTR Agriculture Victoria | Ballarat | State Government Agent / Catch Grower | Western | CL, CM, KO | Re: issues at Bacchus Marsh Re: linkanes with An Vic DED./ITR study |
| 08-De | c-16 Meetiy Vana c-16 Gavathri Me | podia kala | Matteo University of Melbourne | Shepparton | Grower Researcher | Northern | ко | Goulbur Vallev vegetable growers information session Goulbur Vallev vegetable growers information session |
| 00.0 | - 10 Outburged and | Dissel | Olash Masatablas | Observator | <u>.</u> | | 1.0 | |

| | ob-Dec-To Sidney Aspaiand | oniversity of Melbourne | DOOKIE | Clower | Nonthern | KO | The linkages with Ag vie DEDSTR study |
|---|-------------------------------|-------------------------------------|----------------------|--------------------------------|-------------|---------|--|
| | 08-Dec-16 Meetiy Vanapodia | Matteo | Shepparton | Grower | Northern | ко | Goulbum Valley vegetable growers information session |
| | 08-Dec-16 Gayathri Mekala | University of Melbourne | Shepparton | Researcher | Northern | ко | Goulbum Valley vegetable growers information session |
| | 08-Dec-16 Sukhwindor Singh | Singh Vegetables | Shepparton | Grower | Northern | ко | Goulbum Valley vegetable growers information session |
| | 08-Dec-16 Darshansin Ghmangel | t D.S.Manet | Shepparton | Grower | Northern | ко | Goulbum Valley vegetable growers information session |
| | 08-Dec-16 Rajpseet Aulath | D & R Aulatch Veggies | Shepparton | Grower | Northern | ко | Goulbum Valley vegetable growers information session |
| _ | 08-Dec-16 Lucky Khakh | Khakh Farms | Shepparton | Grower | Northern | ко | Goulbum Valley vegetable growers information session |
| _ | 08-Dec-16 Jarmail . S. Rti | Dasmesin Farms | Shepparton | Grower | Northern | ко | Goulbum Valley vegetable growers information session |
| _ | 09-Dec-16 David Wallace | Wallace Vegetable Farm | Phone | Grower | Western | ко | Re: follow up Bacchus Marsh meeting, Lessons from the Field case study |
| _ | 14-Dec-16 Luke Grayling | EE Muir & Sons | Need analysis survey | Agribusiness service provider | Northern | ко | |
| | 14-Dec-16 Greg Young | Mildura Ag supplies | Need analysis survey | Agribusiness service provider | Northern | KO | |
| | 14-Dec-16 Kurt Hermann | AUSVEG VIC | Camberwell | Industry association | Statewide | AMB, CL | Re: collaboration opportunities, variation, letter of support |
| | 10-Jan-17 John Said | Fresh Select | Phone | Grower | Western | CM | Re: lessons from the field case study for e-newsletter |
| _ | 10-Jan-17 David Wallace | Wallace Vegetable Farm | Phone | Grower | Western | KO | Re: AUSVEG VIC Awards for Excellence |
| _ | 12-Jan-17 Bart Keogh | South Eastern Rural Water | Werribee | Grower | Western | CM, KO | |
| | 13-Jan-17 John Elford | Hydroponic Farmers Federation | Phone | Industry association | Statewide | KO | |
| _ | 16-Jan-17 Sue McConnell | DEDJTR Agriculture Victoria | Phone | State Government Agent / Catch | h Statewide | KO | Re: HIN follow up |
| _ | 22-Jan-17 Mark Hincksman | DEDJTR Agriculture Victoria | Phone | State Government Agent / Catch | h Statewide | KO | Re: Design and Development of Intelligent Real Time Variable Rate Spray Applicator for Agriculture |
| _ | 23-Jan-17 Tony Bundock | Hydroponic Farmers Federation | Phone | Industry association | Statewide | KO | Re: e-newsletter, membership and promoting VegNET through their network |
| _ | 24-Jan-17 Ruth Nettle | University of Melbourne | Phone | Researcher | Statewide | KO | Re: agricultural extension survey |
| _ | 25-Jan-17 Kurt Hermann | AUSVEG VIC | Camberwell | Industry association | Statewide | CL | Re: collaboration opportunities, variation, letter of support |
| _ | 30-Jan-17 Len Tesoriero | NSW DPI | Phone | Researcher | National | KO | Re: investigate zucchini damage and crop rejection due to possible Rutherglen Bug incursion |
| _ | 30-Jan-17 Carlo Nuttia | E.E. Muir & Sons | Phone | Advisor or extension provider | Statewide | KO | Re: investigate zucchini damage and crop rejection due to possible Rutherglen Bug incursion |
| _ | 30-Jan-17 Melly Pandher | DEDJTR Agriculture Victoria | Phone | State Government Agent / Catch | h Statewide | KO | Re: investigate zucchini damage and crop rejection due to possible Rutherglen Bug incursion |
| | 31-Jan-17 Aimee McCutcheon | DEDJTR Agriculture Victoria | Phone | State Government Agent / Catch | h Statewide | KO | Re: Shepparton grower catch-up |
| | 31-Jan-17 Sam Birrell | Committee for Greater Shepparton | Phone | Industry association | Statewide | KO | Re: Shepparton grower catch-up |
| | 31-Jan-17 Dorin Gupta | University of Melbourne | Phone | Researcher | Statewide | KO | Re: Shepparton grower catch-up |
| | 01-Feb-17 Harry Velisha | E&F Velisha | Werribee | Grower | Western | CM, KO | |
| | 01-Feb-17 Michael Tran | EE Muir & Sons / Western Victoria V | e Werribee | Advisor or extension provider | Western | CM, KO | |
| | 01-Feb-17 Jerome Thompson | CRT Rural / Werribee South Store | Werribee | Agribusiness service provider | Western | CM, KO | |
| | 01-Feb-17 Bart Keogh | South Eastern Rural Water | Werribee | Supply chain participant | Western | CM, KO | |
| | 01-Feb-17 Dale _ | E.E. Muir & Sons | Werribee | Advisor or extension provider | Western | KO, CM | |
| | 01-Feb-17 Russell | E.E. Muir & Sons | Werribee | Advisor or extension provider | Western | KO, CM | |
| | 01-Feb-17 Stephen Moore | E.E. Muir & Sons | Werribee | Advisor or extension provider | Western | KO, CM | |
| | 01-Feb-17 Noel Squires | E.E. Muir & Sons | Werribee | Advisor or extension provider | Western | KO, CM | |
| _ | 01-Feb-17 Melly Pandher | DEDJTR Agriculture Victoria | Phone | State Government Agent / Catch | h Statewide | KO | Re: gross margins and field days |
| _ | 06-Feb-17 David Wallace | Wallace Vegetable Farm | Phone | Grower | Western | KO | Re: feedback on Horticulture Industry Network (HIN) |
| _ | 17-Feb-17 David Wallace | Wallace Vegetable Farm | Phone | Grower | Western | KO | Re: potential crops in the Goulburn Valley matrix, proposal |
| | 17-Feb-17 Dorin Gupta | University of Melbourne | Phone | Researcher | Statewide | KO | Re: potential crops in the Goulburn Valley matrix, proposal |
| | 20-Feb-17 Kurt Hermann | AUSVEG VIC | Camberwell | Industry association | Statewide | CL | Re: collaboration opportunities, variation, letter of support |
| | | | | | | | |

| 28-Feb-17 Shayne Hyman 28-Feb-17 Dorin Gupta 01-Mar-17 Aimee McCutcheon | East Gippsland Food Cluster University of Melbourne DED.ITR Agriculture Victoria | Phone Phone Phone | Industry association Researcher State Government Agent / Cate | Gippsland Statewide | КО КО | Introduction and opportunities Re: feedback on proposal Re: enewsyletter mailing lists for new growers to access information |
|--|--|---|---|---|--------------------|--|
| 01-Mar-17 Dimi Kyriakou 02-Mar-17 Matthew Plunkett 03-Mar-17 Greg Moulds | AUSVEG Greater Sydney Local Land Service: Local Land Services Western Region | Phone s Phone n Need analysis surve | Industry association State Government Agent / Cato v State Government Agent / Cato | National ch Northern ch Interstate | KO KO | Re: e-newsletter malling lists for new growers to access information Re: contacts in Sunraysia region for cucurbits and planned to run filed day in Griffith Re: contacts in Sunraysia region for cucurbits and planned to run filed day in Griffith |
| 07-Mar-17 Dorin Gupta | University of Melbourne | Phone | Researcher | Statewide | KO | Re: scoping study and grower opportunities |
| 08-Mar-17 Alvin Gopal | Australian College of Agriculture & H | Ic Werribee | Grower | Western | CM, KO | |
| 08-Mar-17 John Said | Fresh Select | Werribee | Grower | Western | CM, KO | |
| 09-Mar-17 Adam Schreurs | Schreurs & Sons | Cora Lynn | Grower | South Eastern | CL | Re: UNE weed management trials and soil sampling (VG15070) |
| 09-Mar-17 Peter Cochrane | P&J Cochrane Vegetable Growers | Devon Meadows | Grower | South Eastern | CL | Re: UNE weed management trials and soil sampling (VG15070) |
| 09-Mar-17 Phil Cochrane | P&J Cochrane Vegetable Growers | Devon Meadows | Grower | South Eastern | CL | Re: UNE weed management trials and soil sampling (VG15070) |
| 09-Mar-17 Paul Gazzola | Gazzola Farms | Somerville | Grower | South Eastern | CL | Re: UNE weed management trials and soil sampling (VG15070) |
| 09-Mar-17 Christine Fyfe | University of New England | Clyde | Researcher | South Eastern | CL | Re: UNE weed management trials and soil sampling (VG15070) |
| 09-Mar-17 David Wallace | Wallace Vegetable Farm | Phone | Grower | Western | KO | Re: industry update and overview of season for HIN |
| 09-Mar-17 Andrew Young | Redgold | Phone | Grower | Northern | KO | Re: industry update and overview of season for HIN |
| 09-Mar-17 Harry Velisha | E&F Velisha | Phone | Grower | Western | KO | Re: industry update and overview of season for HIN |
| 09-Mar-17 Jenny Treeby | DEDJTR Agriculture Victoria | Phone | State Government Agent / Cato | ch Statewide | KO | Re: industry update and overview of season for HIN |
| 21-Mar-17 David Wallace | Wallace Vegetable Farm | Keilor | Grower | Western | KO | Re: hydroponic growers |
| 21-Mar-17 Jon Kay | CRT Rural / Werribee South Store | Werribee | Agribusiness service provider | Western | KO | Re: hydroponic growers |
| 28-Mar-17 Shayne Hyman | East Gippsland Food Cluster | Phone | Industry association | Gippsland | KO, CL | R: agribusiness visit by Dr Gary Saliba CEO of RDA Murray |
| 28-Mar-17 Kurt Hermann | AUSVEG VIC | Camberwell | Industry association | Statewide | CL | Re: AUSVEG VIC Awards for Excellence |
| 28-Mar-17 Greg Moulds | Local Land Services Western Region | n Phone | State Government Agent / Cato | ch Interstate | KO | Re: returned growers list of cucurbit growers in the Sunraysia |
| 30-Mar-17 Matthew Plunkett | Greater Sydney Local Land Services | s Phone | State Government Agent / Cato | ch Statewide | KO | Re: discussion concerning Sunraysia growers and field day at Griffith in July |
| 31-Mar-17 David Wallace | Wallace Vegetable Farm | Phone | Grower | Western | KO | Re: AUSVEG VIC Awards for Excellence, distribute PMA A-NZ Produce Executive Program Course- scholarships to growers |
| 04-Apr-17 Sean Croft | Arahura Farms | Nyah West | Grower | Northern | CL | Re: site visit and sampling for soll borne diseases with SARDI and NSW DPI (VG15010 and VG15009) |
| 04-Apr-17 David Wallace | Wallace Vegetable Farm | Phone | Grower | Western | KO | Re: vegetable production in the Goulburn Valley |
| 04-Apr-17 Kurt Hermann | AUSVEG VIC | Camberwell | Industry association | Statewide | KO | Re: vegetable production in the Goulburn Valley Re: AUSVEG VIC Awards for Excellence AUSVEG VIC Awards for Excellence |
| 06-Apr-17 Kurt Hermann | AUSVEG VIC | Camberwell | Industry association | Statewide | CL | |
| 08-Apr-17 Kurt Hermann | AUSVEG VIC | Camberwell | Industry association | Statewide | CL | |
| 08-Apr-17 Stuart Grigg 08-Apr-17 Marie-Astrid Ottenhof 08-Apr-17 Chris Schreurs | SG Ag-Hort Consulting Schreurs & Sons Schreurs & Sons | Kooyong Kooyong Kooyong | Advisor or extension provider Grower Grower | Statewide South Eastern South Eastern | CL CL | AUSVEG VIC Awards for Excellence AUSVEG VIC Awards for Excellence AUSVEG VIC Awards for Excellence |
| 08-Apr-17 Andrew Bulmer 08-Apr-17 Bill Bulmer 08-Apr-17 Siobhan de Little | Bulmer Farms Bulmer Farms cesar | Kooyong Kooyong Kooyong | Grower Grower Researcher | Gippsland Gippsland Statewide | CL CL | AUSVEG VIC Awards for Excellence AUSVEG VIC Awards for Excellence AUSVEG VIC Awards for Excellence |
| 08-Apr-17 Jess Lye | AUSVEG | Kooyong | Industry association | National | CL | AUSVEG VIC Awards for Excellence |
| 08-Apr-17 Shayne Hyman | East Gippsland Food Cluster | Kooyong | Industry association | Gippsland | CL | AUSVEG VIC Awards for Excellence |
| 08-Apr-17 Paul Gazzola | Gazzola Farms | Kooyong | Grower | South Eastern | CL | AUSVEG VIC Awards for Excellence |
| 08-Apr-17 John Said | Fresh Select | Kooyong | Grower | Western | CL | AUSVEG VIC Awards for Excellence |
| 08-Apr-17 Peter Cochrane | Cochrane Vegetables | Kooyong | Grower | South Eastern | CL | AUSVEG VIC Awards for Excellence |
| 08-Apr-17 Michael Tran | Western Victoria Vegetable Growers | Kooyong | Industry association | Western | CM | AUSVEG VIC Awards for Excellence |
| 08-Apr-17 James Muir | E.E. Muir & Sons | Kooyong | Agribusiness service provider | National | CM | AUSVEG VIC Awards for Excellence |
| 08-Apr-17 David Wallace | Wallace Vegetable Farm | Kooyong | Grower | Western | CM | AUSVEG VIC Awards for Excellence |
| 13-Apr-17 Matthew Gratton | Nufarm Australia | Phone | Agribusiness service provider | National | KO | Re: potential facility tour |
| 20-Apr-17 Matthew Gratton | Nufarm Australia | Phone | Agribusiness service provider | National | KO | Re: potential facility tour |
| 20-Apr-17 Dorin Gupta | University of Melbourne | Phone | Researcher | Statewide | KO | |
| 20-Apr-17 David Wallace | Wallace Vegetable Farm | Phone | Grower | Western | KO | |
| 20-Apr-17 Tony Kourmouzis | Redearth consultants | Need analysis surve | y Agribusiness service provider | Northern | KO | Re: R&D adoption award |
| 20-Apr-17 Andrew Fragapane | Fragapane Farms | Werribee South | Grower | Western | CM | |
| 21-Apr-17 Matthew Plunkett | Greater Sydney Local Land Services | s Phone | State Government Agent / Cato | ch Interstate | KO | |
| 21-Apr-17 Geoff Morrow | E.E. Muir & Sons | Phone | Advisor or extension provider | Northern | KO | |
| 21-Apr-17 Kerry Murphy | TAFCO Rural Supplies | Phone | Agribusiness service provider | Northern | KO | |
| 21-Apr-17 Leading Hand | Tripod Farmers | Phone | Grower | Northern | KO | |
| 27-Apr-17 Dorin Gupta | University of Melbourne | Phone | Researcher | Statewide | KO | Re: microwave technology for weed management |
| 27-Apr-17 Graham Brodie | University of Melbourne | Phone | Researcher | Statewide | KO | |
| 27-Apr-17 Jenny Treeby | DEDJTR Agriculture Victoria | Phone | State Government Agent / Cato | ch Northern | KO | |
| 03-May-17 Rohan Davies | BASF | Lindenow | Agribusiness service provider | South Eastern | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 Robert Hayes | MADEC | Lindenow | Agribusiness service provider | Western | KO | East Gippsland Vegetable Innovation Days |
| 03-May-17 Ian Guss | Agrilever | Lindenow | Agribusiness service provider | South Eastern | KO | East Gippsland Vegetable Innovation Days |
| 03-May-17 Lisa Dillon | Syngenta | Lindenow | Agribusiness service provider | Statewide | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 Emren Velisha | Velisha H & Sons | Lindenow | Grower | Western | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 Kurt Hermann | AUSVEG VIC | Lindenow | Industry association | Statewide | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 James Whiteside | AUSVEG | Lindenow | Industry association | National | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 Michelle De'Lisle | AUSVEG | Lindenow | Industry association | National | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 Stuart Grigg | SG Ag-Hort Consulting | Lindenow | Advisor or extension provider | Statewide | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 Andrew Bulmer | Bulmer Farms | Lindenow | Grower | Gippsland | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 Bill Bulmer | Bulmer Farms | Lindenow | Grower | Gippsland | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 Anthony Staatz | Koala Farms | Lindenow | Grower | Interstate | KO, CL | East Gippsland Vegetable Innovation Days |
| 03-May-17 Andrew Fragapane 05-May-17 Dimi Kyriakou 11-May-17 Greg Moulds | Fragapane Farms AUSVEG NSW Local Land Services | Lindenow Phone Robinvale | Grower Industry association Advisor or extension provider | Western National Interstate | KO, CL KO KO | East Gippsland Vegetable Innovation Days Re: e-newsletter mailing lists for new growers and advisors to access information |
| 14-May-17 Gary Jeans 15-May-17 Adam Schreurs 15-May-17 Jess Lye | Swan Hill Chemicals Schreurs & Sons AUSVEG | Swan Hill Adelaide Adelaide | Agribusiness service provider Grower Industry association | Northern South Eastern National | KO CL CL | Hort Connections 2017 Hort Connections 2017 |
| 15-May-17 Renee White | Watermark | Adelaide | Other (please specify) | National | CL | Hort Connections 2017 |
| 15-May-17 Russell Gooch | Watermark | Adelaide | Other (please specify) | National | CL | Hort Connections 2017 |
| 15-May-17 Greg Owens | NT Farmers | Adelaide | Industry association | Interstate | CL | Hort Connections 2017 |
| 15-May-17 Matthew Plunkett | Greater Sydney Local Land Services | s Adelaide | State Government Agent / Cato | ch Interstate | CL | Hort Connections 2017 Hort Connections 2017 Hort Connections 2017 |
| 15-May-17 Bill Dixon | Greater Sydney Local Land Services | s Adelaide | State Government Agent / Cato | ch Interstate | CL | |
| 15-May-17 Harry Dejong | Elders | Adelaide | Advisor or extension provider | Western | CL | |
| 15-May-17 Clare Rutherford 25-May-17 Sze Flett 25-May-17 Greg Moulds | The Yield DEDJTR Agriculture Victoria NSW Local Land Services | Adelaide Phone Robinvale | Agribusiness service provider State Government Agent / Cato Advisor or extension provider | National ch Statewide Interstate | CL KO KO | Hort Connections 2017 Re: TPP management |
| 26-May-17 Melly Pandher | DEDJTR Agriculture Victoria | Phone | State Government Agent / Cato | ch Statewide | <u>КО</u> | Re: TPP management |
| 26-May-17 Rohan Davies | BASF | Phone | Agribusiness service provider | South Eastern | КО | |
| 26-May-17 Shayne Hyman | East Gippsland Food Cluster | Phone | Industry association | Gippsland | КО | |
| 26-May-17 Lisa Dillon | Syngenta | Phone | Agribusiness service provider | Statewide | KO | |
| 26-May-17 James Muir | E.E. Muir & Sons | Phone | Agribusiness service provider | National | KO | |
| 26-May-17 Gary Jeans | Swan Hill Chemicals | Phone | Agribusiness service provider | Northern | KO | |
| 26-May-17 Matthew Gratton | Nufarm Australia | Phone | Agribusiness service provider | National | KO | Re: TPP workshop |
| 29-May-17 Duane Alderson | E.E. Muir & Sons | Phone | Agribusiness service provider | South Eastern | KO | |
| 30-May-17 Sze Flett | DEDJTR Agriculture Victoria | Phone | State Government Agent / Cato | ch Statewide | KO | |
| 14-Jun-17 Aimee McCutcheon | DEDJTR Agriculture Victoria | Phone | State Government Agent / Cato | ch Statewide | KO | |
| 15-Jun-17 David Wallace | Wallace Vegetable Farm | Keilor | Grower | Western | KO | |
| 19-Jun-17 Jenny Treeby | DEDJTR Agriculture Victoria | Phone | State Government Agent / Cato | ch Northern | KO | |
| 26-Jun-17 Matthew Plunkett | Greater Sydney Local Land Services | s Phone | State Government Agent / Cato | ch Interstate | KO, CL | Re: Riverina Vegetable Innovation Field Day |
| 26-Jun-17 Matt Wilson | Lower Murray Water | Phone | State Government Agent / Cato | ch Northern | KO | |
| 26-Jun-17 Andrew Young | Redgold Produce | Phone | Grower | Northern | KO | |
| 29-Jun-17 Aimee McCutcheon | DEDJTR Agriculture Victoria | Shepparton | State Government Agent / Cato | ch Statewide | KO | PMA A-NZ Science and Technology TECH EVENT |
| 29-Jun-17 Melly Pandher | DEDJTR Agriculture Victoria | Shepparton | State Government Agent / Cato | ch Statewide | KO | |
| 05-Jul-17 Marie-Astrid Ottenhof | Schreurs & Sons | Epping | Grower | South Eastern | CM | |
| 05-Jul-17 Kaushik Mulukutla | Fresh Select | Epping | Grower | South Eastern | CM | PMA A-NZ Science and Technology TECH EVENT |
| 12-Jul-17 James Dickson | GroLink | Werribee | Grower | Western | CM | Discussion with James for SARDI Club Root Trials. Opportunitity for a broader research project on club root beneficial pest monitoring. |
| 18-Jul-17 Tom Cohen | AUSVEG VIC | Camberwell | Industry association | Statewide | AMB, CL | Re: new State Manager role and collaboration opportunities |
| 19-Jul-17 Matthew Plunkett | Greater Sydney Local Land Services | s Griffith | State Government Agent / Cato | ch Interstate | CL | Riverina Vegetable Innovation Field Day |
| 19-Jul-17 Dimi Kyriakou | AUSVEG | Griffith | Industry association | National | CL | Riverina Vegetable Innovation Field Day |
| 19-Jul-17 Troy Millard | TJM RD&E Farm | Griffith | Advisor or extension provider | Interstate | CL | Riverina Vegetable Innovation Field Day |
| 19-Jul-17 Jennifer Millard | TJM RD&E Farm | Griffith | Advisor or extension provider | Interstate | CL | Riverina Vegetable Innovation Field Day |
| 19-Jul-17 David Carter | Cottle Wolly | Griffith | Grower | Interstate | CL | Riverina Vegetable Innovation Field Day |
| 25-Jul-17 Hannah McArdle | AUSVEG SA | Camberwell | Industry association | Interstate | CL | Re: collaboration opportunities, events, mentoring |
| 25-Jul-17 Jo van Niekerk | Boomaroo Nurseries | Melbourne | Grower | Statewide | CM | VegPRO Negotiation & Influencing Course (VG15028) |
| 25-Jul-17 Steven Winters | Boomaroo Nurseries | Melbourne | Grower | Western | CM | VegPRO Negotiation & Influencing Course (VG15028) |
| 25-Jul-17 Ben Schreurs | Schreurs & Sons | Melbourne | Grower | South Eastern | CM | VegPRO Negotiation & Influencing Course (VG15028) |
| 27-Jul-17 Shayne Hyman | East Gippsland Food Cluster | Korumburra | Industry association | Gippsland | CL | Gippsland Growers' Forum |
| 27-Jul-17 Nicola Watts | East Gippsland Food Cluster | Korumburra | Industry association | Gippsland | CL | Gippsland Growers' Forum |
| 27-Jul-17 Tom Cohen | AUSVEG VIC | Korumburra | Industry association | Statewide | CL | Gippsland Growers' Forum |
| 27-Jul-17 Patrick Arratia | AUSVEG | Korumburra | Industry association | National | CL | Gippsland Growers' Forum Gippsland Growers' Forum Gippsland Growers' Forum Gippsland Growers' Forum |
| 27-Jul-17 Callum Fletcher | AUSVEG | Korumburra | Industry association | National | CL | |
| 27-Jul-17 Maddle Quirk | AUSVEG | Korumburra | Industry association | National | CL | |
| 27-Jul-17 Michelle De'Lisle | AUSVEG | Korumburra | Industry association | National | CL | Gippsland Growers' Forum |
| 27-Jul-17 Adam Schreurs | Schreurs & Sons | Korumburra | Grower | South Eastern | CL | Gippsland Growers' Forum |
| 27-Jul-17 Chris Schreurs | Schreurs & Sons | Korumburra | Grower | South Eastern | CL | Gippsland Growers' Forum |
| 27-Jul-17 Anton Zytnik | Victorian Chamber of Commerce and | d Korumburra | State Government Agent / Cato | h Statewide | CL | Gippsland Growers' Forum |
| 27-Jul-17 James Muir | E.E. Muir & Sons | Korumburra | Advisor or extension provider | National | CL | Gippsland Growers' Forum |
| 27-Jul-17 Melissa Burton | Browns Fertilisers | Korumburra | Advisor or extension provider | South Eastern | CL | Gippsland Growers' Forum |
| 27-Jul-17 Steven McInnes | Human Capital International | Korumburra | Other (please specify) | Statewide | CL | Gippsland Growers' Forum |
| 08-Aug-17 Adam Foley | Coolabah Herbs | Swan Hill | Grower | Northern | KO | |
| 08-Aug-17 Ewam Leighton | R. Lamattina & Sons P/L | Swan Hill | Grower | Northern | KO | |
| 08-Aug-17 Andrew Young | Redgold Produce | Robinvale | Grower | Northern | KO | Re: site visit and sampling for soil borne diseases with SARDI and NSW DPI (VG15010 and VG15009) |
| 08-Aug-17 Sean Croft | Arahura Farms | Nyah West | Grower | Northern | KO | |
| 08-Aug-17 Greg Moulds | NSW Local Land Services | Robinvale | Advisor or extension provider | Interstate | KO | |
| 08-Aug-17 Leading Hand | Tripod Farmers | Robinvale | Grower | Northern | KO | CSIRO Creating value from vegetable waste workshop (VG15076) |
| 08-Aug-17 Jenny Treeby | DEDJTR Agriculture Victoria | Mildura | State Government Agent / Cato | ch Northern | KO | |
| 08-Aug-17 Steven McInnes | Human Capital International | Werribee | Other (please specify) | Statewide | CL | |
| 08-Aug-17 Tom Cohen | AUSVEG VIC | Werribee | Industry association | Statewide | CL | CSIRO Creating value from vegetable waste workshop (VG15076) |
| 08-Aug-17 John Said | Fresh Select | Werribee | Grower | Western | CL | CSIRO Creating value from vegetable waste workshop (VG15076) |
| 08-Aug-17 Lisa Brassington | Peninsula Fresh Organics | Werribee | Grower | South Eastern | CL | CSIRO Creating value from vegetable waste workshop (VG15076) |
| 08-Aug-17 Nicola Watts | East Gippsland Food Cluster | Werribee | Industry association | Gippsland | CL | CSIRO Creating value from vegetable waste workshop (VG15076) |
| 08-Aug-17 Adrian Spencer | Grant Ready | Werribee | Other (please specify) | Statewide | CL | CSIRO Creating value from vegetable waste workshop (VG15076) |
| 08-Aug-17 Martin Cole | CSIRO | Werribee | Researcher | National | CL | CSIRO Creating value from vegetable waste workshop (VG15076) |
| 08-Aug-17 Mary Ann Augustin 08-Aug-17 Greg Spinks 08-Aug-17 Yasmin Power | CIS DEDJTR Agriculture Victoria | Vvernbee Werribee Werribee | Researcher Other (please specify) State Government Agent / Cato | National National ch Statewide | CL CL | CSIRO Creating value from vegetable waste workshop (VG15076) CSIRO Creating value from vegetable waste workshop (VG15076) CSIRO Creating value from vegetable waste workshop (VG15076) CSIRO Creating value from vegetable waste workshop (VG15076) |
| 08-Aug-17 Kellie Watson 08-Aug-17 Reetica Rekhy 08-Aug-17 Peter Schutz | Hort Innovation Food Innovation Australia Limited | Vvernbee Werribee Werribee | State Government Agent / Cato Industry association Industry association | National National | CL CL | CSIRO Creating value from vegetable waste workshop (VG15076) CSIRO Creating value from vegetable waste workshop (VG15076) CSIRO Creating value from vegetable waste workshop (VG15076) |
| 14-Aug-17 Kevin Clayton-Green 14-Aug-17 Kevin Clayton-Green 14-Aug-17 Chris Schreurs | Biosecurity Consultant Schreurs & Sons | Mildura Phone Phone | State Government Agent / Cato Agribusiness service provider Grower | National South Eastern | CL CL | Re: area wide management and biosecurity opportunities through project Re: CSIRO Creating value from vegetable waste (VG15076) |
| 14-Aug-17 Kevin Savage 14-Aug-17 Paul Gazzola 14-Aug-17 Deborah Corrigan | Savage Gardens Gazzola Farms Corrigans Produce Farms | Phone Phone Phone | Grower Grower Grower | South Eastern South Eastern South Eastern | CL CL | Re: spray application workshop, current R&D issues and needs Re: spray application workshop, current R&D issues and needs Re: spray application workshop, current R&D issues and needs |
| 14-Aug-17 Craig Amott | Arnott s Vegetable Farm | Phone | Grower | South Eastern | CL | Re: spray application workshop, current R&D issues and needs |
| 14-Aug-17 Darren Schreurs | Peter Schreurs & Sons | Phone | Grower | South Eastern | CL | Re: spray application workshop, current R&D issues and needs |
| 14-Aug-17 Duane Alderson | E.E. Muir & Sons | Phone | Advisor or extension provider | South Eastern | CL | Re: spray application workshop, current R&D issues and needs |
| 14-Aug-17 Lisa Brassington 14-Aug-17 Wayne Shields 14-Aug-17 Chris Friars | Peninsula Fresh Organics Peninsula Fresh Organics Riverside Produce Riverside Produce | Phone Phone Phone | Grower Grower Grower | South Eastern South Eastern Western | CL CL CL | Re: spray application workshop, current R&D issues and needs Re: spray application workshop, current R&D issues and needs Re: CSIRO Creating value from vegetable waste (VG15076) Page CSIRO Creating value from vegetable waste (VG15076) |
| 15-Aug-17 Nathan Bischa 17-Aug-17 Nigel Bodinnar 17-Aug-17 Chris Schreurs | Incitec Pivot Ltd Schreurs & Sons | Prione Werribee Clyde | Grower Agribusiness service provider Grower | Western South Eastern | CM CL CM | Re: Creating value from vegetable waste (VG15076) Re: Creating value from vegetable waste (VG15076), need to obtain early adopter EOI form from CSIRO |
| 18-Aug-17 Lisa Brassington 18-Aug-17 Angeline Achariya 21-Aug-17 Matthew Plunkett | Peninsula Fresh Organics Food Innovation Centre Greater Sydney Local Land Services | Baxter Dandenong s Phone | Grower Researcher State Government Agent / Cato | South Eastern South Eastern ch Interstate | CM CM | Discussion to progress Cost of Production and Business Benchmarking Victorian Agribusiness Council Summit: Smart Technologies for Food |
| 30-Aug-17 Hugh Reardon | Dicky Bill Farms | Lindenow | Grower | Gippsland | CM | Engaged through SRW Irrigation Demand Assessment / West Gippsland CMA Workshop |
| 04-Sep-17 Kane Busch | Busch Organics | Lindenow | Grower | Gippsland | CM | Engaged through SRW Irrigation Demand Assessment / West Gippsland CMA Workshop |
| 04-Sep-17 Jim Forsyth | Forsyth Farms | Lindenow | Grower | Gippsland | CM | Engaged through SRW Irrigation Demand Assessment / West Gippsland CMA Workshop |
| 05-Sep-17 Shane Cox 06-Sep-17 Michael Evans | Riveria Farms Mulgowie Farms | Lindenow Lindenow | Grower | Gippsland | CM CM | Engaged through SRW Irrigation Demand Assessment / West Gippsland CMA Workshop Engaged through SRW Irrigation Demand Assessment |

| 06-Sep-17 Andrew Bulmer | Bulmer Farms | Lindenow | Grower | Gippsland CM | Engaged through SRW Irrigation Demand Assessment |
|--|--|------------------------------------|--|--------------------------------------|--|
| 06-Sep-17 Emma Germano | I Love Farms / Germano Produce | Mirboo | Grower | Gippsland CM Western CM | Engaged through SRW Irrigation Demand Assessment |
| 07-Sep-17 Jason Sherrin | Gibsons Groundspread | Clyde | Advisor or extension provider | Gippsland CM | Discussion at Biosecurity Violation Preventing and the provide |
| 11-Sep-17 Lisa Brassington | Hort Innovation | Townsville | Industry association | National CL | VegNET annual meeting, industry activities and connecting with growers |
| 12-Sep-17 Stephen Moore 18-Sep-17 Tom Cohen | E.E. Muir & Sons AUSVEG VIC | Werribee Phone | Agribusiness service provider Industry association | Western CM Statewide CL | Discussion of Club Root incidence levels across Wernbee as part of SARDI monitoring project. Re: AGM and HCoC workshop integration opportunity, plus membership |
| 19-Sep-17 Stuart Grigg 19-Sep-17 Siobhan de Little | Stuart Grigg Ag-Hort Consulting cesar | Phone Phone | Advisor or extension provider Researcher | Statewide CL National CL | Re: lettuce aphid and spinach mite sampling with cesar Re: lettuce aphid and spinach mite sampling with cesar |
| 20-Sep-17 Giovani Mason 20-Sep-17 Sam | Mason Brothers Riverside Produce | Werribee Werribee | Grower Grower | Western CM Western CM | AUSVEG Agrichemical pest management needs and priorities workshop AUSVEG Agrichemical pest management needs and priorities workshop |
| 20-Sep-17 Deng_ 28-Sep-17 Adam Schreurs | Stuart Grigg Ag-Hort Consulting | Werribee | Advisor or extension provider | Western CM South Eastern Cl | AUSVEG Agrichemical pest management needs and priorities workshop AUSVEG Agrichemical pest management needs and priorities workshop |
| 28-Sep-17 Tom Schreurs | Schreurs & Sons | Clyde | Grower | South Eastern CL | AUSVEG Agrichemical pest management needs and priorities workshop |
| 28-Sep-17 Marie-Astrid Ottenho 28-Sep-17 Chris Schreurs | Schreurs & Sons Schreurs & Sons | Clyde | Grower | South Eastern CL | AUSVEG Agrichemical pest management needs and prorities workshop AUSVEG Agrichemical pest management needs and priorities workshop |
| 28-Sep-17 Darren Schreurs 28-Sep-17 Russell Lamatina | Peter Schreurs & Sons A&G Lamattina & Sons Pty Ltd | Clyde Clyde | Grower Grower | South Eastern CL South Eastern CL | AUSVEG Agrichemical pest management needs and priorities workshop AUSVEG Agrichemical pest management needs and priorities workshop |
| 28-Sep-17 Sam Taranto | Taranto Farms | Clyde | Grower | South Eastern CL | AUSVEG Agrichemical pest management needs and priorities workshop |
| 28-Sep-17 Andrew Shaw | AUSVEG | Clyde | Industry association | National CL | AUSVEG Agrichemical pest management needs and priorities workshop |
| 28-Sep-17 Patrick Arratia 02-Oct-17 Maria Edwards | AUSVEG Cafresco Organics | Clyde Phone | Industry association Grower | National CL South Eastern CL | AUSVEG Agrichemical pest management needs and priorities workshop Re: Horticulture Code of Conduct workshop and preparation |
| 02-Oct-17 Jo van Niekerk 03-Oct-17 Rachel McKenzie | Boomaroo Nurseries Growcom | Phone Phone | Grower Industry association | Statewide CL Interstate CL | Re: Horticulture Code of Conduct workshop and preparation Re: Horticulture Code of Conduct workshop and preparation |
| 03-Oct-17 Peter Cochrane | P&J Cochrane Vegetable Growers | Phone | Grower | South Eastern CL | Re: Horticulture Code of Conduct workshop and preparation |
| 03-Oct-17 David Wallace | Wallace Vegetable Farm | Phone | Grower | Western CL | Re: Horticulture Code of Conduct workshop and preparation Re: Horticulture Code of Conduct workshop and preparation |
| 03-Oct-17 Tom Cohen 08-Nov-17 Tom Cohen | AUSVEG VIC AUSVEG VIC | Phone Phone | Industry association Industry association | Statewide CL Statewide CL | Re: Horticulture Code of Conduct workshop and preparation Re: AUSVEG VIC website redevelopment and stocktake of R&D resources |
| 09-Nov-17 Christine Fyfe 14-Nov-17 Darren Schreurs | University of New England Peter Schreurs & Sons | Phone Devon Meadows | Researcher | Interstate CL South Fastern CL | Re: strategic weed management (VG15070) project and demonstration site linkages for next 2-3 years w/ Soil Wealth ICP (VG16078) Re: site visit and sampling for cover cropping (VG16068) and soil home disease (VG15010) projects |
| 14-Nov-17 Darlet Comedia 14-Nov-17 Mark Schreurs | Peter Schreurs & Sons | Devon Meadows | Grower | South Eastern CL | Re: site visit and sampling for cover copping (VC10000) and soil borne disease (VC15010) projects Re: site visit and sampling for cover copping (VC16008) and soil borne disease (VC15010) projects |
| 14-Nov-17 Sam Taranto 14-Nov-17 Paul Gazzola | Gazzola Farms | Somerville | Grower | South Eastern CL | Re: site visit and sampling for cover cropping (VG16066) and soli borne disease (VG15010) projects Re: site visit and sampling for cover cropping (VG16068) and soli borne disease (VG15010) projects |
| 14-Nov-17 Adam Schreurs 14-Nov-17 Nathan Bischa | Schreurs & Sons Riverside Produce | Clyde Werribee | Grower Grower | South Eastern CL Western KO | Re: site visit and sampling for cover cropping (VG16068) and soil borne disease (VG15010) projects |
| 16-Nov-17 Andrew Shaw 16-Nov-17 Abdullah Allabadi | AUSVEG HM.Clause / Henderson Seed Grou | Phone p Phone | Industry association Grower | National CL Western KO | Re: EnviroVeg pilot program opportunities for Victorian growers |
| 28-Nov-17 John Shannon | vegetablesWA | Phone | Industry association | Interstate CL | Re: benchmarking, Hort Code of Conduct and HARPS collaboration opportunities and upcoming workshops |
| 28-Nov-17 Patrick Gormon | Gro-Link | Werribee | Grower | Western CM | Clubroot |
| 04-Dec-17 Tom Cohen 04-Dec-17 Shayne Hyman | AUSVEG VIC East Gippsland Food Cluster | Traralgon Traralgon | Industry association Industry association | Statewide CL Gippsland CL | Re: AUSVEG VIC website redevelopment Re: AUSVEG VIC website redevelopment |
| 05-Dec-17 Satish Chand 05-Dec-17 Rai | Coolabah Herbs Coolabah Herbs | Phone Phone | Grower | South Eastern CL | Re: Hort Code of Conduct worskhop pack, upcoming transition and other issues Re: Hort Code of Conduct worskhop pack, upcoming transition and other issues |
| 05-Dec-17 Matthew Plunkett | Greater Sydney Local Land Service | es Phone | Grower | Interstate CL | Re: follow up robotics and automation, innovation field day concept for Victoria following Riverina Field Day |
| 05-Dec-17 Patrick Gormon | Gro-Link | Werribee | Grower | Western CM | Clubroot |
| 07-Dec-17 John Elford 19-Dec-17 Peter Cochrane | Hydroponics tomato grower P&J Cochrane Vegetable Growers | Mildura Phone | Grower Grower | Northern KO South Eastern CL | President of Hydroponic growers and access to growers Re: nutgrass control options and links to strategic weed management project (VG15070) |
| 19-Dec-17 Tom Cohen 19-Dec-17 Shavne Hyman | AUSVEG VIC East Gippsland Food Cluster | Videoconference Videoconference | Industry association | Statewide CL Gippsland CL | Re: AUSVEG VIC website redevelopment Re: AUSVEG VIC website redevelopment |
| 19-Dec-17 Bharat Khunt | Mason Brothers | Werribee | Grower | Western CM | Clubroot |
| 21-Dec-17 Tom Cohen | AUSVEG VIC | Phone | Industry association | Statewide CL | Re: AUSVEG VIC website redevelopment |
| 22-Dec-17 Tom Cohen 02-Jan-18 Bharat Khunt | AUSVEG VIC Mason Brothers | Phone Werribee | Industry association Grower | Statewide CL Western CM | Re: AUSVEG VIC website redevelopment Clubroot |
| 02-Jan-18 Patrick Gormon 02-Jan-18 Andrew Fraganana | Gro-Link Fragapane Farms | Werribee | Grower | Western CM Western CM | Clubroot Clubroot sampling |
| 06-Jan-18 Jeremy Giddings | DEDJTR Agriculture Victoria | Phone | State Government Agent / Cato | h Northern KO | Re: VegPRO irrigation training scoping |
| 09-Jan-18 Patrick Gormon | Gro-Link | Werribee | Grower | Western CM | Clubroot |
| 09-Jan-18 Andrew Fragapane 16-Jan-18 Bharat Khunt | Fragapane Farms Mason Brothers | Werribee Werribee | Grower Grower | Western CM Western CM | Clubroot sampling Clubroot |
| 16-Jan-18 Patrick Gormon | Gro-Link DED ITR Agriculture Victoria | Werribee Mildura | Grower State Government Agent / Cato | Western CM | Clubroot Re: infraction training workshop. Not sure the right program - might he hard to get numbers |
| 23-Jan-18 Anthony Mason | Mason Brothers | Werribee | Grower | Western CM | Clubroot |
| 23-Jan-18 Stephen Moore 23-Jan-18 Patrick Gormon | Gro-Link | Werribee | Grower | Western CM | Clubroot |
| 23-Jan-18 Marco Mason 23-Jan-18 Sean Croft | Mason Brothers Arahura Farms | Werribee Swan Hill | Grower Grower | Western CM Northern KO | Clubroot, Benchmarking SARDI DNA sampling results not provided to Sean |
| 29-Jan-18 Adam Schreurs 31-Jan-18 Camilla Humpries | Schreurs & Sons E.E. Muir & Sons | Phone Werribee | Grower Aaribusiness service provider | South Eastern CL Western CM | Re: irrigation training workshop hosting in Jul-18 following VegPRO group coaching pilot (VG15028) Product Development Manager, collaborative opportunities for product trials and information sharing |
| 31-Jan-18 Anthony Mason | Mason Brothers | Werribee | Grower | Western CM | Clubroot |
| 31-Jan-18 Stephen Moore 31-Jan-18 Patrick Gormon | E.E. Muir & Sons Gro-Link | Werribee | Agribusiness service provider Grower | Western CM Western CM | Clubroot, Urones, VegNET Activities Clubroot |
| 07-Feb-18 John Shannon 07-Feb-18 Jess Lye | vegetablesWA AUSVEG | Camberwell Phone | Industry association Industry association | Interstate CL Western CM | Re: benchmarking, Hort Code of Conduct and HARPS collaboration opportunities and upcoming workshops Leafminer workshops, biosecurity |
| 07-Feb-18 Giovani Mason 07-Feb-18 Patrick Gormon | Mason Brothers | Werribee | Grower | Western CM | Clubroot Sampling, VegNET Activities |
| 07-Feb-18 Andrew Fragapane | Fragapane Farms | Werribee | Grower | Western CM | Clubroot sampling |
| 12-Feb-18 Matt Johnson | Coolibah Herbs | Wemen | Grower | n Northern KO Northern KO | Provided background information for Ministerial Drief |
| 12-Feb-18 Melly Pandher 13-Feb-18 Tony Bundock | DEDJTR Agriculture Victoria Genesis Horticulture Solutions | Tatura Werribee | State Government Agent / Cato Agribusiness service provider | h Northern KO Western CM | Reviewed and developed workshop program Priva Nutri-Jet, Protected Cropping (Gro-Link work) |
| 13-Feb-18 Dorin Gupta | University of Melbourne | Shepparton | Researcher | Northern KO | Reviewed and endorsed budget submission for vegetable prospectus Prenare for site visits |
| 19-Feb-18 Lisa Brassington | Peninsula Fresh Organics | Phone | Grower | South Eastern CL | Re: CSIRO Creating value from vegetable waste (VG15076) workshop hosting |
| 19-Feb-18 Gary Chislett 19-Feb-18 Carlo Nutia | E.E. Muir & Sons | Swan Hill Mildura | Grower Agribusiness service provider | Northern KO Northern KO | Veggie grower issues - fursarium in melons |
| 19-Feb-18 Cary Chislett 19-Feb-18 Tony Prado | - | Nangiloc Karadoc | Grower Grower | Northern KO Northern KO | Beans and Broccoli grower Cucurbit grower |
| 20-Feb-18 Shayne Hyman | East Gippsland Food Cluster | Videoconference | Industry association | Gippsland CL | Re: LGA Biosecurity Forum planning |
| 20-Feb-18 Maddie Quirk | AUSVEG | Videoconference | Industry association | National CL | Re: LGA Blosecurity Forum planning Re: LGA Blosecurity Forum planning |
| 20-Feb-18 Bronwyn Cole 20-Feb-18 Angela Atkinson | Agribusiness Yarra Valley VSIDC | Videoconference | Industry association Industry association | South Eastern CL South Eastern CL | Re: LGA Biosecurity Forum planning Re: LGA Biosecurity Forum planning |
| 20-Feb-18 Helen Ruddell 20-Feb-18 Bharat Khunt | Yarra Ranges Shire Council Mason Brothers | Videoconference Werribee | Other (please specify) Grower | South Eastern CL Western CM | Re: LGA Biosecurity Forum planning Greenhouse design, Clubroot |
| 20-Feb-18 Alan_ | Mason Brothers | Werribee | Grower | Western CM | Desalination Unit, EC Water Quality, Root Knot Nematode, Clubroot |
| 20-Feb-18 Joseph Ruffo | Tripod Farms | Lindenow | Grower | Gippsland KO | |
| 20-Feb-18 Matt Johnson 20-Feb-18 Joseph Ruffo | Coolibah Herbs Tripod Farms | Wemen Happy Valley | Grower Grower | Northern KO Northern KO | New manager from Pearcedale farm. Ten Years with Coolibah Advice at start of planting |
| 20-Feb-18 Sean Croft 20-Feb-18 John Blackman | Arahura Farms - | Swan Hill Swan Hill | Grower | Northern KO | Left some information Large veggie growers (Wemen) asking for blended fertilisers |
| 20-Feb-18 Andrew Young | Redgold Produce | Wemen | Grower | Northern KO | Site visit and R&D issue prioritisation |
| 21-Feb-18 Tom Cohen | AUSVEG VIC | Camberwell | Industry association | Statewide CL | Re: AUSVEG VIC website redevelopment progress and launch date |
| 21-Feb-18 Andrew Young 22-Feb-18 Stephen Moore | E.E. Muir & Sons | Wemen Werribee | Grower Agribusiness service provider | Northern KO Western CM | Interested in soft controls for pests. Son has started working at home IPM / Integrated Area Wide Management in Werribee |
| 22-Feb-18 James Dickson 22-Feb-18 Lisa Brassingon | Gro-Link Peninsula Fresh Organics | Werribee Phone | Grower Grower | Western CM Western CM | IPM / Integrated Area Wide Management in Werribee Waste management / CSIRO Workshop |
| 22-Feb-18 Dimi Kyriakou | AUSVEG | Phone | Industry association | National KO | Grower communications subscriptions Indian work shop - marketing and pests - confirm date |
| 23-Feb-18 Dorin Gupta | University of Melbourne | Shepparton | Researcher | Northern KO | Provided letter of endorsement for prospectus proposal |
| 27-Feb-18 Tom Cohen | AUSVEG VIC | Port Melbourne | Industry association | Statewide CL | AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting |
| 27-Feb-18 Deborah Corrigan 27-Feb-18 Frank Lamattina | Corrigans Produce Farms Lamattina Farms | Port Melbourne Port Melbourne | Grower | South Eastern CL South Eastern CL | AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting |
| 27-Feb-18 Rick Butler 27-Feb-18 Vince Doria | Butler Market Gardens | Port Melbourne | Grower Grower | South Eastern CL South Eastern CL | AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting |
| 27-Feb-18 Sam Taranto | Taranto Farms | Port Melbourne | Grower | South Eastern CL | AUSVEG VIC Executive Committee meeting |
| 27-Feb-18 Tyson Cattle | AUSVEG | Port Melbourne | Industry association | National CL | AUSVEG VIC Executive Committee meeting |
| 27-Feb-18 Shayne Hyman 27-Feb-18 Cherry Emerick | East Gippsland Food Cluster Bowen Gumlu Growers Association | Port Melbourne Port Melbourne | Industry association | Gippsland CL Interstate CL | AUSVEG VIC Executive Committee meeting AUSVEG VIC Executive Committee meeting |
| 01-Mar-18 Andrew Shaw 01-Mar-18 Jess Lye | AUSVEG | Phone | Industry association | National KO National KO | Re: workshop preparation Re: workshop preparation |
| 01-Mar-18 Melly Pandher | DEDJTR Agriculture Victoria | Phone | State Government Agent / Cato | h Statewide KO | Re: workshop preparation |
| 02-Wai-10 David Wallace 06-Mar-18 Bharat Khunt | Mason Brothers | Werribee | Grower | Western CM | Re: Clubroot |
| 06-Mar-18 Alan 06-Mar-18 Andrew Fragapane | Mason Brothers Fragapane Farms | Werribee | Grower | vvestern CM Western CM | Re: Clubroot |
| 13-Mar-18 Rick Butler 13-Mar-18 Vince Doria | Butler Market Gardens Freni and Doria Vegetables | Heatherton Devon Meadows | Grower Grower | South Eastern CL South Eastern CL | Farm visit and R&D issue prioritisation Farm visit and R&D issue prioritisation |
| 13-Mar-18 Adam Schroum | Gazzola Farms | Somerville | Grower | South Eastern CL | Farm visit and R&D issue prioritisation |
| 19-Mar-18 Andrew Shadbolt | Scotties Point Farms | Swan Hill | Grower State Common | Northern KO | Farm visit and R&D issue prioritisation |
| 20-Mar-18 Melly Pandher 20-Mar-18 Tony Kormousis | - Agriculture Victoria | Phone | Advisor or extension provider | Northern KO | Re: AUSVEG VIC Awards for Excellence |
| 20-Mar-18 Jess Lye 20-Mar-18 Greg Owens | AUSVEG NT Farmers | Phone Phone | Industry association Industry association | National CL Interstate CL | Re: biosecurity webinar preparation Re: biosecurity webinar preparation |
| 20-Mar-18 Andrew Francey | OneHarvest AUSVEG | Phone | Grower Industry association | Gippsland CL National KO | Re: biosecurity webinar preparation Re: Shepparton workshop follow up |
| 26-Mar-18 Tom Cohen | AUSVEG VIC | Phone | Industry association | Statewide KO | Re: AUSVEG VIC Awards for Excellence nominations |
| ∠o-iviar-18 Julie O'Halloran 26-Mar-18 Danyang Ying | CSIRO | Phone | State Government Agent / Cato Researcher | National CL | Re: extrusion agriculture project (VG 16009) and demo site opportunities in Victoria Re: extrusion demonstration preparation |
| 26-Mar-18 Deb Krause 27-Mar-18 Andrew Fraganane | CSIRO Fragapane Farms | Phone Werribee | Researcher Grower | National CL Western CM | Re: extrusion demonstration preparation Clubroot sampling |
| 27-Mar-18 Giovani Mason 28-Mar-18 Jenny Treeby | Mason Brothers DEDJTR Agriculture Victoria | Balliang | Grower State Government Agent / Coto | Western CM | Clubroot sampling Re: HIN invitation |
| 28-Mar-18 Joseph Ruffo | Tripod Farms | Phone | Grower | Northern KO | Re: inigation training workshop |
| 28-Mar-18 Ewan Leighton | | Phone | Grower | Northern KO | Re: imgation training workshop |
| 28-Mar-18 Gary Chislett 04-Apr-18 Ross Phipson | Chislett Farms Agri360 | Phone Phone | Grower Agribusiness service provider | Northern KO Interstate KO | Re: irrigation training workshop Re: resources and information distribution to growers |
| 10-Apr-18 Adam Schreurs | Schreurs & Sons DEDJTR Agriculture Victoria | Phone | Grower State Government Agent / Coto | South Eastern CL | Re: R&D issue prioritisation Re: phone book-up about new growers and update mailing list |
| 12-Apr-18 Tom Cohen | AUSVEG VIC | Phone | Industry association | Statewide KO | Re: GMID and water issues |
| 13-Apr-18 Bharat Khunt | Mason Brothers | Kooyong | Grower | Western CM | Clubroot sampling |
| 13-Apr-18 Andrew Fragapane 13-Apr-18 John Said | Fragapane Farms Fresh Select | Kooyong Kooyong | Grower Grower | Western CM Western CM | Clubroot sampling Event locations |
| 13-Apr-18 Stephen Moore 13-Apr-18 Camilla Humpries | E.E. Muir & Sons E.E. Muir & Sons | Kooyong | Agribusiness service provider | Western CM Western CM | Clubroot, robotics, IAWM Clubroot, robotics, IAWM |
| 13-Apr-18 David Wallace | Wallace Vegetable Farm | Kooyong | Grower | Western CM | Succession |

| 13-Apr-18 Tom Cohen 13-Apr-18 Astrid Ottenhof | AUSVEG VIC Schreurs & Sons | Kooyong Kooyong | Industry association Grower | Statewide (South Eastern (| OL OL | Re: R&D Adoption Award short-listed candidates Re: Growing Leaders and VegNET linkage discussion |
|---|---|--|--|---|------------------|--|
| 13-Apr-18 Stuart Grigg 13-Apr-18 Paul Gazzola | Stuart Grigg Ag-Hort Consulting Gazzola Farms | Kooyong Kooyong | Agribusiness service provider Grower | National (South Eastern (| | Re: R&D issue prioritisation Re: reaching more growers with project Re: reaching more growers with DBM in OLD migrating south |
| 13-Apr-18 Jill Briggs 13-Apr-18 Michael Coote | Affectus AUSVEG | Kooyong Kooyong | Agribusiness service provider Industry association | National (National (| | Re: Growing Leaders and VegNET linkage discussion Re: crowing Leaders and VegNET linkage discussion Re: export collaboration with Victorian growers |
| 16-Apr-18 Stuart Grigg 17-Apr-18 Astrid Ottenhof | Stuart Grigg Ag-Hort Consulting Schreurs & Sons | Ballan Phone | Advisor or extension provider Grower | National (South Eastern H | | Re: collaboration opportunities and upcoming webinar presentation Re: follow up from AUSVEG VIC Awards for Excellence |
| 20-Apr-18 Adam Ballan 20-Apr-18 Melissa Ehul | Fresh Select Fresh Select | Werribee Werribee | Grower Grower | Western 0 Western 0 | | Workshop event Workshop event Werkshop event |
| 24-Apr-18 James Dickson 24-Apr-18 Giovani Mason | Gro-Link Mason Brothers | Werribee Werribee | Grower Grower | Western 0 | | Clubroot sampling, IAWM Clubroot sampling, IAWM |
| 24-Apr-18 Adam Ballan 24-Apr-18 Melissa Ehul | Fresh Select Fresh Select | Werribee Werribee | Grower Grower | Western 0 Western 0 | CM CM | Workshop event Workshop event |
| 24-Apr-18 Joseph Fragapane 24-Apr-18 Andrew Fragapane | Fragapane Farms Fragapane Farms | Werribee Werribee | Grower Grower | Western 0 Western 0 | | Automation, business profitability Automation, business profitability |
| 24-Apr-18 John Said 24-Apr-18 Maddie Quirk 24-Apr-18 Callum Fletcher | AUSVEG | Werribee | Industry association | Statewide 0 | | Automation, business promability Biosecurity / leafminer Biosecurity / leafminer |
| 24-Apr-18 Siobhan de Little 24-Apr-18 Jess Lye | ceasar AUSVEG | Werribee Phone | Researcher Industry association | Statewide ONAtional | CM KO | Biosecurity / leafminer Re: registration of grower details |
| 24-Apr-18 David Wallace 24-Apr-18 Dorin Gupta | Wallace Vegetable Farm Melbourne University - Dookie camp | Phone u: Phone | Grower Researcher | Western H Northern H | <0 <0 | Re: registration of grower details Re: registration of grower details |
| 26-Apr-18 Rick Butler 26-Apr-18 Melly Pandher 26-Apr-18 Topy Kormousis | DEDJTR Agriculture Victoria | Phone Phone | Grower State Government Agent / Catch Agribusiness service provider | South Eastern C h Statewide | <u>X0</u> | On-tarm protitability / cost of production (benchmarking) Re: irrigation workshop |
| 26-Apr-18 Sam Birrell 27-Apr-18 Andrew Bulmer | Committee for Greater Shepparton Bulmer Farms | Phone Lindenow | Industry association Grower | Northern H Gippsland (| KO CM | Re: inglation workshop Automation, business profitability |
| 27-Apr-18 Kim Martin 27-Apr-18 Peter Covino | Frais Farms Covino's | Lindenow Lindenow | Grower Grower | Gippsland (Gippsland (| | Automation, business profitability Automation, business profitability |
| 02-May-18 Sulle O'Halloran 02-May-18 Sid Aspland 02-May-18 Metty Vanapodio | Queensland Department Agriculture | Shepparton Shepparton | State Government Agent / Catch Grower | Northern H | | Re: precusion agriculture project (VG16009) and demo site opportunities in Wembee at Ballan Farms/Fresh Select Biosecurity / leafminer, markets, on-farm profitability |
| 02-May-18 Darshan Singh Mange 02-May-18 Rajpseet & Dharminde | er Aulath Veggies | Shepparton Shepparton | Grower Grower | Northern H | KO, CM KO, CM | Biosecurity / leafminer, markets, on-farm profitability Biosecurity / leafminer, markets, on-farm profitability |
| 02-May-18 Lucky Khakh 02-May-18 Sukhwinder Singh | Khakh Farms Singh Vegetables | Shepparton Shepparton | Grower Grower | Northern H Northern H | KO, CM KO, CM | Biosecurity / leafminer, markets, on-farm profitability Biosecurity / leafminer, markets, on-farm profitability |
| 02-May-18 Jarmail Rai 02-May-18 Baljit Singh Khakh 02-May-18 Taraniit Singh | Dasmesly Farms | Shepparton Shepparton Shepparton | Grower Grower | Northern H | | Biosecurity / leafminer, markets, on-farm profitability Biosecurity / leafminer, markets, on-farm profitability |
| 02-May-18 Melly Pandher 02-May-18 Shayne Hyman | DEDJTR Agriculture Victoria East Gippsland Food Cluster | Shepparton Lardner | State Government Agent / Catch Industry association | h Northern k Gippsland (| KO, CM CL, HW | Biosecurity / leafminer, markets, on-farm profitability Re: biosecurity, local government and next steps |
| 02-May-18 Lavinia Zirksak 02-May-18 Jess Lye | DEDJTR Agriculture Victoria AUSVEG | Lardner Lardner | State Government Agent / Catch Industry association | h Statewide (National (| CL, HW CL, HW | Re: biosecurity, local government and next steps Re: biosecurity, local government and |
| 02-May-18 Maddie Quirk 02-May-18 Calum Fletcher 02-May-18 Adam Schreurs | AUSVEG AUSVEG Schreurs & Sons | Lardner Lardner | Industry association Industry association | National (National (South Eastern (| CL, HW CL, HW | Re: biosecurity, local government and next steps Re: biosecurity, local government and next steps Be: biosecurity, local government and next steps |
| 02-May-18 Bronwyn Koll 02-May-18 Angela Atkinson | Agribusiness Yarra Valley VSIDC | Lardner | Industry association Industry association | South Eastern (Statewide (| CL, HW CL, HW | Re: biosecurity, local government and next steps Re: biosecurity, local government and next steps |
| 02-May-18 Helen Ruddell 03-May-18 David Wallace | Yarra Ranges Shire Council Wallace Vegetable Farm | Lardner Shepparton | Other (please specify) Grower | Statewide 0 Northern H | CL, HW KO | Re: biosecurity, local government and next steps Re: Horticulture Centre of Excellence, Tatura |
| 09-May-18 Nathan Free 10-May-18 Dimi Kyriakou 10-May-18 Emma Germano | Duralgai Horticultural AUSVEG | Lake Boga Phone Phone | Grower Industry association | Northern C National H Giopsland H | | Compost, On-farm profitability / cost of production (benchmarking) Re: new grower registrations for AUSVEG communications Be: labour saving issues |
| 22-May-18 Dorin Gupta 22-May-18 Gary Chislett | University of Melbourne Chislett Farms | Phone Phone | Researcher Grower | Northern H | <0 <0 <0 | Re: funding, Vegtool, veg costings Re: Re fab issue prioritisation |
| 22-May-18 Jeff Morell 22-May-18 Linton Pipkom | E.E. Muir & Sons 30mHz Australis | Phone Camberwell | Agribusiness service provider Agribusiness service provider | Northern H National 0 | | Re: R&D issue prioritisation Re: precision agriculture and new system opportunities for Victorian growers |
| 22-May-18 Chris Schreurs 22-May-18 Astrid Ottenhof 22-May-18 Scott Samwell | Schreurs & Sons Schreurs & Sons Eastbrock Vegetable Farms | Clyde Clyde Phone | Grower Grower | South Eastern (South Eastern (| | Re: AUSVEG VIC R&D Adoption Award case study video filming Re: AUSVEG VIC R&D Adoption Award case study video filming Be: snray technology webing: programming |
| 22-May-18 Scott Mathew 22-May-18 Stuart Grigg | Syngenta Stuart Grigg Ag-Hort Consulting | Phone | Agribusiness service provider Advisor or extension provider | National 0 | | Re: spray technology webinar preparation Re: spray technology webinar preparation |
| 30-May-18 Allan 30-May-18 Andrew Fragapane | Mason Brothers Fragapane Farms | Balliang Werribee | Grower Grower | Western 0 Western 0 | | Clubroot sampling Clubroot sampling |
| 30-May-18 Adam Buzza 04-Jun-18 Michael Rettke 04-Jun-18 Tony Kormousis | DEDJTR Agriculture Victoria SARDI | Bacchus Marsh Phone Phone | State Government Agent / Catch Researcher | h Western H Interstate H | <0 <0 | Re: snow pea growers requesting information Re: R&D issue prioritisation Re: R&D issue prioritisation |
| 05-Jun-18 Nathan Free 05-Jun-18 Jake Shadbolt | Wattle Organic Farms Scotties Point Farms | Lake Boga Swan Hill | Grower Grower | Northern H | KO, HW KO, HW | Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events |
| 05-Jun-18 Peter Shadbolt 05-Jun-18 Sean Croft | Scotties Point Farms Arahura Farms | Swan Hill Swan Hill | Grower Grower | Northern H | KO, HW KO, HW | Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events |
| 05-Jun-18 L Burrell 06-Jun-18 Andrew Young 06-Jun-18 Marino Ruffo | Mallee Organic Redgold Produce Tripod Farms | Swan Hill Wemen | Grower Grower | Northern H | | Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events |
| 06-Jun-18 Matt 06-Jun-18 Phil Lamatinna | Coolibah Herbs Lamattina Farms | Wemen Robinvale | Grower | Northern H | KO, HW KO, HW | Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events |
| 14-Jun-18 Sean Croft 14-Jun-18 Michael Rettke | Arahura Farms SARDI | Phone Phone | Grower Researcher | Northern H Interstate | <0 <0 | Re: R&D issue prioritisation Re: R&D issue prioritisation |
| 14-Jun-18 Jeremy Giddings 18-Jun-18 David Wallace 18-Jun-18 Adam Schreurs | Vallace Vegetable Farm | Phone Brisbane Brisbane | State Government Agent / Catcr Grower | Western (| | Re: R&D issue prontisation Re: protected cropping expansion and links to PCA Re: protected cropping BASE |
| 18-Jun-18 Paul Home 18-Jun-18 Bruce Scott | IPM Technologies E.E. Muir & Sons | Brisbane | Advisor or extension provider Agribusiness service provider | National (| | Re: new aphicide from BASF Re; further project collaboration opportunities |
| 18-Jun-18 James Muir 18-Jun-18 Keith Fallow | E.E. Muir & Sons Bayer Crop Science | Brisbane Brisbane | Agribusiness service provider Agribusiness service provider | National (National (| | Re: further project collaboration opportunities Re: links to agri-chemical R&D Re: Descharged and the second secon |
| 18-Jun-18 Marc Hinderager 18-Jun-18 Julie O'Halloran | AHR Queensland Department Agriculture | Brisbane | Agribusiness service provider State Government Agent / Catch | National (| | Re: IAWM Re: NWM Re: precusion agriculture project (VG16009) and demo site opportunities in Victoria |
| 18-Jun-18 James Whiteside 18-Jun-18 Callum Fletcher | AUSVEG AUSVEG | Brisbane Brisbane | Industry association Industry association | National (National (| | Re: broader role of VegNET in industry development Re: links with IAWM vegetable bacteria and viruses project |
| 18-Jun-18 Cherrie Gambley 20-Jun-18 Andrew Fragapane | Queensland Department Agriculture Fragapane Farms | E Brisbane Hort Connections, Brit Hort Connections, Brit | State Government Agent / Catch s Grower | h Interstate (Western (| | Re: links with IAWM vegetable bacteria and viruses project IAWM IAWM |
| 20-Jun-18 Camilla Humpries 20-Jun-18 Nathan Bischa | E.E. Muir & Sons Riverside Produce | Hort Connections, Bri Hort Connections, Bri | s Agribusiness service provider s Agribusiness service provider | Western 0 Western 0 | CM CM | IAWM IAWM |
| 27-Jun-18 Satwinder Singh 27-Jun-18 Ben Perry | Lower Murray Water DEDJTR Agriculture Victoria | Phone Phone | State Government Agent / Catch State Government Agent / Catch | h Northern H h Statewide | <0 <0 | Re: new contact at LMW Re: spray drift working group and follow up from forum w/ information distribution |
| 29-Jun-18 Tom Cohen 03-Jul-18 Fiona Constable | AUSVEG VIC DEDJTR Agriculture Victoria | Phone La Trobe | Industry association State Government Agent / Catch State Government Agent / Catch | Statewide h h Statewide (| | ree: roliow up northern Victorian grower list IAWM vegetable bacteria and viruses IAWM vegetable bacteria and viruses |
| 04-Jul-18 Craig Arnott 04-Jul-18 Deborah Corrigan | Arnott's Vegetable Farm Corrigans Produce Farms | Clyde Clyde | Grower | South Eastern (| | On-farm profitability / cost of production (benchmarking) On-farm profitability / cost of production (benchmarking) |
| 10-Jul-18 Chris Schreurs 16-Jul-18 Lucky Khakh | Schreurs & Sons Khakh Farms | Phone Shepparton | Grower Grower | South Eastern (Northern (| | Re: R&D Adoption Award video case study promotion and links with Unipolar On-farm profitability / cost of production (benchmarking) |
| 16-Jul-18 Jarmail Rai 16-Jul-18 Baljit Singh Khakh 16-Jul-18 James Kelly | Dasmesiy Farms | Shepparton Shepparton Yarrawonga | Grower Grower | Northern (Northern (| | On-farm profitability / cost of production (benchmarking) On-farm profitability / cost of production (benchmarking) On-farm profitability / cost of production (benchmarking) |
| 18-Jul-18 Emma Germano 18-Jul-18 Chris Friars | I love farms / Germano Produce Riverside Produce | Mirboo Werribee | Grower Grower | South Eastern (Western (| | On-farm profitability / cost of production (benchmarking) IAWM, On-farm profitability / cost of production (benchmarking) |
| 24-Jul-18 Wayne & Tash Shield 24-Jul-18 Mark Schreurs | s Peninsula Fresh Organics Peter Schreurs & Sons | Baxter Devon Meadows | Grower Grower | South Eastern (South Eastern (| | On-farm profitability / cost of production (benchmarking) On-farm profitability / cost of production (benchmarking) |
| 24-Jul-16 Sam Laranto 25-Jul-18 Kim Saville 25-Jul-18 Adam Goldwater | AHR AHR | Phone Phone | Agribusiness service provider | National 0 | | Re: biosecurity webinar preparation Re: biosecurity webinar preparation Re: biosecurity webinar preparation |
| 25-Jul-18 Kim Saville 25-Jul-18 Adam Goldwater | AHR AHR | Phone Phone | Agribusiness service provider Agribusiness service provider | National 0 National 0 | | Re: spray technology webinar preparation Re: spray technology webinar preparation |
| 25-Jul-18 Justin Clarke 25-Jul-18 David Carey | University of Sydney, ACFR Queensland Department Agriculture | Phone E Phone Phone | Researcher Researcher | Interstate 0 Interstate 0 | | Re: robotics webinar preparation Re: robotics webinar preparation Re: nobotics webinar preparation Re: nobotics webinar preparation |
| 25-Jul-18 Kim Saville 25-Jul-18 Adam Goldwater | AHR | Phone Phone | Agribusiness service provider Agribusiness service provider | National 0 National 0 | | Re: robotics webinar preparation Re: robotics webinar preparation |
| 26-Jul-18 Jodie Larman 26-Jul-18 Paul Gazzola | G & J Larman Gazzola Farms | Heatherton Somerville | Grower Grower | South Eastern (South Eastern (| CM CL | On-farm profitability / cost of production (benchmarking), succession Farm visit and update on R&D news, resources and events |
| 26-Jul-18 Sam Taranto 26-Jul-18 Warwick Haw | Taranto Farms Hussey & Co. Coolibab Hette | Tyabb Pearcedale | Grower Grower | South Eastern (South Eastern (| | Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events |
| 20-Jul-18 Satish Chand 26-Jul-18 Wayne Shields 26-Jul-18 Peter Cochrane | Peninsula Fresh Organics P&J Cochrane Vegetable Growers | Baxter Devon Meadows | Grower Grower | South Eastern (South Eastern (| | Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events |
| 26-Jul-18 Frank Lamattina 26-Jul-18 Deborah Corrigan | Lamattina Farms Corrigans Produce Farms | Clyde | Grower Grower | South Eastern (South Eastern (| | Farm visit and update on R&D news, resources and events Farm visit and update on R&D news, resources and events |

| _ | 26-Jul-18 Deborah Corrigan | Corrigans Produce Farms | Clyde | Grower | South Eastern CL | Farm visit and update on R&D news, resources and events |
|---|-------------------------------|--------------------------------|---------------|-------------------------------|------------------|--|
| | 26-Jul-18 Vince Doria | Freni and Doria Vegetables | Devon Meadows | Grower | South Eastern CL | Farm visit and update on R&D news, resources and events |
| | 27-Jul-18 Cheryl Toffolon | Toffolon Borthers | Werribee | Grower | Western CM | On-farm profitability / cost of production (benchmarking), planning schemes |
| | 27-Jul-18 Bill Bulmer | Bulmer Farms | Lindenow | Grower | Gippsland CM | On-farm profitability / cost of production (benchmarking) |
| | 30-Jul-18 Scott Mathew | Syngenta | Phone | Agribusiness service provider | National CL | Re: spray workshop opportunities for the 2018-19 year |
| | 02-Aug-18 Hazel MacTavish-Wes | st MacTavish-West | Phone | Agribusiness service provider | National CL | Re: Veginnovations roadshow preparation for Epping workshop |
| | 07-Aug-18 Nathan Free | Duralgai Horticultural | Phone | Grower | Northern CM | Compost |
| | 08-Aug-18 Mark Schreurs | Peter Schreurs & Sons | Phone | Grower | South Eastern CM | Compost |
| | 08-Aug-18 Jenny Ekman | AHR | Phone | Agribusiness service provider | National CM | Compost |
| | 08-Aug-18 Adam Schreurs | Schreurs & Sons | Cora Lynn | Grower | South Eastern CL | Re: demonstration site visit and irrigation training preparation |
| | 08-Aug-18 Sam Eyers | Metos ANZ | Cora Lynn | Agribusiness service provider | South Eastern CL | Re: precision agriculture and new system opportunities for Victorian growers |
| | 09-Aug-18 Dino Borrato | Boratto Farms | Phone | Grower | Western CM | Compost |
| | 14-Aug-18 Satish Chand | Coolibah Herbs | Pearcedale | Grower | South Eastern CL | Re: compost trial and advice on setting up demonstration |
| | 14-Aug-18 Craig Arnott | Arnott's Vegetable Farm | Clyde | Grower | South Eastern CL | Farm visit and update on R&D news, resources and events |
| | 14-Aug-18 Duane Alderson | E.E. Muir & Sons | Five Ways | Advisor or extension provider | South Eastern CL | Farm visit and update on R&D news, resources and events |
| _ | 15-Aug-18 Duane Alderson | E.E. Muir & Sons | Five Ways | Advisor or extension provider | South Eastern CL | Re: irrigation training workshop, other staff training needs |
| | 17-Aug-18 James Dickson | Gro Link | Werribee | Grower | Western CM | Clubroot project results |
| | 17-Aug-18 Stephen Moore | E.E. Muir & Sons | Werribee | Agribusiness service provider | Western CM | Clubroot project results |
| | 24-Aug-18 Neil Salvadore | Fragapane Farms | Werribee | Grower | Western CM | Training Needs - ChemCert Accreditation |
| | 03-Sep-18 Nathan Free | Wattle Organic Farms | Phone | Grower | Northern CL | Re: compost on-farm discussion, Nuffield scholarship report |
| | 03-Sep-18 Jenny Ekman | AHR | Phone | Researcher | Interstate CL | Re: compost on-farm discussion, food safety findings and key messages for Victorian growers |
| | 03-Sep-18 Mark Schreurs | Peter Schreurs & Sons | Phone | Grower | South Eastern CL | Re: compost on-farm discussion, compost use and nutrition management |
| | 10-Sep-18 Lance Petersen | Hussey & Co. | Phone | Grower | South Eastern CL | Re: R&D issues, upcoming events, chemical handling |
| | 10-Sep-18 Glenn Favero | Favero Gardens | Phone | Grower | South Eastern CL | Re: R&D issues, upcoming events, chemical handling |
| | 10-Sep-18 Vince Doria | Freni and Doria Vegetables | Phone | Grower | South Eastern CL | Re: R&D issues, upcoming events, chemical handling |
| | 14-Sep-18 Sridhar Ravi | RMIT | Ballarat | Supply chain participant | Northern KO | Soil conditioner - moisture holding for vegetable growers |
| | 21-Sep-18 Andrew Calsells | Rijkzwaan research station | Musk | Agribusiness service provider | Northern KO | Farm visit and update on R&D news, resources and events |
| | 26-Sep-18 Lance Petersen | Hussey & Co. | Phone | Grower | South Eastern CL | Re: R&D issues, upcoming events, potential hosting of pest and disease identification workshop |
| | 26-Sep-18 Glenn Favero | Favero Gardens | Phone | Grower | South Eastern CL | Re: R&D issues, upcoming events, potential hosting of pest and disease identification workshop |
| | 26-Sep-18 Vince Doria | Freni and Doria Vegetables | Phone | Grower | South Eastern CL | Re: R&D issues, upcoming events, potential hosting of pest and disease identification workshop |
| | 03-Oct-18 Luke Daffy | Boomaroo Nurseries | Werribee | Grower | Western CM | Pest & Disease Identification Workshop, R&D News, resources and events |
| | 03-Oct-18 Nicole Zhang | Fresh Select | Werribee | Grower | Western CM | Pest & Disease Identification Workshop, R&D News, resources and events |
| | 03-Oct-18 Andreas Kizris | Boomaroo Nurseries | Werribee | Grower | Western CM | Pest & Disease Identification Workshop, R&D News, resources and events |
| | 03-Oct-18 Tawanda Makoroni | Mason Brothers | Werribee | Grower | Western CM | Pest & Disease Identification Workshop, R&D News, resources and events |
| | 03-Oct-18 Brad Johnson | AgNova Technologies | Werribee | Agribusiness service provider | Western CM | Pest & Disease Identification Workshop, R&D News, resources and events |
| | 03-Oct-18 Kelvin Montagu | AHR | Phone | Advisor or extension provider | Northern KO | Follow up for irrigation and cover crops |
| | 03-Oct-18 Slobodan Vidivic | Bauer GmbH (Australia) Pty Ltd | Melbourne | Agribusiness service provider | South Eastern KO | Farm visit and update on R&D news, resources and events |
| | 03-Oct-18 Sridhar Ravi | RMIT | Melbourne | Supply chain participant | South Eastern KO | Farm visit and update on R&D news, resources and events |
| _ | | | | | | |

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|---|--|-----------------------------|--|-----------------------------------|--|
| 08-Oct-18 David Wallace 09-Oct-18 Hugh Tobin | Wallace farms | Kellor Wangaratta | Agribusiness service provider | Northern KO | Crop yields in the North East |
| 09-Oct-18 Melly Pando | Ag Vic Tatura | Phone | Advisor or extension provider | Northern KO | Cover crop workshop |
| 09-Oct-18 Melissa Burton | Browns Agricultural services | Koo wee Rup Melbourne | Agribusiness service provider | South Eastern KO | Fertilisers for vegetables |
| 11-Oct-18 Kelvin Montagu, | AHR | phone | Advisor or extension provider | Northern KO | Cover crop workshop |
| 11-Oct-18 Lucky Khakh 11-Oct-18 Melly Pandor | Khakh Farms Ag Vic | phone | Grower State Government Agent / Catcl | Northern KO | Cover crop workshop Cover |
| 12-Oct-18 Tom Cohen | AUSVEG VIC | Werribee | Industry association | Western KO | Annual General Meeting |
| 16-Oct-18 Stuart Grigg | Stuart Grigg Ag-Hort Consulting | Phone | Advisor or extension provider | Statewide CL | Re: pest and disease identification workshop preparation |
| 16-Oct-18 Duane Alderson | E.E. Muir & Sons | Five Ways | Advisor or extension provider | South Eastern CL | Re: pest and disease identification workshop preparation |
| 16-Oct-18 Nicolas Hueville | Coolibah Herbs | Pearcedale | Grower | South Eastern CL | Re: pest and disease identification workshop preparation |
| 15-Oct-18 Rappazzo 18-Oct-18 B. Johnson | Agnova | Melbourne | Agribusiness service provider | Northern KO | Heavy metal contamination in prassica Pest and disease extension material |
| 18-Oct-18 Dorin Gupta | Melbourne University | Dookie | Advisor or extension provider | Northern KO | Cut Salad vegetables for Goulbum valley |
| 22-Oct-18 Gary Chislett 23-Oct-18 Stuart Grigg | Chisletts Farms SG Aa-Hort Consulting | <u>Colignan</u> Werribee | Grower Advisor or extension provider | Northern KO Western CM | Farm visit and update on R&D news, resources and events Pest & Disease Identification Workshop P |
| 23-Oct-18 Andrew Young | Redgold pty Ltd | Wemen | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 23-Oct-18 Marnio Pasin 23-Oct-18 Matt Johnson | Tripod Farms | Happy Valley Wemen | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 24-Oct-18 Adam Farley | Farley Organics | Swan Hill | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 24-Oct-18 Sean Croft | Arahura Farms | Nyah West | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 24-Oct-18 Nathan Free 24-Oct-18 Jake Shadbolt | Scotties Point Farms | Lake Boga Beverford | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 30-Oct-18 Andrew Young | Red Gold | Phone | Grower | Northern CM | Leafy vegetable contaminants, adjacent land use issues |
| 05-Nov-18 Scott Mathew 05-Nov-18 Theresa Chapman | Syngenta RMCG | Phone Phone | Agribusiness service provider Advisor or extension provider | National CL | Re: potential spray application workshop in early 2019 Be: potential spray application workshop in early 2019 |
| 08-Nov-18 Melly Pandor | Visited ISA Tatura, hook up | Shepparton | Advisor or extension provider | Northern KO | Held Workshop - 4 attendees |
| 19-Nov-18 Adam Schreurs | Schreurs & Sons | Phone | Grower | South Eastern CM | Irrigation sensors |
| 28-Nov-18 Sigurd Howard | Landmark ltd, | Wandin | Agribusiness service provider | South Eastern KO | Farm visit and update on R&D news, resources and events |
| 30-Nov-18 Marie-Astrid Ottenh | nof Schreues and Son | Ballarat | Grower | Northern KO | Young leaders |
| 04-Dec-18 Stephen Winters | Boomaroo Nurseries | Lara | Grower | Western CM | Growing other crops Protected Cropping, Labour, Skills |
| 05-Dec-18 Andy Shaw | AUSVEG | Glen Iris | Industry association | National CL | Re: collaboration opportunities, links with new EnviroVeg Manual and upcoming events/planning |
| 05-Dec-18 Tom Cohen | AUSVEG VIC | Glen Iris | Industry association | Statewide CL | Re: AUSVEG VIC Awards for Excellence, R&D Award nomination criteria and process |
| 12-Dec-18 Patrick Gormon | Gro-Link | Werribee | Grower | Western CM | Clubroot |
| 12-Dec-18 Greg Moulds | NSW Lands dept | Gol Gol | Advisor or extension provider | Northern KO | Extension material for veg growers |
| 14-Dec-18 Carlo Nutia | EE Muir and sons | Mildura | Agribusiness service provider | Northern KO | Beans - pests and disease extension material |
| 15-Dec-18 Michael Wood | EnviroMix | Werribee | Supply chain participant | Western CM | Recycled Organics / Compost in vegetable production |
| 15-Dec-18 Simon Humphris | EnviroMix | Werribee | Supply chain participant | Western CM | Recycled Organics / Compost in vegetable production |
| 15-Jan-19 Peter Cochrane | P&J Cochrane Vegetable Growers | Phone | Grower | South Eastern CL | Re: nutgrass issue and potential event with research, trial and chemical control update |
| 17-Jan-19 Peter Cochrane | P&J Cochrane Vegetable Growers | Phone | Grower | South Eastern CL | Re: nutgrass issue and potential event with research, that and chemical control update |
| 17-Jan-19 Craig Arnott | Arnott's Vegetable Farm | Phone | Grower | South Eastern CL | Re: nutgrass issue and potential event with research, trial and chemical control update |
| 17-Jan-19 Darren Schreurs | Peter Schreurs & Sons | Phone | Grower | South Eastern CL | Re: nutgrass issue and potential event with research, trial and chemical control update |
| 17-Jan-19 Christine Fyre 17-Jan-19 Michael Coleman | University of New England University of New England | Phone | Researcher | Interstate CL | Re: nutgrass issue and potential event with research, trial and chemical control update |
| 17-Jan-19 Camilla Humpries | E.E. Muir & Sons | Phone | Agribusiness service provider | South Eastern CL | Re: nutgrass issue and potential event with research, trial and chemical control update |
| 17-Jan-19 David Hughes | Nufarm | Phone | Agribusiness service provider | National CL | Re: nutgrass issue and potential event with research, trial and chemical control update |
| 21-Jan-19 John Kay 23-Jan-19 Sigurd Howard | Sigurd Howard | Wandin | Agribusiness service provider | South Eastern KO | Composits for vegetable s Baby leaf |
| 24-Jan-19 Rick Bulter | Butler Market Gardens | | Grower | South Eastern KO | Growers in The Swan Hill district |
| 30-Jan-19 Andrew Young | Redgold Produce | Wemen | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 30-Jan-19 Matt Johnson | Coolibah Herbs | Wemen | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 30-Jan-19 Phil Lamattina | Lamattina Farms | Robinvale | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 30-Jan-19 Gary Chislett | Chislett Farms | Colignan | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 31-Jan-19 Stephen Moore | E.E. Muir & Sons | Laverton | Agribusiness service provider | Western CM | R&D News, resources and events |
| 31-Jan-19 Nathan Free | Wattle Organic Farms | Lake Boga | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 31-Jan-19 Jake Shadbolt | Scotties Point Farms | Swan Hill | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 31-Jan-19 Sean Croft | Arahura Farms Arahura Farms | Swan Hill | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 31-Jan-19 L Burrell | Mallee Organic | Swan Hill | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 01-Feb-19 Wallace | Wallace-robots, Lee Burrell Mallee Organics | Keilor Beverford | Grower | Western KO | Farm visit and update on R&D news, resources and events |
| 04-Feb-19 Scott Mathew | Syngenta | Phone | Agribusiness service provider | National CL | Re: spray application workshop reparation |
| 04-Feb-19 Theresa Chapman | RMCG Coolibab Herbs | Phone | Advisor or extension provider | Interstate CL South Eastern Cl | Re: spray application workshop preparation Re: encry unit calibration new pozzles and potential trial |
| 04-Feb-19 Peter Cochrane | P&J Cochrane Vegetable Growers | Phone | Grower | South Eastern CL | Re: nutrass management follow up, potential new project |
| 07-Feb-19 Noel Stevens | - Tripod Forma | Phone Happy Valley | Grower | Interstate CL | Re: nutgrass management follow up, additional resources |
| 18-Feb-19 Mano Pasin 18-Feb-19 Harry Velisha | Velisha Brothers | Werribee | Grower | Western CM | Lettuce Necrotic Yellows Virus, R&D News, resources and events |
| 18-Feb-19 Ehren Velisha | Velisha Brothers | Werribee | Grower | Western CM | Lettuce Necrotic Yellows Virus, R&D News, resources and events |
| 18-Feb-19 Jayden Thorne 18-Feb-19 Jurgen Paar | Rijk Zwaan | Werribee | Grower | Western CM | Lettuce Necrotic Yellows Virus, R&D News, resources and events |
| 18-Feb-19 Stephane Knight | Rijk Zwaan | Werribee | Grower | Western CM | Lettuce Necrotic Yellows Virus, R&D News, resources and events |
| 19-Feb-19 Fiona Constable 01-Mar-19 Anthony Agosta | Agriculture Victoria Research Divisio AAA Farms | Werribee | Grower | western KO Western CM | Parm visits for HIA project Water Quality Issues |
| 01-Mar-19 John Said | Fresh Select | Werribee | Grower | Western CM | Water Quality Issues |
| 01-Mar-19 Giovani Mason 01-Mar-19 Stuart Grido | Mason Brothers SG Ag-Hort Consulting | Werribee | Advisor or extension provider | Western CM | water Quality Issues |
| 01-Mar-19 Fiona Constable | Agriculture Victoria Research Divisio | n Melbourne | Researcher | Western KO | Farm visits for HIA project |
| 06-Mar-19 Andrew Young 06-Mar-19 Marino Pasin | Redgold Produce Tripod Farms | Wemen Wemen | Grower | Northern KO | Farm visit Fiona Constable and team |
| 06-Mar-19 Matt Johnson | Coolibah Herbs | Wemen | Grower | Northern KO | Farm visit Fiona Constable and team |
| 06-Mar-19 Phil Lamattina | Lamattina Farms Chislett farms | Robinvale | Grower | Northern KO | Farm visit Fiona Constable and team |
| 06-Mar-19 D Varipoda | Varipoda Farms | Colignan | Grower | Northern KO | Farm visit and update on R&D news, resources and events |
| 06-Mar-19 Carlo Nutia | EE Muir and sons | Mildura n Melbourne | Agribusiness service provider | Northern KO | Grower list and disease problems |
| 13-Mar-19 Jesse Lourey | PMA -Food safety | Phone | Industry association | Statewide KO | New fertiliser regulations for salad crops |
| 26-Mar-19 Tom Cohen | AUSVEG VIC | Glen Iris | Industry association | Statewide CL | Re: AUSVEG VIC website legacy arrangements, Phase 1 debrief |
| 28-Mar-19 Stephen Winters | Boomaroo Nurseries | Phone | Grower | Western CM | Spray application |
| 28-Mar-19 Ian Willert | Boomaroo Nurseries | Phone | Grower | Western CM | Spray application |
| 05-Apr-19 Darren Schreurs | Peter Schreurs & Sons | Phone | Grower | South Eastern CL | Re: precision agriculture, demo site questions |
| 08-Apr-19 Craig Arnott | Arnott's Vegetable Farm | Phone | Grower | South Eastern CL | Re: precision agriculture, demo site questions |
| 09-Apr-19 Adam Schreurs 09-Apr-19 Astrid Ottenhof | Schreurs & Sons | Cora Lynn | Grower | South Eastern CL | Re: precision agriculture application, variable rate technology, ruture opportunities. Re: precision agriculture application, variable rate technology, future opportunities, links with food safety |
| 09-Apr-19 Elvi Lainis | Schreurs & Sons | Cora Lynn | Grower | South Eastern CL | Re: precision agriculture application, variable rate technology, future opportunities, links with food safety |
| 09-Apr-19 Craig Arnott 09-Apr-19 Darren Schreurs | Arnott's Vegetable Farm Peter Schreurs & Sons | Cora Lynn Cora Lynn | Grower | South Eastern CL | re: precision agriculture application, variable rate technology, tuture opportunities Re: precision agriculture application, variable rate technology, future opportunities |
| 09-Apr-19 Scott Wallace | Growcom | Cora Lynn | Industry association | Interstate CL | Re: VegNET resources and leveraging through Hort360 program online |
| 09-Apr-19 Maddie Quirk 10-Apr-19 Tom Cohen | AUSVEG AUSVEG VIC | Cora Lynn Glen Iris | Industry association | National CL Statewide Cl | Re: potential articles and comms opportunities with biosecurity team Victoria-wide Re: AUSVEG VIC Awards for Excellence, R&D Award pominations, process of evaluation, accords for evening |
| | | | | | |
| Total | 789 | | Advisor or extension provider | 50 Northern | 185 |
| | | | Grower | 410 South Easter | n 163 |
| | | | Industry association | 109 Gippsland | 39 |
| | | | Researcher | 41 Interstate | 47 |
| | | | State Government Agent / Catch | h 71 National | 80 |
| | | | Supply chain participant | 789 Total | 789 |
| | | | | | |

Appendix 6: Fact sheets and technical notes



Benchmarking Measuring your business to manage performance tional Vegetal

National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Meeting your needs

A recent survey of Victorian vegetable producers identified profitability and cost of production as high priority issues for growers, second only to water. Knowing your cost of production is critical to help make the best management decisions for your business, as it provides a measurable way of assessing the cost of producing a product, and the price you are willing to accept for that product. One effective way of assessing your business profitability is to participate in a business benchmarking and cost of production exercise.

What is benchmarking?

Benchmarking is a management tool that you can use to measure how your business is performing. Growers can use the results of a benchmark to identify the strengths and weaknesses of their enterprises and, therefore, target management changes to build on strengths, as well as eliminate weaknesses. This can assist in achieving higher profits by providing an insight into what makes the top producers cost competitive.

To properly understand the drivers of vegetable production, benchmarking can be undertaken as a whole of business analysis. This enables financial data to be fully reconciled and avoids the trap of providing a report showing high performance in production, and missing the challenges that exist across the business as a whole. Collecting part information often misses key cost inputs and income inputs that are relevant to the business.

Benchmarking is typically used as an indicator to compare a farm business with the performance of the same farm across previous years or other similar businesses. It can be also used to compare similar businesses in a region. The performance areas generally include:

- Physical performance indicators, such as production and productivity efficiency; and
- Financial performance indicators relating to whole farm profitability, revenue generation and ability to repay debt.

Benefits of benchmarking for growers include:

- Understanding how your business is performing, to support decision making.
- Support understanding of business principles, evaluating and comparing cost and income performance.
- Developing links between productivity, market and business management.
- Encourage adoption of more effective business planning based on the knowledge of individual business strengths and weaknesses, using realistic performance targets for the future (both individual and industry wide).
- Creating an improved understanding of key components that determine production costs and returns, encouraging the adoption of best practice in growing to maximise profitability.
- Identify industry required benchmarks, including the required property size for commercial viability.

Cost of Production

In addition to benchmarking, there is also value in undertaking an accompanying cost of production assessment, to drill into the performance of individual varieties. The objective of the cost of production assessment is to show:

- Income derived from yield and average price.
- Costs both operating and capital.
- Profit assuming a standardised approach to costing capital and owners labour costs.
- Differences in varieties performance to your business.

The National Vegetable Extension Network (VegNET) Project is delivered locally in the Northern, Western and South-Eastern regions of Victoria by RMCG through VG15048, funded by Horticulture Innovation Australia Limited using the vegetable industry levy and funds from the Australian Government.





Measuring cost of production is fundamental to determining where costs can be reduced to improve profit. In vegetable production, this is not straightforward, as most costs can be spread over a range of varieties that the business produces. However, this can be addressed through allocating different cost inputs by variety to enable consistent comparisons across different businesses.

It needs to be emphasised that cost of production gives no feedback on the total health of a business. Thus the combination of benchmarking total business performance and cost per unit of production are both important factors when benchmarking the overall health of your business.

Why benchmark?

On their own, benchmarks are of limited value to a business. So why do them?

Where benchmarks are really useful is when they become part of a planning process. They can help gauge how your business compares against other growers, and be useful in determining the impact of making changes to your business – such as should you lease an additional farm? Can you bring another family member into the business? Should you develop a new product line?

How do you benchmark?

Vegetable production involves considerable expertise in the management of:

- · Physical resources such as land and water,
- Production system such as mix of crops, varieties, operating costs, marketing, technology and management practices,
- Human resources such as family labour, permanent employees, picking labour and contractors,
- Capital items such as debt management and depreciation, and
- · Off-farm interests.

Business profitability depends on the combined performance of all these items, but it is not always easy to work out which areas need to be changed. Like all business managers, growers are faced with an enormous range of decisions that can increase (or decrease) the health of your business. Recognising which areas are performing well and which ones are not, is important for making better decisions. Benchmarking business performance helps growers learn about their own performance in key aspects of their business. It also assists in learning how other businesses operate. Most importantly, it aims to encourage you to take action based on what you see in the results.

To undertake the benchmarking of the vegetable businesses, we recommend using the "BizCheck" method, developed by RMCG from economic and financial farm surveys carried out over a range of agricultural and horticultural industries. Data collection is based on annual financial statements (tax return data) and physical farm information. This information is combined to provide performance indicators that are comparable between businesses.

The basis of 'BizCheck' is to measure and understand how your vegetable business system works. The process uncovers the main components of the business and how they combine to determine the farm profit per family.

By measuring and comparing performance, 'BizCheck' is designed to identify particular areas for action in each individual business, making planning more effective. This is achieved by participating growers considering their results against industry averages and determining which benchmarks can be address.

Interested in doing a BizCheck on your business?

Data collection for BizCheck and cost of production is based on tax returns and physical farm information. The process of data collection and collation for benchmarking is straightforward, cost effective and confidential.

Benchmarking and cost of production of vegetable businesses in Victoria is provided as a no cost service to vegetable levy payers through the VegNET program.

For further information to undertake a BizCheck, contact your relevant field officer

- Clinton Muller Western Region, 0498 192 596, clintonm@rmcg.com.au
- Carl Larsen South-Eastern Region, 0419 622 393, carll@rmcg.com.au
- Ken Orr Northern Region, 0498 502 936, ken.orr54@bigpond.com

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Clubroot: a Galling Disease



National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

What is Clubroot?

Clubroot is one of the most destructive diseases of brassicas globally. Although it was detected in Australia as early as the 1890s, *Plasmodiophora brassicae*, the pathogen that produces clubroot, caused widespread loss during the 1980s and 1990s due to increasing brassica production and use of transplants. Clubroot now affects more than 70% of brassica properties in Victoria, Australia.

Clubroot is caused by a soil-borne organism that forms bulbous galls on the roots (Figure 1), which constrain uptake of nutrients and water and can cause considerable yield loss.

Severe infection can cause stunting, poor quality crops and even plant death before harvest.



Figure 1: A root system with clubroot galls

Why is clubroot a problem?

After it is established, clubroot is almost impossible to eradicate and very difficult to control. In addition, viable spores can remain in the soil for up to 20 years.

Therefore, prevention measures are ideal to avoid contamination, including clean soil, water, seeds and

seedlings (i.e. nursery stock) and site selection that considers paddock history.

How do I know if I have clubroot?

Clubroot causes plants to yellow, wilt and stunt (Figure 2). If you suspect you have clubroot infestation, the first step is it dig up some roots – the characteristic knobbly growths are usually clearly visible (see Figure 1).



Figure 2: Yellowed and wilted leaves caused by clubroot

Key messages

- Clubroot is a destructive disease and nearly impossible to eliminate
- New research outcomes will indicate the significance of disease load detected
- Prevention is ideal, but management options are available
- An integrated management approach may include liming, high-calcium fertilisers, proper drainage and good crop hygiene
- Chemical control is not very effective
- Genetically resistant hybrids may become increasingly available.

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



Next, you can get soil, water or nursery stock tested. Samples can be sent to various companies for testing and turnaround may vary from a few days to several weeks.

However, detecting the presence of clubroot is only the first step. The South Australian Research and Development Institute (SARDI) is currently undertaking research to define how disease load (measured as DNA level) can predict yield loss and inform planting and management decisions.

Checking for clubroot:

- 1. Dig up some roots
- 2. Lab-test soil, water or nursery stock for presence or absence of clubroot
- 3. Know Before You Sow: SARDI is researching the relevance of clubroot level for management in brassicas.

What can I do about clubroot?

Once the disease is present, there are a variety of management options available. Table 1 lists common management approaches for clubroot.

Table 1: Recommended approaches for clubroot control in vegetable production

| GOAL | APPROACH | DETAILS |
|---------------|---------------------------------|---|
| Prevent | Clean stock | Only accept clean seedlings in new trays/boxes from an accredited nursery. |
| Reduce spread | Restrict movement | Minimise equipment, livestock, water and people around your production areas. |
| | Meticulous hygiene | Always thoroughly clean farm equipment after working in a field suspected of having clubroot. |
| | Weed control | Remove weed hosts such as shepherd's purse and mustard. |
| | Test spore load | Do not plant susceptible varieties in infested soils with more than 1000 spores per gram of soil. |
| | Water management | Prevent overwatering and ensure each block receives clean water rather than run-off from nearby infested blocks. |
| | Improve soil drainage | Warm, acid soils with standing water favour rapid growth of the clubroot pathogen. |
| Reduce impact | Choose more resistant varieties | For example, rocket, radish, turnip and radish are less susceptible to the disease, and genetically resistant varieties are available. |
| | Bacterial biocontrol agents | Introduce Bacillus subtilis or Gliocladium catenulatum. |
| | Vary crop rotation | Include non-brassicas in your crop rotation to minimise disease carryover. |
| | Site preparation | Before planting, make sure plants and roots from the previous crop have been removed and areas that were infection 'hot spots' in the previous crop are treated. |
| | Soil modification | Before planting a susceptible crop increase soil pH to 7.0–7.5 by adding lime; during early production, add calcium and boron, which can reduce gall formation. |
| | Fumigation | Strategic use of fungicides (e.g. banded incorporation at planting) or fumigating (e.g. metham sodium and dazomet) as a last resort when the pathogen load is high. |

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What are the costs?

The major costs of the disease are yield loss, hygiene measures to stop spread, restricted rotation options and management costs, such as addition of lime, calcium or boron.

Although clubroot management can be very costly, the risks and costs can compound if the disease is not managed.

What does the future of clubroot management look like?

Available in the near future, SARDI's diagnostic tool specific for soil-borne diseases in Australian brassica crops will arm growers with a valuable new way to assess risk before planting.

Another promising management option for the future is bred or genetically engineered clubroot-resistant cultivars.

For example, Syngenta's TopRes[™], a trait that provides intermediate resistance to most 'races' of clubroot, is currently available in a selection of cabbage, cauliflower and Brussels sprout varieties, such as clubroot-resistant hybrid cauliflower Highfield F1. Early trial work is currently being conducted in broccoli and new hybrids with TopRes[™] resistance are expected to be available in the near future.

Although highly adaptable clubroot pathogens may challenge resistant varieties quite quickly, researchers worldwide continue to work on new lineages.

Further Information

For further information on clubroot in horticulture, the following resources may be of interest:

- Fact Sheet: Clubroot in Brassica Vegetables
- HAL Report: Total Crop Management of Clubroot in Brassica Vegetables (2003)
- A guide to the prevention and management of clubroot in vegetable brassica crops
- National Clubroot Project fact sheets:
 - Integrated Control of Clubroot Introduction
 - Design the nursery to minimise your clubroot risk.
 - <u>Clubroot Prevention Farm Hygiene</u>
 - Managing New and Isolated Outbreaks
 - Keep seeds, water and soil free of contamination.
 - Monitor for clubroot in the nursery.
 - <u>Chemical Control of Clubroot</u>
 - Strategic Application
 - Strategic Application Machinery Design

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The 'breakdown' on composts



National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

The rising cost of fertiliser inputs and a greater understanding of the importance of soil health has prompted interest in the use of composts as a soil ameliorant. What exactly are composts and why would you use them in a vegetable production system?

This fact sheet provides a summary 'breakdown' on the current knowledge of the benefits and risks of composts, with links to further information available.

WHAT ARE COMPOSTS AND HOW ARE THEY PRODUCED?

Composts, also known as 'recycled organics', are decomposed organic materials, that are typically lightdark brown with an earthly appearance and smell. They are made by mixing a balance of carbon and nitrogen rich organic materials (referred to as feedstocks), with water and oxygen to encourage naturally occurring microorganisms to breakdown the organic matter.

The composting process typically goes through three stages:

- Initial pasteurisation stage where heat is generated (usually in excess of 55°C), which is important to eliminate weed seeds and pathogens from the process;
- Young or active stage where the compost is still very biologically active; and
- Mature stage where the compost will not selfheat to greater than 40°C and has moved towards stabilisation.

The timing of the process is variable, usually 8 to 24 weeks, and can be stopped at any stage to produce three maturity levels of product.

The use of a variety of organic materials, length of time processed, and composting system used by the different compost manufacturers means compost products will vary from one supplier to the next. Subsequently, the agronomic benefits or long-term soil conditioning effect of different compost products will also vary. **Compost 101:** provides a basic explanation of what compost is and its key benefits.

WHAT ARE THE BENEFITS OF USING COMPOST?

To get the most out of using compost, you should be clear about what you want to achieve from the compost in your production system. Compost contains organic matter and a range of macro and micro nutrients that can improve the function and fertility of soil. While composts contain nutrients (mix of immediately available and slow release), composts should not be considered as fertiliser replacement as they do not provide all nutrient requirements for vegetable production, rather they can provide a supplement.



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Hort nnovation

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RMCG

The main benefit of regular compost use should be considered in the context of overall soil health. Compost adds organic matter to soil which promotes improved soil structure. Other benefits provided by compost can include:

- Provide nutrients to plants
- Better nutrient cycling
- Increase microbial activity
- Improve soil structure and reduce compaction
- · Increase root growth, root lengths and root health
- Improve water infiltration and storage
- Create of greater air space in soil
- Suppress diseases
- Weed suppression
- Temperature control
- Reduce soil erosion

Three main points you should consider when selecting a compost for use are:

- Is it **young** or **mature**? This tells you how long the compost is likely to stay in soils and when and when not to use it in your production system.
- Did it have a lot of **nitrogen-rich** input or **carbon-rich** input? This gives you an indication of the nutrients (in particular nitrogen) that will be immediately available to the production system to allow adjustment of other farm inputs such as fertilisers.
- What are the predominant particle sizes? This provides guidance on how to use the compost, such as small particle size being appropriate for incorporation opposed to large particles more appropriate for mulching.

Table 1 provides helpful advice you may consider around different approaches of compost use to achieve your desired outcomes.

Composting products: provides an overview of the different compost product types as well as discussing the benefits of using compost. projects.

Table 1: Recommended approaches for compost use in vegetable production

| DESIRED OUTCOME | SUGGESTED APPROACH |
|--|---|
| Improved crop establishment and growth | Regular use of fine grade, mature compost; incorporate into soil at planting – if sand-blasting is a problem, apply compost on soil surface then incorporate into soil after harvest. |
| Better nutrient management | Regular use of fine grade, mature, high nutrient compost (e.g. manure-based composts or compost/fertiliser blends); apply by banding and incorporate at planting. |
| Better soil structure | Regular use of fine grade, mature compost that is incorporated into soil at planting. |
| Better soil moisture management | Regular use of fine grade, mature compost incorporated to improve soil water holding capacity. To prevent surface evaporation, mulch soil with compost. |
| Reduced erosion | To reduce wind erosion, apply compost on soil surface, and if incorporating, only cultivate into the top few centimetres. |
| Control plant pathogens in soil | Regular use of fine grade, mature compost; incorporate into soil at planting. |

QUALITY

A compost quality standard exists for the manufacturing and testing of compost products, Australian Standard for Composts, Soil Conditioners and Mulches (AS 4454-2012). The standard is designed to give users a level of quality assurance by:

- Providing a method to produce a product that regulates and guides health and safety for unrestricted use; and
- Correctly characterising compost products to enable informed purchasing decisions.

The standard, however, does not attempt to classify products by suitability for any specific end use or application. For the highest form of guarantee for a compost product, producers should request a certified product and test report on the batch they are purchasing.

RISKS

The main risks and concerns with composts are associated with:

- Poorly made products with unacceptable levels of impurities and contamination. Feedstocks used to produce composts can be a source of heavy metals, pathogens, weed seeds, plastics and other waste material. Inappropriate and insufficient management during manufacturing can lead to compost products with unacceptable levels of contaminants.
- Consistency of the products. Feedstock availability can vary across the year resulting in some compost manufacturers unable to provide a consistent line of product all year round.
- Inappropriate matching of a compost product for the intended use. Product maturity and timing of application for vegetable production is very important. A young active carbon-based compost product applied at planting can cause microbes to draw nitrogen from the soil to break down the compost and starve the plants of nutrients.

Other risk considerations for any grower is electrical conductivity and pH of compost products. Most compost have a neutral to slightly alkaline pH, however this can vary. Composts tend to have EC values in excess of those in soils.

To avoid these risks, compost should be sourced from reputable suppliers. The highest form of guarantee is sourcing product from suppliers who are certified (AS 4454-2012).

FOOD SAFETY AND QUALITY

A simple <u>decision tree</u> to help guide the use of composts within your program is available. Key considerations to note with using compost under Freshcare certification include:

- Certified compost (AS 4454-2012) can be used without restriction.
- Where composting treatment cannot be verified, it should be managed as an untreated manure.
- Untreated manures (including soil amendments mixed with untreated manures) need to have a minimum period pass between application and harvest, this is at least 90 days if the soil potentially contacts the harvestable part of produce that may be eaten uncooked.

Freshcare compost facsheets: provide guidance for how to produce and use compost without affecting food safety and Freshcare certification. These user-friendly fact sheets explain different withholding periods, record keeping requirements and compost projects.

COST OF COMPOST

The costs associated with compost can be determined by several factors. This includes:

- Type and quality of the compost
- · Freight costs based on distance
- Spreading/incorporation costs, which depend on:
 - application rates
 - type of compost
 - machinery required
 - travelling time
 - scale of the work.

It is important to also consider labour and financial costs associated with other practices that may need to change in conjunction with compost application, such as tillage, nutrition, irrigation and crop protection requirements.

What is compost worth?: outlines the economic considerations for using compost in vegetable production systems. It is based on lessons learned from several Australian case studies through the Integrated Crop Protection and Soil Wealth projects.

Further information

For further information on the use of compost in horticulture, the following resources may be of interest.

 Australian organics recycling association: aora. org.au – including a collection of 45 fact sheets that answer specific questions regarding compost use, including the use of compost to manage specific diseases, testing compost nutrient content, and cost benefit trials of compost use.



Assessing the costs associated with vegetable production



VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Cost of production in vegetable farming

Determining the Cost of Production (CoP) is vital to understanding the economic viability of a farming system. The CoP is defined as being the total cost to produce a unit of a given product. This information provides the basis to understanding the overall profitability of a farm and where changes need to be made to increase it. Profitability is calculated by determining all costs related with production and then deducting them from the price received.

CoP can be broken up into two main categories:

1. Direct costs

• Variable costs are determined as costs that vary with the size of an enterprise. These variables usually relate to inputs such as fertiliser, fuel and labour.

2. Non-direct costs

- **Overhead costs** are costs that are semi variable such as rates, interest, taxes, maintenance and utility costs.
- Capital costs are costs that are fixed such as depreciation, land purchase and construction.

To ensure correct calculation of profitability, all costs, cash and non-cash (e.g. depreciation) must be factored into CoP.



If non-cash costs are not calculated this may result in a short-term cash surplus, but no overall profit. The success of a business will depend on using this information to monitor the margin between CoP and the price received for the product.

Key messages

- Cost of Production (CoP) is determined as the cost of variable, overhead and capital costs used to produce a unit of product
- CoP can be calculated with a tool that enables growers to compare their results across industry
- Trends within the industry show an increase in scale, productivity and overhead costs, resulting in an increased cost price squeeze.
- Case studies have identified several characteristics that improved cost competitiveness throughout the industry, including:
 - Learning from others
 - Developing strong customer / supply chain relationships
 - Focussing on continuous improvement
 - Monitoring cost of production
 - Being prepared to change
 - Taking considered risks
 - Implementing succession
 - Knowing own strengths and weaknesses
 - Having a future focus
 - Considering alternatives / insurance
 - Building a good team

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Calculating the cost of production

Calculation of CoP can be done in a number of ways, these calculations have been previously outlined in a case study by Hort Innovation that indicates what should be included in CoP calculations and how to use them for decision making tasks on farm¹. As well as this, a cost of production calculator and self-assessment tool is available to aid growers in understanding the cost of producing a range of vegetable products². The calculator enables growers to compare their costs across industry benchmarks so as to see where their costs lie in comparison with other businesses. It also provides benchmark information on the bottom 25%, middle 50% and top 25% of producers around the country for all variable, overhead and capital costs. This enables growers to see where outlying costs may be and address them accordingly.

Trends within the industry

Information gathered from previous reports investigating the cost associated with the production, sale and distribution of vegetables (VG12086) analysed how CoP was influenced over time, by performance, scale, commodity, and state. This information provided an insight into why there are significant differences in CoP within the industry, as well as highlighting areas for future development.

Data collected from vegetable growers, as well as data from ABARES concluded that average total costs had increased on farm, more specifically growing costs, plant and equipment, and labour. This increase was largely attributable to increased scale, productivity and overhead costs. Although the increase in scale and productivity has enabled the industry to stay competitive, the increase in overhead costs is a concern as it is out of the farmer's control. Although the increase in scale and productivity has been significant, it has not been enough to offset the cost price squeeze. Further investigation on the efficiency of different vegetable growers revealed that there was a significant difference in overhead costs in the industry. This ranged from \$476 per tonne for the bottom 25% to \$186 per tonne for the top 25 %, with operator and family imputed labour being the largest contributor to the difference. The scale of farms also had a significant effect on the CoP, with larger scale growers, although receiving less per tonne for product being more profitable.

CoP within the vegetable industry differs significantly due to a variation in input costs associated with labour, seed, fertiliser and chemicals. It was found that there was a relationship between CoP and price received with growers having a high CoP also receiving a higher price for their product, whilst those with a lower CoP receiving a lower price. This suggested that variation comes from how well a product is produced, not what is produced.

It was also determined that there is no direct relationship between State and level of profit, although CoP varies significantly within states. States with a higher CoP also received a higher price for their product and states with a lower CoP received a lower price.

Overall, the average total cost of vegetable production is increasing, primarily due to the increase in scale, productivity and overhead costs. Low profit levels within the industry is a direct result of high overhead costs, primarily due to operator and family imputed labour. Growers who are producing on a larger scale are more likely to be better performers due to lower costs per tonne. No information suggests there is a state or commodity advantage.



Case studies

A total of 19 case studies for vegetable businesses throughout Australia were developed to gain a further understanding of variation of CoP within the vegetable industry and how farmers use their knowledge of CoP to their benefit. These case studies reinforced the notion that there is a significant relationship between scale, productivity, diversity and cost competitiveness.

https://ausveg.com.au/app/data/technical-insights/docs/case-study-using-cost-of-production-for-decision-making.pdf
 https://horticulture.com.au/cost-of-production-calculator-for-vegetable-growers/

Analysis outlined eleven characteristics that enabled growers to implement strategies to improve cost competitiveness. The characteristics of these growers were:

- 1. Learn from others
- 2. Strong customer / supply chain relationships
- 3. Focus on continuous improvement
- 4. Monitor cost of production
- 5. Are prepared to change
- 6. Take considered risks
- 7. Implement succession
- 8. Know own strengths and weaknesses
- 9. Have a future focus
- 10. Consider alternatives / insurance
- 11. Build a good team.

Two of these case studies are highlighted in more detail below.

'Only grow what you can comfortably sell at margin'

A large vegetable growing business based in East Gippsland currently farming around 900ha of vegetable commodities experienced an increase in profitability due to a change in business approach. As a result, the business has become a fully integrated vegetable producing, processing and logistics operation. This change has primarily focussed on increasing scale, leading to a more efficient use of resources. One of the farm owner/operators believes the increase in scale has been one of the main factors in increasing the success of the business. The ability to increase scale has largely come as a result of building relationships with customers and delivering on commitments. Through the acquisition of nearby farms and development of land, they have managed to achieve an economy of scale by spreading overhead costs and lowering costs per unit. As well as this, the increase in scale has allowed them to diversify commodities produced, resulting in an increase in market access.

A high attention to detail from the ground up has also been a key factor to success. A heavy focus on crop rotations has enabled them to produce high quality, high yielding crops in a sustainable manner, whilst reducing crop husbandry costs and improving soil health. Long term investment in infrastructure has also helped to improve competitiveness. The completion of two large dams has become an important resource for the business, with prolonged droughts in previous years significantly affecting the profitability of the farm.

The integration of a processing plant has enabled the business to value add whilst also reducing costs associated with transporting goods to an external processor. Whilst the business did incur substantial capital costs through investing in the new technology required to process and pack, this has allowed them, once again, to increase their market access.

As a result of these changes, the business now has the ability to produce a range of different vegetable commodities to meet demand, process them on site and have secure access to water through drier periods.



'Focus on low volume high value products'

A family owned and operated business, based south east of Melbourne's CBD, has diversified focussing on a range of new vegetable lines to create market advantage, as well as integrating into the supply chain, processing or part-processing many of their product lines.

In the past 10 years there have been a number of different strategies undertaken to grow the business, reduce CoP, and in turn improve cost competitiveness. Maintaining long-term relationships with customers has been instrumental in growing market share and building market knowledge. This has helped to identify customer needs as well as potential market opportunities.

The business has historically focussed on traditional vegetable lines including celery, celeriac, cos lettuce, leeks, salad onions, and silver beet. Through increased market knowledge and awareness, there has been a recent shift to producing new vegetable lines including Tuscan cabbage and kale, as well as value adding, either through trimming, bunching and/or packing product for direct supply to consumers.

This diversification and integration has enabled the business to grow, reduce cost of production and in turn, improve cost competitiveness. It has also enabled them to build their market share and capitalise on opportunities for new product development or to value-add existing product lines.



Reference and further resources

- Using Cost of Production for Decision Making. Horticulture Australia Limited https://ausveg.com.au/app/ data/technical-insights/docs/case-study-using-cost-of-production-for-decision-making.pdf
- Cost of Production: Self-assessment tool. Horticulture Innovation Australia https://horticulture.com.au/ cost-of-production-calculator-for-vegetable-growers/
- Cost of Production for Australian Vegetable Growers. AUSVEG https://ausveg.com.au/app/ uploads/2017/05/Costs-of-production-for-Australian-vegetable-growers-1.pdf

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Food safety and transitioning to HARPS

National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

The importance of food safety

Food safety is critical for any vegetable business in Australia. It is essential for public health and contributes towards customer satisfaction, business reputation and profitability. Even more important to the vegetable industry is the fact that many products are eaten raw, or with minimal processing, or are packaged in 'ready to eat' portions for improved convenience.

The food safety hazards associated with fresh produce are microbial, chemical and physical contamination.

- **Microbial** contamination can cause nausea, diarrhoea and vomiting in consumers
- Chemical contamination can come from pesticide residues, heavy metals, natural toxins, non-pesticide contaminants and allergens
- **Physical** contaminants are a regular cause of customer complaints due to the 'yuck factor', such as finding a frog or insects in a packet of salad.

Identifying potential hazards and assessing their risk is the first step in preventing contamination of fresh produce. These can occur at any stage during growing, harvesting, ripening, storing, packing and transporting fresh produce, from initial planting up to delivery to wholesale market, retail distribution centre or retail store.



This fact sheet provides an overview of the new Harmonised Australian Retailer Produce Scheme (HARPS) and answers commonly asked questions from growers.

Harmonised Australian Retailer Produce Scheme (HARPS)

What is HARPS?

HARPS is a retailer-led scheme designed to assist with compliance to food safety, legal and trade requirements for suppliers to the major grocery retailers in Australia. It aims to reduce the stress associated with the adoption, maintenance and auditing of multiple food safety systems to multiple retail customers and has the potential to reduce costs. It has been funded by Hort Innovation using horticulture industry levies and Government funds, as well as retailer contributions, and is managed by a Project Team, including the Produce Marketing Association Australia-New Zealand (PMA A-NZ).

Key messages

- Food safety is critical for any vegetable business in Australia
- Harmonised Australian Retailer Produce Scheme (HARPS) is designed to reduce the cost and stress of food safety requirements adopted by the five major retailers in Australia
- HARPS must be adopted with an approved base scheme
- Approved schemes are Freshcare, SQF, BRC Global Standard and GLOBALG.A.P.
- There are important compliance dates to be aware of for different types of suppliers that are classified as Tier 1, 2 and 3

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RMCG

Hort Innovation Stratecic levy investment

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

What's required by producers?

The five major retailers that have developed and recognise HARPS are ALDI, Coles, Costco, Metcash (IGA) and Woolworths.

HARPS must be adopted with an approved base scheme. These schemes are:

- · Freshcare Food Safety & Quality Standard
- · SQF,
- · BRC Global Standard for Food Safety, and
- · GLOBALG.A.P. Integrated Farm Assurance.

You can use Table 1 to understand if your business needs to become HARPS approved. All growers and suppliers that are supplying finished product (i.e. shelf ready) in retail packaging (branded or generic) must be approved to the HARPS standard. This also applies to any agent, broker, distributor or vendor supplying, growing and/or packaging whole produce for retail sale.

Table 1: Is HARPS required for my business?

(Source: harpsonline.com.au)

I need to adopt HARPS, how do I arrange an audit?

The retailers have approved a list of certification bodies that are endorsed to audit against HARPS. If your current Certification Body is on the retailer's approved list, then you only need to notify your Certification Body of your requirement to audit HARPS. This includes:

- · AsureQuality
- AUS-QUAL Pty Ltd
- BSI
- Mérieux NutriSciences
- · SAI Global
- · Sci Qual International
- SGS.

Out of Scope Tier 3 Tier 2 Tier 1 Your business supplies bulk produce Your business processes fresh produce. Your business packs or re-packs: Your business has a Vendor or Supplier Number for one of the HARPS Participating Retailers*. (not in final retail packaging) for further (e.g. value-adding such as bagged salads Loose product with PLU/DataBar stickers packing to a Tier 1 or Tier 2 supplier fresh cuts, sliced mushrooms/carrots, applied as specified by a HARPS Participating Retailer*; or shelled nuts etc.) You are a low volume producer supplying a total of 10 pallets or less per calend Retail-branded pre-packs; or Virtual brokers that do not qualify as a year, per site. This is a collective total across all HARPS Participating Retailers* Tier 1, 2 or 3 supplier. Retail Returnable Plastic Crates (RPC's); or Proprietary-branded pre-packs; or (NB: Suppliers of retail-branded pre-packs Loose product in final retail packaging, are excluded from this rule as they qualify as a Tier 1 or Tier 2 supplier). packed to a retail specification destined for a HARPS Participating Retailer*; or Your business is part of an Approved Supplier Program for your Tier Action Required **Action Required Action Required** customer, who supplies to a HARPS Participating Retailer"; or Your business provides Ancillary Services* Your business may be required to be certified to an Approved Base Scheme** by 1st January 2019. If you have not yet achieved HARPS No action required for HARPS approval go to www.harpsonline.com.au to register your interest in achieving HARPS approval. Action Required Contact your respective retailer customer(s) for further information. Your business may require HARPS approval (this includes certification to an Approved Base Scheme** and the HARPS requirements) by 1st January 2019. Notify HARPS of your interest in achieving approval by registering at www.harpsonline.com.au by 30th June 2018. HARPS Participating Retailers: ALDI, Coles, Costco, Metcash (IGA), Woolworths ** Approved Base Schemes: BRC, Freshcare, GLOBALG.A.P., SQF Ancillary Services: Supporting or additional services including ripening, brokerage activities, storage and cooling (where product handling and traceability are the responsibility of the Ancillary Service supplier).

Version 1.0 January 2018

If your current Certification Body is not on the approved list, you will need to make contact with any of the other retailer approved Certification Bodies. The audit should be timed to include the base scheme and the HARPS audits simultaneously.

Businesses can use the Certification Body Matrix and Contact Details, located in the references, to ensure that Certification Bodies are approved for customers. This is important as not all Certification Bodies can be used for all retailers.

What's involved in the HARPS audit?

A Pre-Assessment Checklist is available on the HARPS website and is located under the Growers/Suppliers tab in the Document Library (http://harpsonline.com. au). This checklist will enable you to decide if you are meeting the requirements outlined in the HARPS elements. All businesses will need to review their systems and make any required changes to ensure they meet all of the HARPS elements in full. The checklist should be completed and sent to the approved Certification Body prior to the commencement of your audit. The VegNET team can provide assistance and guidance to growers in completing the Pre-Assessment Checklist.

I am certified under Freshcare, can I complete a HARPS audit?

HARPS are encouraging all businesses to act without delay to ensure HARPS approval is achieved by the 1 January 2019 deadline.

Tier 3 suppliers: Codex HACCP

Suppliers that are currently maintaining a Codex HACCP certification may need to change to a HARPS approved base scheme before 1 January 2019.

Suppliers that are currently certified with one of the following approved base schemes need to continue to maintain their current system to ensure they are HARPS approved: Freshcare, SQF, GLOBALG.A.P or BRC.

What do I need to do to remain HARPS approved?

You will need to ensure that you complete all of the requirements of a base scheme as well as meeting all of the HARPS elements. Recertification will be subject to approval following the successful completion of a base scheme plus the HARPS audit completed by a retailer approved Certification Body. Certificates will be issued by your Certification Body on successful completion of the HARPS and base scheme audits.



Further resources

- HARPS Online Document Library, including Pre-Assessment Checklist http://harpsonline.com.au/document-library/
- HARPS Helpline, T: 1300 852 219
- · Agents of foodborne illness 2nd ed. 2013. Food Standards Australia New Zealand (FSANZ), Canberra
- Evaluation of vegetable washing chemicals. 2013. R Premier Global FS Pty Ltd. Horticulture Australia Final Report VG09086
- Food regulation in Australia and New Zealand, Food Regulation Secretariat http://foodregulation.gov.au/internet/fr/publishing.nsf/content/home
- Freshcare Code of Practice Food Safety & Quality Edition 4 https://www.freshcare.com.au
- A Certification for Every Link in the Food Chain SQF standards. https://www.sqfi.com/standards/
- BRC Global Standard for Food Safety. https://www.brcglobalstandards.com/brc-global-standards/foodsafety/
- The Worldwide Standard for Good Agricultural Practices GLOBALG.A.P. https://www.globalgap.org/ uk_en/
- Make it safe. A guide to food safety. 2010. CSIRO Food and Nutritional Sciences. CSIRO Publishing 296pp
- OzFoodNet Enhancing surveillance for foodborne disease in Australia, Department of Health http://health.gov.au/internet/main/publishing.nsf/Content/cdna-ozfoodnet.htm
- Reducing listeria contamination from salad vegetable farms. 2010. R Premier Global FS Pty Ltd. Horticulture Australia Final Report VG07079
- Safe vegetable production: A microbial food safety guide for the Australian vegetable industry. 2002. Institute for Horticultural Development, Victorian Department of Natural Resources and Environment
- Fresh Salad Producers Forum Good agricultural practice. 2010. Jane Lovell, Tasmanian Quality Assured Inc.
 - Horticulture Australia Final Report OT06011
- The Produce Contamination Problem: Causes and Solutions. 2009. Eds. GM Sapers, EB Solomon and KR Matthews. Elsevier Publishing

References

- Dinsdale, J. (2017) Harmonised Australian Retailer Produce Scheme (HARPS) Q&A, WA Grower, Summer 2017, pp.102-103
- Fresh Produce Safety Centre Australia and New Zealand (2015) Guidelines for Fresh Produce Food Safety, [online] https://freshproducesafety-anz.com
- HARPS Online (2018) Harmonised Australian Retailer Produce Scheme, [online] http://harpsonline.com.au
- Certification Body Matrix and Contact Details for HARPS Approved Certification Bodies https:// harpsonline.com.au/wp-content/uploads/2017/06/Scheme-Rules-Appendix-2-Version-2.0-1.pdf

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Irrigation water quality for vegetables

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National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Overview

When irrigating vegetable crops, the use of poor water quality can affect both the crop and soil in which the plants are growing.

Water analysis is a valuable tool for determining potential or existing salinity problems, developing irrigation strategies, and verifying toxicities or mineral imbalances.

The standard irrigation water test for irrigating vegetable crops measures the following:

| PROPERTY | COMPONENT |
|-----------------|-------------------------------|
| Salinity | Electrical Conductivity (EC) |
| | Sodium Adsorption Ratio (SAR) |
| | Total Soluble Salts (TSS) |
| Alkalinity | рН |
| | Alkalinity |
| | Calcium Carbonate |
| Macro-nutrients | Nitrate Nitrogen |
| | Total Nitrogen |
| | Total Phosphorus |
| | Potassium |
| | Magnesium |
| | Calcium |
| Micro-nutrients | Boron |
| | Chloride |
| | Copper |
| | Iron |
| | Manganese |
| | Molybdenum |
| | Sodium |
| | Zinc |

The quality of irrigation water must be analysed by a competent laboratory, preferably NATA accredited.

All irrigation water contains variable quantities of ions, salts and nutrients, which in an extreme situation can cause production losses, soil degradation and affect irrigation equipment.

Use of poor quality irrigation water in vegetable production can cause:

| ISSUE | RESULT |
|-------------------|---|
| Salinity/sodicity | Excessive sodium and total dissolved salts can affect the permeability or the drainage of the soil. |
| Toxicities | Excess chloride, aluminum and boron can bring about phytotoxicity to growth or roots of sensitive crops. |
| Deficiencies | High pH water or the addition of certain elements can cause an imbalance or decrease the availability of essential nutrients. |
| Damage | Irrigation equipment may corrode or become encrusted with salts. |



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Hort nnovation Stategic lavy investment

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

RMCG
Water quality parameters you should know about

Salinity

Salinity is most often measured by electrical conductivity (EC), with the higher the salt load, the higher the conductivity. The ability of the crop to tolerate salty water depends on many things, including the crop type, management of the soil type, the irrigation system and climatic conditions which prevail when irrigating.

Some vegetable crops are very sensitive to salinity (such as beans), whilst other crops can tolerate higher levels (such as cauliflower). The type of irrigation system, such as drip versus sprinkler; and the weather conditions like high evapotranspiration, contribute to the effects of salinity on the crop.

| ANALYTE | SATISFACTORY | PROBLEM | INTERPRETATION Comment |
|--|--------------|---------|---|
| Chloride mg/L (a & b) | < 175 | > 350 | If levels exceed 175 mg/L leaf or tip burn may occur, especially if there are high evapotranspiration conditions |
| Electrical Conductivity dS/m (b) | < 0.65 | > 1.3 | If > 0.65 avoid wetting leaves on hot dry days |
| Total Dissolved lons mg/L (b) | < 400 | > 850 | If > 400 avoid wetting leaves on hot dry days |
| Sodium mg/L (a) | < 70 | > 100 | If levels exceed 70 mg/L leaf or tip burn may occur, especially if there are high evapotranspiration conditions |

Source: (a) IncitecPivot Water Manual Notes and (b) NSW Department of Agriculture Advisory Bulletin 1

1mg/L = 1 ppm 1 EC unit =0.64 ppm EC unit = 1mS/cm =1dS/m

Managing water high in chloride and salinity can include:

- · Finding an alternative water source
- Diluting with better quality water (shandy)
- Avoiding leaf wetting
- Irrigating at night
- · Improving soil drainage
- · Growing chloride tolerant crops
- · Establishing crops using good quality water
- Installing desalination units for domestic use.

Soil permeability/sodicity

The sodium adsorption ratio (SAR) is a measure of the sodium hazard or imbalance of sodium ions relative to calcium and magnesium. When irrigation water has a high SAR level the permeability of the soil can be reduced and result in poor structure, infiltration, aeration and drainage. The SAR ratio for irrigation water in vegetable crops should be under 3, otherwise specific management strategies need to be put in place such as the application of gypsum.

| ANALYTE | SATISFACTORY | PROBLEM | INTERPRETATION Comment |
|-------------|--------------|---------|---------------------------|
| Sodium | < 3 | > 6 | When SAR is high apply |
| Adsorption | | | gypsum or provide |
| Ratio (SAR) | | | better drainage |

Source: NSW Department of Agriculture Advisory Bulletin 1

Alkalinity

pH is a measure of acidity or alkalinity. Alkaline water with high carbonate and bicarbonate levels can affect the plants ability to uptake calcium, magnesium and some trace elements. The use of high alkaline irrigation water will in time increase the soil pH and create deficiencies of zinc, iron and boron.

| ANALYTE | SATISFACTORY | PROBLEM | INTERPRETATION COMMENT |
|--------------------------|--------------|-----------------|--|
| рН (b) | 5 - 8.5 | < 5 or > 8.6 | Low pH water tends to be corrosive. A pH > 8.5 may lead to increased scale formation. This is due to the high levels of calcium, carbonate and/or bicarbonate normally present in alkaline water |
| Carbonate meq/L (a) | 0.1 | | High levels of carbonate can affect uptake of magnesium and some trace elements |
| Bicarbonate meq/L (a) | < 2 | | High levels of bicarbonate can affect uptake of magnesium and some trace elements |

Source: (a) IncitecPivot "Water Manual Notes"

(b) NSW Department of Agriculture Advisory Bulletin 1

Calcium Carbonate

The Calcium Carbonate index is determined from the relationships between pH, salinity, alkalinity and hardness of the water. It gives an indication of whether the water is going to cause corrosion to metal parts of the irrigation system, such as pumps, or is likely to cause blockages from encrusted salts breaking loose from within the irrigation system, blocking filters or drippers.

| ANALYTE | SATISFACTORY | PROBLEM | INTERPRETATION Comment |
|---|---------------|---------|--|
| Calcium Carbonate Saturation Index | -0.5 to + 0.5 | < -1.5 | Water within satisfactory levels is suitable for most situations. Little likelihood of corrosion or scale formation. |
| Water Hardness CaCO ₃ mg/L | < 50 | > 150 | Soft water is suitable for irrigation purposes. In hard water, precipitate may form when phosphorus fertilisers and sulfate are injected into the irrigation water. Calcium phosphate, calcium sulfate and calcium borate may be deposited. |

Source: Drip irrigation "A grape growers guide" NSW Agriculture

Macronutrients

In most cases macronutrients are very low in irrigation water sources, other than bores where calcium and magnesium can be found in high levels in hard water. In most cases nitrogen, phosphorus, potassium and sulphur would provide some minor benefit in the form of added nutrient for the growing crop.

| ANALYTE | SATISFACTORY | PROBLEM | INTERPRETATION COMMENT |
|-------------------------------------|--------------|---------|--|
| Nitrate Nitrogen mg/L (a & b) | 10 | > 30 | Sensitive crops may be affected with increasing concentration up to 30 mg/L, above which severe problems may arise. Should be considered as a nutrient when applying nitrogen fertilisers. |

| ANALYTE | ANALYTE SATISFACTORY PROBLEM | | INTERPRETATION COMMENT | | |
|------------------------|------------------------------|--------|---|--|--|
| Sulphur mg/L (a) | 5 | - | Metal corrosion may be increased by high sulphur levels. Application of large quantities of high sulphur water to the soil may be a factor in contributing to soil acidity. | | |
| Phosphorus mg/L (a) | 0.2 | > 0.25 | Concentrations > 0.25 mg/L may encourage algal growth. Should be considered as a nutrient when applying phosphorus fertilisers. | | |
| Potassium mg/L (a) | 15 | - | Should be considered as a nutrient when applying potassium fertilisers. | | |
| Calcium mg/L (a) | < 100 | > 200 | High calcium concentrations in the water may compensate for high soil sodium levels and may reduce a potential soil sodicity hazard. | | |
| Magnesium mg/L (a) | < 100 | - | High magnesium levels have a significant impact on the soil. Magnesium saturated clays tend to disperse on wetting and set hard on drying. Continual use of irrigation water high in magnesium may lead to a deterioration of soil structure, especially on poorly drained, heavy textured soils. | | |
| Aluminum mg/L (b) | <1 | > 5.1 | High levels can affect sensitive foliage and continuous application to soils can fix soil phosphorus. | | |

Source: (a) IncitecPivot "Water Manual Notes"

(b) NSW Department of Agriculture Advisory Bulletin 1

Micronutrients

Concentration of micronutrients such as zinc, copper and manganese are commonly very low in water samples. Iron and boron status can be high especially in irrigation water sourced from bores.

| ANALYTE | SATISFACTORY | PROBLEM | INTERPRETATION COMMENT |
|-----------------------|--------------|---------|--|
| Copper mg/L (a) | < 0.2 | > 0.21 | For irrigation purposes, problems are unlikely unless the concentration of the element in the water is high. Problems are more likely in situations where the soil concentration is already high for that element. The effect depends on soil and crop type. |
| Zinc mg/L (a) | 2 | > 2.1 | As above. |
| Manganese mg/L (a) | 0.2 | > 0.21 | As above. |
| Iron mg/L (b) | 0.1-1 | >1 | Where iron concentrations exceed 5 mg/L in irrigation, deposits of iron may discolor or shade foliage reducing photosynthesis. |
| Boron mg/L (b) | < 0.3 | 0.5 - 3 | Sensitive crops may be affected with increasing concentration > 3 mg/L, above which severe problems may arise. Damage to the crop can occur from both root absorption and foliar absorption of the boron and may occur even if the total salinity of the water is low. |

Source: (a) IncitecPivot "Water Manual Notes"

(b) NSW Department of Agriculture Advisory Bulletin 1

Other water quality parameters to consider

Tests for algae, bacteria and turbity can be undertaken by specific laboratories who provide the service.

Algae

Algal growth will occur at quite low concentrations of phosphorus; above 0.01 mg/L P, provided other conditions are favorable (such as water that is warm, still and relatively clear). Such conditions occur usually over summer during periods of low stream flow. The N:P ratio of the water will determine the type of algal growth.

Bacteria

Bacteria are usually associated with surface water supplies, including dams which are subject to contamination from inflows by sewage, decaying organic matter, manures or transmitted diseases. As a result, bacterial problems such as Paratyphoid (salmonellosis) may result from contaminated water. Certain bacteria may cause precipitation of iron or sulphur, or form slime in the system. This can result in blockages and inconvenience.

Turbity

Turbid or murky water is due to the presence of suspended material such as organic matter, clay or silt particles, or even iron compounds. These tiny particles remain in a suspended state as they are negatively charged and have a large surface area compared to their weight. Turbid water is unsightly, can stain and affect irrigation equipment, block irrigation drippers or spray nozzles and reduce the efficiency of water softening units. Only rarely is the degree of turbidity so severe as to make the water unsuitable for irrigation. High levels of turbid irrigation water can leave a film of suspended particles, protecting micro-organisms from the effects of disinfection and can stimulate bacterial growth.

Further information on water analysis and its application may be obtained from your local water authorities. They will be able to direct you to a NATA accredited commercial water analysis laboratory.

Irrigation water quality for vegetables



Other helpful resources

- Environmental Assurance Guidelines Horticulture for Tomorrow Chapter 2: Water management http://hoho3216.staging-cloud.netregistry.net/environmental-assurance-guidelines/chapters/watermanagement/
- State government department websites such as: http://agriculture.vic.gov.au/agriculture/horticulture/vegetables/vegetable-growing-and-management/ irrigating-vegetable-crops-with-water-high-in-soluble-salts https://www.daf.qld.gov.au/plants/fruit-and-vegetables/farm-management/effects-of-water-quality
- Managing water for yield and profit A training guide for Irrigators in the Australian Vegetable Industry AHR http://ahr.com.au/wp-content/uploads/2015/03/Managing-water-for-yield-and-profit_Training-guide.pdf
- Irrigation Essentials updated 2012 Research and innovation for Australian irrigators
 http://npsi.gov.au/products/npsi06121
- Using Recycled Water in Horticulture A Growers Guide
 http://www.recycledwater.com.au/uploads/File/documents/Growers%20Guide%20web.pdf

References

- Incitecpivot "Water Manual Notes", Incitec Pivot Limited 8 South Rd, Werribee VIC 3030
- Advisory Bulletin 1 "Water Quality Assessment for Irrigation" A.S Ward, NSW Department of Agriculture, Rydalmere 1984
- Drip irrigation "A grape growers guide" NSW Agriculture 2nd edition 1995 ISBN 073105623 X

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Precision agriculture in vegetable production

National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Overview

Precision agriculture (PA) technologies have been widely adopted throughout various agricultural industries in Australia, but what exactly is PA, and what benefits can it provide the Australian vegetable industry? This fact sheet provides information on the different types of technologies that are available, what they do, and how they have the potential to benefit your farming system.

What is precision agriculture?

Precision agriculture (PA) is the use of new technologies in collaboration with existing practices to perform a range of specific on-farm tasks. Also commonly referred to as site specific crop management or SSCM, PA works to better manage practices and inputs to match variations that occur in the environment. As opposed to an 'all-in' approach when applying fertilisers, chemicals, and other inputs, PA aims to assess the needs of specific areas and plants in the field and apply the required inputs accordingly.

As well as better managing inputs, PA technologies also encompass a range of innovative new ways to harvest, manage pests, weeds and diseases, and understand more about the needs of vegetable crops (e.g. irrigation, nutrition). Whilst PA technologies use a range of new technologies to help increase productivity, reduce costs and environmental impact, they still rely on conventional agricultural operations to work. They won't work as a silver bullet and address all problems, but used wisely they have the potential to better manage specific areas of your growing operation. Some of the most widely used PA technologies used in vegetable production include:

 Global navigation satellite systems or GNSS (commonly known as GPS) – used as guidance systems for the navigation of tractors, bed formers, and other on-farm machinery

- **Yield mapping/monitoring** used to understand the variations in crop health in specific areas of a field and provide information for decision-making
- Nutrient/water monitoring used to understand the variations in nutrient/water uptake and flow, and provide information for decision-making
- Variable rate controllers technology that allows varied amounts of inputs to be applied to specific areas needed, such as water and fertiliser.

Key messages

- Precision agriculture technologies help growers to better manage inputs to meet the needs of vegetable crops
- Benefits of precision agriculture include maintaining uniformity across the crop, reduced costs associated with inputs, and greater knowledge of in-field variation to inform decision-making and management
- Technologies currently available to vegetable growers include a range of tools that aid in onfarm sensing and monitoring such as variable rate application and controlled traffic farming
- Important considerations when thinking of using precision agriculture in your vegetable production system include: i) get the fundamentals right; ii) know what you're going to use the technology for; iii) find technology that operates with your existing equipment; iv) invest time and effort up front; and v) remember not all technologies are right for every farm

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This project has been funded by Hort Innovation using the vegetable research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au Page 1

Benefits of using PA in vegetable production

PA technologies have the potential to benefit a wide range of vegetable production systems through reducing costs associated with labour, being more precise with the application of inputs, and having a greater knowledge of the in-field variation in different parts of your farm. As mentioned, PA shouldn't be thought of as a silver bullet in dealing with all problems, rather as something that will assist you in being more efficient with your current systems. Benefits to production systems can include:

- · Increased accuracy of bed formation
- Reduced compaction
- · Greater knowledge of drainage patterns
- · Greater knowledge of soil structure/types
- · Increased input efficiency (e.g. water, fertilisers)
- · More effective control of pests, weeds, and diseases
- · Increased consistency of crop development
- · Increased marketable yield
- · Increased hygiene standards.

The use of PA technologies, with existing agronomic knowledge, has the potential to result in a more productive and profitable vegetable business.

CLICK HERE: <u>http://www.abc.net.au/news/2016-02-11/precision-agriculture/7162914</u> to watch a video on the benefits of PA adoption

Technologies currently available

The advancement technology in recent years has reduced the price and increased the reliability of ag-tech products, making them more easily accessible for vegetable growers and others in the industry.

Since the early 1990s a wide range of technologies have been developed to assist farmers in producing better quality products, at a lower cost, in a more productive manner. There are a wide range of technologies that are now common practice in farming systems around the world that aim to do this. In Australia, the uptake of technologies has been seen in a wide range of agricultural industries all the way from production to packing. The most popular and widely used technologies in the Australian vegetable industry include a range of sensing equipment that are designed to aid in performing tasks like fertiliser application, soil sampling, farm mapping, and yield/nutrient/water monitoring. The most established of these in Australian vegetable production being controlled traffic farming (CTF) and variable rate application (VRA). CTF enables growers to use the same wheel tracks when planting, spraying and harvesting, resulting in reduced compaction and runoff, and potential increases in yield. VRA allows growers to better match inputs with the needs of crops, by applying the required amount of inputs to the specific area it's needed in the crop (e.g. water, nutrients).



CLICK HERE: https://www.youtube.com/ watch?v=4JbKaAsyRkl&feature=youtu.be for more information on controlled traffic farming and variable rate application

Many companies have jumped on board, innovating and investing in new technologies for growers. Ag-tech company The Yield has created a range of sensing products that aim to aid growers in completing a range of on-farm tasks. One of their products was developed through a Hort Innovation funded project, which includes data analytics and app technology to guide on-farm irrigation scheduling. The end result of this project was an application, that can be accessed through the app store, which takes data from the Bureau of Meteorology and translates it into relevant on-farm information for growers. The data that's presented in the app includes information on temperature, evapotranspiration rates, water balance and wind activity. This information, which is provided on a regular basis and is specific to your location, has the ability to aid growers in irrigation scheduling and other water management tasks.

CLICK HERE: <u>https://www.theyield.com/</u> products/free-growers-app for more information on The Yield's free app for vegetable growers

Robots in vegetable production

Due to increasing issues with labour availability and rising input costs, there has been a focus to develop autonomous robots to perform a range of weed and crop monitoring, sensing, and harvesting tasks in vegetable production. These technologies have been gaining rapid traction over the past few years, with a range of technologies emerging both in Australia and internationally.

RIPPA (Robot for Intelligent Perception and Precision Application) and its cousin, Ladybird, are autonomous robots that have been designed through the Horticulture Innovation Centre for Robotics and Intelligent Systems (HICRIS) at the University of Sydney's Australian Centre for Field Robotics (ACFR). Funded through Hort Innovation using vegetable industry levies and funds from the Australian Government, these new technologies aim to increase sensing, automation and decision-support on farm. RIPPA, which is currently still under development, has the ability to:

- · Identify and mechanically remove weeds
- · Detect and remove foreign objects in-field
- · Monitor crop and soil health

- Administer precise amounts of herbicides to specific target weeds
- · Monitor crop growth.

Similar to RIPPA, there is a long list of robotic systems that have been designed to assist vegetable growers in producing more with less. Large companies like Bosch, Yamaha and John Deere, have been involved in developing new robotic systems, as well as smaller startup companies like Ecorobotix and Blue River Technologies overseas.



CLICK HERE: https://www.youtube.com/ watch?v=kITGHCTmCoY&t=1s for a short video on RIPPA demonstrating its abilities in field

Adoption of PA technology

PA technologies have been used extensively throughout agricultural industries since the early 1990s, however, the rates of adoption have varied across different industries. This variability can be attributed to a range of factors which commonly involve the complexity of the products, interoperability problems with different hardware/software devices, and the initial costs of some of the equipment.

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Due to the potential savings on inputs and increased productivity involved with the adoption of PA technologies, there have been initiatives set out to try and increase the adoption rates of PA technologies in Australia. Organisations like the Society of Precision Agriculture Australia (SPAA), have aimed to help growers and others in the industry understand the benefits of PA in agricultural systems. Similarly, a current project run by the Queensland Department of Agriculture and Fisheries aims to focus on adoption rates in Australia by taking commercially available PA technologies and implementing them on vegetable farms. The project, which has demonstration sites located all over Australia, takes a wide range of different technologies based on the needs of different growers, and implements them onfarm to demonstrate how they have the ability to improve production. This includes EM38 mapping to identify soil constraints, variable rate irrigation in centre pivot systems, as well as yield monitoring and mapping in different crops.



CLICK HERE: http://www.soilwealth.com.au/ resources/articles-and-publications/adoptionof-precision-systems-technology-in-vegetableproduction-highlights-january-june-2018/ for the most recent project highlights.

Important considerations

PA has the potential to benefit a range of growing systems, there are however several important things to consider when thinking of using PA technologies in your production system. When determining whether you need PA technologies for your farm, think back to the basics of production, and work out how you will benefit from using these technologies. Keep in mind that PA technologies won't help solve problems related to the fundamentals of production, rather it will assist in making your current practices more efficient and precise. Remember to follow these important principles:

1. **Get the fundamentals right:** make sure you're doing everything correctly in your production system before you spend money on additional technology.

2. Know what you're going to use the technology for: some technology can be expensive, if you have any existing PA technology, make sure you're using it to its full potential before investing in any more. Have a clear purpose.

3. Try and find technology that is able to interact with one another: to reduce interoperability problems, make sure the software/hardware you invest in is compatible.

4. **Invest time and effort:** make sure you invest the time and effort into learning how to use the technology, so you get the most out of it. Document information on how to use the technology so it's easier the second time round, and for your employees to use.

5. Not all technologies are right for every farm: every production system is different and requires different tools and technologies. What works for one farm may not work for another.

Further information

For further information on precision agriculture in vegetable production watch <u>this 1-hour</u> <u>informative webinar</u> that involves a range of industry professionals and covers a breadth of topics relevant to the vegetable industry: <u>http://www.ausvegvic.com.au/pages/precisionagriculture-technology-in-vegetable-productionsystems-webinar-recording/</u>

CLICK HERE: <u>http://horticulture.com.au/</u> hortlink-2018-edition-1/vegetable/ if you'd like more information about current Hort Innovation projects related to PA in vegetable production.

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Protecting IP and the R&D tax incentive

National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

What is intellectual property and why is it important?

Intellectual Property (IP) is a broad term for the legal regimes that protect an individual's or business's creativity or innovation. In the horticultural industry, this may relate to a range of patents, plant breeder's rights, trade marks and copyright. IP rights are commonly referred to as 'intangible' rights, meaning that they do not create rights in physical or tangible products, but the ideas and inventive concepts within them. Although it is not always the case, there are usually two main distinctions between types of IP, these being rights that are:

- Created rights that come into existence once the subject matter is created (e.g. copyright)
- Registered rights that come into existence once the owner has gone through the proper administrative process to register them (e.g. patents and plant breeder's rights)



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IP rights are designed to give the creators and innovators of products the opportunity to make a financial return on their creations, whilst also providing an incentive to create and innovate. They also have the ability to create a market position and deter competitors. This is important in the vegetable industry when creating products such as new farm machinery, plant varieties, trade marks for packaged goods and publications. This allows the creators of these products to be able to have an advantage when accessing new markets and distinguish themselves from their competitors.

There are programs in place to provide incentives for growers and industry bodies to innovate, diversify, improve productivity and take new products to markets. One of these programs is the Victorian Government's Food Innovation Voucher Stream, that encourages agri-food businesses to develop innovative products and processes, enter new markets, and secure supply chain opportunities. Further information can be found here: http://www.business.vic.gov.au/support-for-yourbusiness/grants-and-assistance/Boost-Your-Business/ Food-Innovation-Voucher-Stream

Key messages

- Intellectual Property (IP) is designed to protect the creativity or innovation of an individual or organisation
- The R&D tax incentive is a program designed to motivate organisations to invest in R&D
- Depending on the annual turnover, benefits include either a refundable or non-refundable tax offset to eligible businesses
- The program is accessed in three steps: conduct eligible R&D activities, register with AusIndustry and lodge a tax return with the ATO

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What is the R&D tax incentive and what are the benefits?

The Research and Development (R&D) tax incentive is an incentive for businesses to invest in and grow their R&D capacity that is administered through the federal government via the ATO. It is a self-assessment program that seeks to motivate organisations to engage in R&D so as to benefit themselves and the industry. The incentive consists of:

- A 43.5% refundable tax offset for eligible businesses with an aggregated annual turnover that is less that \$20 M; or
- A 38.5% non-refundable tax offset for all other eligible businesses.

How is the program accessed?

The R&D tax incentive can be accessed by completing the following three steps:

1. Conduct eligible R&D activities

All activities must be eligible and adhere to the proper requirements. Businesses who are registering for the incentive are required to maintain appropriate records so they are able to validate the eligibility of their R&D activities. Businesses should also maintain sufficient financial records which demonstrate their expenditure on R&D activities. Further information on eligible activities can be found here: https://www.business.gov.au/~/media/ Business/RDTI/Research-and-development-tax-incentivefact-sheet-eligibility-of-activites-PDF.pdf?la=en.

2. Register with the Department of industry, Innovation, and Science's AusIndustry.

Applications must be lodged for R&D activity registration within 10 months after the end of financial year in which the activities were conducted. All applications must be lodged with the Australian Government's AusIndustry.

3. Lodge a tax return with the ATO

Claim amounts can be checked on the Australian Tax Office's (ATO's) website, with the use of the R&D Tax Incentive Calculator. Once the previous two steps are conducted, all claims are processed by the ATO.

Eligibility

R&D tax incentive program eligibility will depend on the structure of a company, where the activities are being conducted and what those activities are. To qualify, activities must follow a systematic progression of science based work and be of the following eligible company structures:

- An organisation who is incorporated under Australian law; or
- An organisation who is incorporated under a foreign law, but is an Australian resident for tax purposes; or
- An organisation who is incorporated under a foreign law, that is a foreign resident, but conducts business in Australia and is in a double tax agreement.
- They must be based on scientific principles and lead to logical conclusions.

The incentive is unavailable to the following:

- Individuals
- · Corporate limited partnerships
- An organisation whose entire income is exempt from income tax.



Usually, only activities that are conducted within Australia will be eligible, although, some international activities will qualify if they meet the requirements of the Industry Research and Development Act 1986.

For the horticultural industry, a wide range of R&D activities are deemed to be eligible for the incentive. As the program is self-assessed, the organisation conducting the R&D must assess their own eligibility against the requirements defined by legislation. Eligibility can be met by making sure R&D fits into one of the two categories:

- Core R&D activities these are classified as experimental activities with an unknown outcome, undertaken to generate new knowledge of a topic.
- Supporting R&D activities these are classified as activities that support the experimental activities, but are not directly a part of them.



References and further information

- Intellectual Property for Horticulture: An Overview. Horticulture Australia Limited, Australian Centre for Intellectual Property in Agriculture. http://acipa.edu.au/pdfs/intellectual-property-for-horticulture-anoverview.pdf
- Food Innovation Voucher Stream. Business Victoria. http://www.business.vic.gov.au/support-for-yourbusiness/grants-and-assistance/Boost-Your-Business/Food-Innovation-Voucher-Stream
- Research and Development Tax Incentive: Australian Taxation Office. https://www.ato.gov.au/Business/ Research-and-development-tax-incentive/
- Business R&D Tax Incentive: Getting farming R&D tax incentive claims right. Australian Government Department of Industry, Innovation and science https://www.business.gov.au/~/media/Business/RDTI/ Research-and-development-tax-incentive-Getting-farming-RD-Tax-Incentive-claims-right-PDF.pdf?la=en
- The R&D Tax Incentive: A Guide to Interpretation. https://www.business.gov.au/~/media/ Business/RDTI/Research-and-development-tax-incentive-guide-to-interpretation-PDF.pdf?la=en

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Using recycled water for vegetables

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National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Overview

Recycled water is used in nearly all Australian states for vegetable production. Recycled water irrigation schemes offer a number of benefits, including:

- Providing an alternative source or supplement to conventional irrigation water
- · Adding valuable nutrients
- Providing an alternative sustainable use for the community
- · Security for investment where water is scarce.

There are four classifications of recycled water which must be approved and endorsed by Environmental Protection Authorities and health departments, prior to local water authorities making it available to the community, industry and agricultural enterprises.

The four classifications are: A, B, C and D, which are based on the level of treatment and water quality.

Class A recycled water: Class A is the highest rating for recycled water used for irrigation and is equal to the most stringent guidelines worldwide. Australian standards for Class A recycled water exceed those recommended by the World Health Organisation for irrigation of food crops.

State Departments of Human Service and Environmental Protection Authorities (or the equivalent) set these strict guidelines to ensure the safety of growers irrigating with recycled water, as well as the produce grown with recycled water.

Class B recycled water: Class B recycled water may be used to irrigate sports fields, golf courses and dairy cattle grazing land. It can also be used for industrial wash down as well as for the uses listed for Classes C and D, but has restrictions around human contact.

Class C recycled water: Class C may be used for a number of uses including for cooked or processed human food crops including wine grapes and olives. It can also be used for livestock grazing and fodder and for human food crops grown over a meter above the ground and eaten raw such as apples, pears, table grapes and cherries. It can be used by councils for specific purposes but there are restrictions around human contact.

Class D recycled water: Class D has received the least amount of treatment of all four classes and may be only used for non-food crops such as instant turf, woodlots and flowers.



Irrigation with Class A recycled water from South East Water's Boneo Water Recycling Plant. Source: southeastwater.com.au Photo: Craig Moodie

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RMCG



This project has been funded by Hort Innovation using the vegetable research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au A summary of the recycled water (also known as reclaimed water) classes and acceptable uses in horticulture crops is outlined in Table 1.

Table 1: Recycled water classes and acceptable uses in horticulture crops

| REUSE CATEGORY | MINIMUM WATER CLASS | IRRIGATION METHOD | KEY MANAGEMENT CONTROLS FOR USE E.G. WITHHOLDING PERIOD |
|---|------------------------------|--|---|
| Raw human food cro | ps exposed | to reclaimed w | ater |
| Crops grown close to the ground and consumed raw (such as celery, brassicas, tomatoes, lettuce) | Class A | Unrestricted | |
| Root crops consumed raw (such as carrots, onions, radish) | Class A | Unrestricted | |
| Human food crops co | ooked (> 70° | C for 2 minute | s) or processed |
| before human consu parts not exposed to | mption, or co reclaimed w | onsumed raw b /ater | out with edible |
| Crops which are skinned, peeled or shelled before consumption (such as corn, peas, pumpkin, garlic, potato) | Class A Class C | Unrestricted Flood, furrow, drip, sub-surface | Produce should not be wet from reclaimed water irrigation when harvested Dropped produce not to be harvested |
| Non food crops | <u> </u> | <u> </u> | <u> </u> |
| Crops not for consumption (e.g. woodlots, turf | Class D | Unrestricted | Restrict public access to application |

Source: Use of Reclaimed Water EPA Victoria

growing, flowers)

The required reclaimed water grade for irrigation of human food crops (detailed in Table 1) depends on the potential for the edible portion of the crop to come into direct

area. Harvested

products not to be wet from reclaimed water when sold contact with the reclaimed water. This reflects both the irrigation method (such as spray, drip, flood, subsurface, or hydroponic systems), the crop involved (that is, whether the produce is grown in contact with the soil, or the produce has a protective and inedible covering), and the level of processing or cooking of the food prior to consumption.

Guidelines for recycled water

Extensive guidelines for use of recycled water have been developed and enforced by Environmental Protection Authorities and health departments in most states of Australia. These departments provide the endorsements, guidelines and regulations concerning the use, environmental impact, food quality and safety of recycled irrigation water.

This guarantees a particular water class has the appropriate water quality parameters to fit the purpose the water is intended to be used for, such as irrigating horticultural crops. The guidelines ensure the microbiological and chemical safety of recycled water, and the quality of food and vegetable crops grown with it.

Guidelines specify the minimum water quality treatment objectives. Minimum objectives per water quality class are summarised in Table 2.

Table 2: Water quality objectives and agricultural uses per class

| CLASS | WATER QUALITY Objectives | RANGE OF AGRICULTURAL USES - USES INCLUDE ALL LOWER CLASS USES |
|-------|---|--|
| A | < 10 E coli org/100mL Turbidity < 2 NTU pH 6 – 9 | Human food crops consumed raw |
| В | < 100 E coli org/100mL < 30mg/L suspended solids pH 6-9 | Dairy and cattle grazing |
| C | < 1000 E coli org/100mL < 30mg/L suspended solids pH 6-9 | Human food crops cooked/ processed, grazing/fodder for livestock |
| D | < 10000 E coli org/100mL < 30mg/L suspended solids pH 6-9 | Non-food crops including instant turf, woodlots, flowers |

Source: Use of Reclaimed Water EPA Victoria

Potential issues with recycled water

Recycled water often has elevated salts and nutrients compared to conventional irrigation water. This can be helpful (through addition of extra nutrients) or can create potential issues such as increased soil salinity due to excessive sodium or chloride.

Salinity

Recycled water often has higher salinity levels e.g. sodium and chloride than surface or groundwater sourced irrigation water. It is important to remember that the salinity levels of recycled water must suit the crop grown, soil irrigated and the irrigation equipment used.

Vegetable crop tolerances to salinity vary considerably. The soil salt tolerance levels of vegetables can be found on page 14 of Using Recycled Water in Horticulture (http:// www.recycledwater.com.au/uploads/File/documents/ Growers%20Guide%20web.pdf).

High salinity in the water and soil can affect the ability of plants to extract water from the soil, especially in stressful conditions such as high temperatures. Recycled water may need to be shandied (mixed) with alternatively sourced irrigation water to reduce salt concentration.

Table 3 identifies the level at which salinity parameters can create issues. High salinity parameters in recycled water used to irrigate vegetable crops may affect soil health and the growth, production and quality of crops.

Table 3: Salinity parameters

| ANALYTE | PROBLEM ARISES |
|-------------------------------|----------------|
| pH (water) | > 8.6 |
| Chloride mg/L | > 350 |
| Electrical Conductivity dS/m | > 1.3 |
| Total Dissolved lons mg/L | > 850 |
| Sodium mg/L | > 100 |
| Boron mg/L | > 3 |
| Sodium Adsorption Ratio (SAR) | > 6 |

Source NSW Department of Agriculture



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A high water pH can reduce the ability of plants to absorb certain nutrients, such as zinc, iron, manganese, or expose plants to greater risk of toxicity from specific ions, particularly sodium, boron and aluminum.

Sodicity

Sodicity refers to the amount of sodium in the water or soil. This is usually measured in soil as the Exchangeable Sodium Percentage (ESP), which is the proportion of sodium as a percentage of all the exchange cations (such as calcium, magnesium, potassium).

The sodicity of water is measured as the Sodium Adsorption Ratio (SAR). In vegetable crops the SAR should not exceed 6 as this could lead to foliar damage or sodicity in the soil where soil structure and drainage issues may arise. To reduce high levels of sodium in soils gypsum applications are often used.

Boron

Higher concentrations of boron are often found in recycled water compared with bore and surface irrigation water. Plant sensitivity to boron varies significantly between vegetable crops and baseline soil concentrations of boron and plant sensitivities need to be considered before irrigation with recycled water.

Nutrients

High levels of nutrients can be inadvertently applied when irrigating with recycled water. The amount depends on the source of the recycled water, treatment process (e.g. if nitrogen and phosphorus are removed) and amount of recycled water irrigated per crop. Table 4 shows a quick way of calculating the nutrients applied via irrigation water. If, for example, the irrigation water contains 10 mg/L of nitrogen and 5 mm of water is applied, then the amount of nitrogen applied to the soil is 0.5 kg/ha.

 Table 4: Nutrient applied (kg/ha) in irrigation water (mm) of
 different nutrient concentration (mg/L) (note: mg/L = ppm)

| WATER APPLIED | CONCENTRATION OF NUTRIENT IN WATER (MG/L) | | | | |
|------------------|---|------|------|------|------|
| (mm) | 1 | 5 | 10 | 15 | 20 |
| 1 | 0.01 | 0.05 | 0.10 | 0.15 | 0.20 |
| 5 | 0.05 | 0.25 | 0.50 | 0.75 | 1.00 |
| 10 | 0.10 | 0.50 | 1.00 | 1.50 | 2.00 |

Source: Good Practice Guide 2007 vegetablesWA

Further information

Each local water authority that supplies recycled water for irrigation of horticulture crops offers a monthly analysis rundown of the water quality which is available on their web site or from their office.

Further information is available through Environmental Protection Authority or your local water authority/supplier.



Source: westernportwater.com.au

Resources

- Using Recycled Water in Horticulture: A growers Guide, 2006, DPI Victoria http://www.recycledwater.com.au/uploads/File/documents/Growers%20Guide%20web.pdf
- Guidelines for Environmental Assurance. Horticulture for Tomorrow. 2nd Edition, 2014, Chapter 2, Water Management, Horticulture Australia Limited http://hoho3216.staging-cloud.netregistry.net/manage/wp-content/uploads/2014/04/EAG-2014-Chapter-2-Water-management.pdf
- Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1), 2006 http://www.agriculture.gov.au/water/quality/nwqms/nwqms-australian-guidelines-water-recyclingmanaging-health-phase1

References

- EPA Guidelines for Environmental Management; Disinfection of Reclaimed Water, 2003, Publication 730.1
- EPA Guidelines for Environmental Management, Use of Reclaimed Water, Publication 464.2
- Southern Rural Water, Soil Health Recycled Water Fact sheet
- Ward, AS, Advisory Bulletin Water Quality Assessment for Irrigation, NSW Department of Agriculture
- Vegnotes, Irrigating Vegetable Crops with Recycled Water, 2004, Horticulture Australia Limited
- Good Practice Guide. Nutrient Management, 2007, vegetablesWA

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Spinach Crown Mite

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Spinach crown mites live in the topsoil; they thrive in a cool, moist environment. They feed mainly on partly decomposed organic material and on fungi living off decomposing material. They also feed on young spinach leaves which are close to the soils surface. Leaves become distorted which reduces the marketability of the crop.

The national distribution and identity of the mites in Australian spinach crops has not been confirmed. Effective, product based control methods are currently limited.

Based on laboratory studies, high risk conditions for *Tyrophagus similis*, which is identified as spinach crown mite in some countries, include:

- High levels of fresh organic matter Spinach mites are more abundant in soil that contains large amounts of fresh organic matter which is a food source for them.
- Moderate temperatures Based on laboratory studies, the mites' reproduction rate is greatest at temperatures around 10°C; below about 7°C development ceases. This mite is most active at temperatures between 20 and 25°C; survival declines at temperatures above 35°C (Kasuga and Amano, 2000).
- High relative humidity (RH) *T. similis* was most abundant at RH above 90%. This RH may occur near the soil surface of a dense, irrigated spinach crop for most of its growth, certainly once the canopy closes.
- Low light intensity The multiplication of *T. similis* slows down as light intensity increases (Al-Safadi, 1990, Abstract)

"If you suspect spinach crown mites are affecting your crop, check the crown of plants with a hand lens for eggs or mites or ask your adviser to do this."

Actions for growers

- Rotation Avoid rapid rotations. Populations of spinach crown mite will increase if spinach crops are grown in rapid rotations.
- Remove failed crops Remove crop residues if a spinach crop is not harvested.
- Residue breakdown Crop residues should break down before sowing spinach; products are available that can speed up breakdown.
- Fallow Use a six-week fallow gap prior to spinach crops.
- Plant health Reduce the mite's ability to damage the crop by making sure the crop is never stressed, e.g. over- or under-fertilised, too dry or too wet.
- Manage timing of organic amendments -During high risk periods reduce the use of organic amendments. Note that timing of high risk periods will depend on your location, crop rotation, management practices and the weather.
- Use organic amendments that are well-matured – using immature, not fully decomposed, organic material provides a food source for spinach mites.
- Minimise use of broad spectrum insecticides and miticides – Reducing or minimising the use of broad spectrum insecticides and miticides will allow predatory insects and mites to increase in numbers.
- Do not rely on miticides Options are limited, effects are uncertain and once crop damage has occurred, spraying does not prevent crop losses.

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Spinach crown mites prefer a cool moist environment, living predominantly in the top 5 cm of the soil profile. The mites feed on young spinach leaves, as well as emerging plants. The damaged leaf cells die while cells in surrounding tissue continue to grow, resulting in leaf distortion. The mites release a toxin into the plant which contributes to the distortion of the leaves. The damage becomes visible as the leaves unfold.



Figure 1: Distorted leaves caused by spinach crown mites (Image: S.Grigg, source: Horticulture Australia Ltd, 2014)

The identity of the mites in Australian spinach crops has not been confirmed

In UK spinach crops, mites were recently confirmed as Tyrophagus similis (Elliot and Jukes, 2014). In the USA, spinach crown mite is often described as a Rhizoglyphus which is a similar species to T. similis. Rhizoglyphus are sometimes referred to as bulb mites because some species can cause damage to bulb plants e.g. onion, leek and garlic. Identification of mite species can be challenging as the taxonomy of mites is either not well studied and/or has been revised (Fan and Zhang, 2007b).

It is currently unconfirmed which species of mite is/are causing damage to spinach in Australia.

Spinach crown mite is distributed world-wide

Spinach crown mite occurs world-wide, occurring in spinach crops grown both outdoors and in greenhouses. Populations of T. similis have been found on a wide range of crops including but not limited to: alfalfa, beans, pasture, cucumber, tomato and capsicum (Al-Safadi, 1987, Zhang, 2003, Fan and Zhang 2007a).

In Australian spinach crops, spinach crown mites have so far been reported in Tasmania and Victoria.



Figure 2: Life cycle of *T. similis* at 20°C, using data for number of days from Kasuga and Amano, (2000). Note that the life cycle is shorter at 25°C (refer to graph on page 3). Diagram by Jonathan Lucas.



Figure 3: Adult spinach crown mite showing setae on the posterior end, USA. (Image: J. Allen, source: https://uconnladybug. wordpress.com/2015/04/17/deformed-spinach-could-be-crownmites/)

Life cycle of spinach crown mite



Figure 4: Spinach mite eggs inside folded young leaves, USA (Image: J. Allen, source: <u>https://uconnladybug.wordpress.</u> com/2015/04/17/deformed-spinach-could-be-crown-mites/)

Temperature

The life cycle of spinach crown mite is temperaturedependent. Mite development ceases at about 7°C (Kasuga and Amano, 2000). Females show limited survival at 35°C and higher temperatures. Egg to adult development can be completed in fewer than 10 days at 25°C.



Figure 5: Duration of egg to adult of *Tyrophagus similis* (data from Kasuga and Amano, 2000)

Humidity

T. similis females show limited survival at 53% and 66% relative humidity compared to higher humidity 76%, 87% and 100% (Zhang, 2003).

Pesticides options are limited

There are very limited pesticide options currently registered for use in Australian spinach. Research has been conducted overseas using a number of chemicals and has shown that spraying plants is not very effective due to the location of mites deep within the crown. In addition, if sprays are applied once damage has been noticed, it is too late to prevent crop loss. If pesticides were developed, they would need to be used together with a monitoring program to allow for timely application. The soil has been suggested as the main target for control rather than the spinach crop (Elliot and Jukes, 2014). Cause for concern is the short lifecycle and high reproductive potential of the mites, making resistant populations a risk.

Is biological control possible?

There may be other mites that will predate spinach crown mite, but these have not been confirmed or developed. Research in laboratory conditions in Japan has shown the predatory ability of some mites (Saito and Takaku, 2013).

Bio-miticides may provide some preventative control, but this has not been confirmed. A bio-miticide based on *Beauveria bassiana* (strain ATCC 74040) has been trialled on spinach in Italy, and was applied to the soil (Sannino et. al., 2016, Abstract). This type of product requires consideration of the stage of pest (e.g. it may be only effective on early life stages of mites), compatibility with fungicides and of humidity (humidity may influence effectiveness).



Figure 6: Spinach leaves damaged by crown mite feeding (Image: J. Allen, source: <u>https://uconnladybug.wordpress.</u> com/2015/04/17/deformed-spinach-could-be-crown-mites/)

Remaining questions

We still have a lot to learn about spinach crown mite in Australian production systems, including:

- · Which mite species are causing damage to Australian spinach crops?
- Does the intensity of soil cultivation affect mite populations or incidence of damage by mites? (Research in Japan has shown that reduced tillage allowed a population of spinach mite to increase (Saito, 2015))
- · Does irrigation management influence mite populations or incidence of damage by mites?
- What effect does the combination of: partly decomposed organic matter, cultivation and climate, have on risk of spinach mite damage?
- Would trapping be effective for predicting risk? Soil baiting and trapping methods have been developed in Japan (Kasuga et al, 2005) but have not been tested in Australia and thresholds are yet to be developed.
- · Which crops and cover crops are potential hosts of spinach crown mite?
- Is there an association between spinach crown mite and soil borne diseases e.g. root rots caused by Pythium, Rhizoctonia and Fusarium?
- What is the best way to manage cover crop residues and organic soil amendments to reduce the risk of spinach mite? Cover crops, use of compost and reduced tillage help to improve soil health but they may increase the risks of increasing spinach mite populations, unless the improvement of soil biodiversity provides control, once established.

References

Al-Safadi, M.M. (1987) The life cycle of the Acari Tyrophagus similis. Journal of Zoology, 213, 141-146

Al-Safadi, M.M. (1990) The effect of light on the life cycle of the Acari *Tyrophagus similis* (Astigmata: Acaridae). Revue d'Ecologie et de Biologie du Sol, 27 (4), 459-465. (Abstract only)

Elliot, M. and Jukes, A. (2014) Biology and control of 'spinach' mites. Project number VF 400. University of Warwick. Agriculture and Horticulture Development Board (AHDB).

Fan, Q.-H. and Zhang, Z.-Q. (2007a) Tyrophagus (Acari: Astigmata: Acaridae). Fauna of New Zealand 56, 291 pp.

Fan, Q.-H. and Zhang, Z.-Q. (2007b) Revision of some species of *Tyrophagus* (Acari: Acaridae) in the Oudemans Collection. Systematic & Applied Acarology, 12, 253–280.

Horticulture Australia Ltd (2014) Pests, Diseases and Disorders of Babyleaf Vegetables - A Field Identification Guide, pp 44. Authors - Ekman, J., Tesoriero, L. and Grigg, S.

Kasuga, S. and Amano, H. (2000) Influence of temperature on the life history parameters of *Tyrophagus similis* Volgin (Acari: Acaridae). Appl. Entomol. Zool. 35(2), 237-244.

Kasuga, S., Honda, K-I, Kawai, A. and Amano, H. (2005). A bait trap for monitoring acarid mites (Acari: Acaridae) in agricultural soils. Appl. Entomol. Zool. 40(2), 303-308.

Saito, M. (2015) Multiple Tillage Treatments Reduce the Number of *Tyrophagus similis* (Acari: Acaridae) by Changing the Physical Properties of Soil. Japanese Journal of Applied Entomology & Zoology, 59 (2), 63-72.

Saito, M. and Takaku, G. (2013). Predation of Tyrophagus similis Volgin (Acari: Acaridae) by indigenous predatory mites (Acari: Gamasina) found in spinach fields. Journal of the Acarological Society of Japan, 22 (1), 37-43

Sannino, L., Piro, F., Espinosa, B. and Benedetto, P. di (2016) Combating acarid mite of baby spinach with *Beauveria bassiana*. Informatore Agrario, 72, 41, pp 59-61 (Abstract only)

Zhang, Z.Q. (2003) Mites of greenhouses Part II Pest Mites, page 154

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Appendix 7: Case studies



National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

2014 Nuffield Scholarship recipient Emma Germano, used her scholarship to research global export opportunities for vegetables and primary produce. Emma, General Manager of 'I Love Farms' based in Mirboo North in South Gippsland and Victoria Farmers Federation Horticulture president, found the experience to be enlightening in confirming her role as a rural entrepreneur and global food producer.

Shared challenges

During her travels, Emma noted a number of local issues common across the globe, including succession planning, water security, urban encroachment, agri-political issues and the globalisation of world food markets, including trade negotiations and logistics.

Industry collaboration

The take home message for Emma was the need to facilitate a culture of cooperation, particularly as vegetable growers have traditionally been quite competitive. Additionally, Emma noted the importance for growers to continue to build their professional capacity and attract young talent from other industries.

Emma's Nuffield report 'Growing the Pie; export opportuntities for Australian vegetable growers" is available on the Nuffield website <u>here</u>.

> VEGETABLE FUND

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Key lessons

- Emma Germano used her Nuffield scholarship to resarch global export opportunities for vegetables and primary produce
- Issues for Australian primary producers are common across the globe, including succession planning, water security, urban encroachment, agri-politics and world food markets
- There is a need for a culture of cooperation amongst vegetable farmers to address these challenges
- Important for growers to continue to build their capacity and attract young talent from other industries



Emma Germano on her farm in Mirboo North in South Gippsland Photo Credit: Greg Scullin, 2014

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



Lessons from the Field

Wallace Vegetable Farm - David Wallace



National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Third generation vegetable grower, David Wallace runs Wallace Vegetable Farm with his wife Robin and son Matt. The family business originally grew cauliflowers, tomatoes, onions, carrots, pumpkin, lettuce and cabbage on their 30 acre property at Keilor. The threat of insufficient irrigation water during the early 1990's, however, triggered David to made the decision to move to hydroponic capsicum production.

Lessons from overseas experience

Traveling to New Zealand, David spent time learning and gaining experience of hydroponic farming to become the first grower in Victoria to produce commercial hydroponic capsicums.

David currently specialises in a production of a range of coloured capsicums in his 4,000 square metre glasshouse holding over 12,000 plants.

Adoption of IPM

Within his production system, David has reduced chemical use to almost zero through embracing an integrated pest management (IPM) program. David also has also achieved good energy efficiency, heating his glasshouse hydroponically with LPG gas. Experience has also seen changes in David's selection of substrate media, with David moving away from saw dust to coco fibre, finding the coco fibre more convenient, stable and environmentally sound.

Industry participation

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David, who has held a number of industry leadership positions including the AUSVEG Victoria chairman, attributes his success to being actively involved in industry activities, issues and learning groups.

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Key lessons

- Threat of lack of irrigation water triggered change to hydropnic production
- Learnt about hydropnic farming from time spent in New Zealand
- Adopted an integrated pest management (IPM) program to reduce chemical use to near zero
- Efficency gains are possible in protected cropping farming through energy savings and substrate selection
- David has held a number of industry leadership positions, which has exposed him to new ideas



David Wallace, Wallace Vegetable Farm Photo Credit: Weekly Times

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



Lessons from the Field

Fragapane Farms - Andrew Fragapane

National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Werribee South grower Andrew Fragapane took home the highly contested VegNET Sponsored R&D Adoption Award, as part of the 2017 AUSVEG VIC Awards for Excellence. Andrew and the team at Fragapane Farms have been actively engaged in a Soil Wealth / Integrated Crop Protection demonstration site, trialling reduced tillage, cover crops and compost application.

Adoption of trial learnings

Based on learnings through the trials, Andrew is actively improving his soil health management through adopting cover cropping and minimum tillage across his farms.

Andrew commented "our long-term plan is to have a cover crop with every commercial crop across the whole property, we just need to get there."

"The hardest part for us, planning it" says Andrew.

Continuing to find the right system and program that works for him, Andrew is exploring ways in which he can manage the scheduling of cover crops with his commercial crops. This includes looking to short window cover crops (i.e. six weeks) and pulling back the intensity in which he manages blocks through bringing additional land into production.

Trial results

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Details of the trial site at Fragapane Farms is available <u>here</u>, with the results of a farm walk in September 2016, showing a less than 5% production difference between reduced-till (two cultivations) and conventional till (seven cultivations) highlighted <u>here</u>.

Andrew shares his experience in participating in the national Soil Wealth and Integrated Crop Protection project and the lessons he has applied on farm in this <u>short video</u>.

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Key lessons

- Fragapane Farms were awarded the VegNET Sponsored R&D Adoption Award as part of the 2017 AUSVEG VIC Awards for Excellence
- The award was for their active involvement in the Soil Wealth / Integrated Crop Protection demonstration site
- The trials included reduced tillage, cover crops and compost application
- Widespread adoption of the lessons from the trial is on the cards, with work towards planning scheduling of cover crops with commerical crops



Andrew Fragapane during a farm walk of a trial site at one of Fragapane Farms properties in Werribee South

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

Lessons from the Field Sean Croft - Arahura Farms



National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Sean Croft, of Arahura Farms, is one of Australia's largest organic carrot growers and is interested in improving soil management practices through permanent beds, controlled traffic, using compost and the introduction of beneficial microbes into the soil profile.

From Sean's perspective

"We're always looking at ways we can do things better. We've researched compost ourselves, gone overseas, and are constantly trying new things. It's great when you start to see results for the whole system" said Sean.

Soil borne disease assessment

The Victorian VegNET team recently visited Sean's farm to collect vital data on soil borne disease diagnostics and management, which is feeding into national projects with the South Australian Research and Development Institute (SARDI), NSW Department of Primary Industries (DPI), AHR and RMCG (VG15009 and VG15010). The data collection involved sampling carrots at different growth stages under varying management regimes.

Growers and advisors have identified soilborne diseases as a main challenge for soil management. This is being addressed through the soil-borne disease management project, funded by the vegetable levy. More information on the project is available on the Soil Wealth and Integrated Crop Protection website here.

Key lessons

- Arahura Farms is one of Australia's largest organic carrot producers
- The farm works on improving their soil health through using permanent beds, controlled traffic, applying compost and intorducing beneficial microbes into the soil
- Sean has been engaging with a number of research projects, including soil borne disease management through sampling his carrots at different growth stages.



Sean Croft from Arahura Farms in Nyah West, Victoria

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



Lessons from the Field

Chemical free sanitation: Schreurs & Sons

National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Schreurs & Sons are a family horticultural business based in Clyde, Victoria. What started off as a small family business three generations ago, is today a business spanning seven properties and multiple product lines, including fresh and prepack celery and leek; and baby leaf (including spinach, rocket and snow pea tendrils). Throughout this growth across the business, Schreurs have remained focused on their values of producing high quality, safe products for their customers, with a strong focus on innovation and technology.

Produce sanitisation

To ensure safety and quality of their produce, Schreurs have a comprehensive Quality Assurance (QA) program to ensure that all produce meets the required customer and legal requirements. As Schreurs grow their vegetables in soil and have a range of pre-pack lines, part of their QA program is to wash and sanitise their produce. This ensures that the ready-to-wash produce is safe and that the risk of a disease outbreak is minimised. Unsatisfied with their previous method of sanitisation, Schreurs looked for a new and improved method of sanitation.

Initially, Schreurs trialed chlorine dioxide (CIO₂) as a preformed gas that was dispersed into the wash bath solution. However, the agitation in the wash bath caused the gas to come out of solution, which posed significant risk to the safety of staff. With staff safety being equally important to food safety, Schreurs were in the market for an alternative sanitisation method.

Through a Horticulture Innovation Australia research project (VG09086), Dr Robert Premier undertook an evaluation of sanitisation chemicals available in Australia to reduce both spoilage and the presence of microorganisms on leafy vegetables. Through this study, Robert systematically tested a range of available chemicals in a realistic on-farm setting, including the use of existing equipment. A number of sanitisation options were considered including Peroxyacetic Acid (PAA) containing sanitisers, Stabilised Chlorine Dioxide (CIO₂), Electrolysed Oxidised Water (EOW), Citrox, Aussan, CitroFresh, Acetic acid, Nylate and ozone gas.

What is Electrolysed Oxidised Water (EOW)?

- Normally water isn't pure, it contains small amounts of natural salts that are dissolved in the water (e.g. H₂O + Na+ + Cl-)
- When this water is electrolysed (running a DC current through it), the make-up is altered generating chemicals such as HCIO (Hypochlorous acid), Cl₂ (Chlorine), H₂O₂ (Hydrogen peroxide)
- These new molecules are sanitiser molecules, that can kill viruses and bacteria
- Water that has been through this process is called Electrolysed Oxidised Water (EOW)



Dr Marie-Astrid Ottenhof, Technical Director Schreurs & Sons with Production Manager Mark Bell, inspecting the Electrolysed Oxidised Water (EOW) sanitation system installed at their packing facility in Clyde, Vic.

The National Vegetable Extension Network (VegNET) Project is delivered locally in the Northern, Western and South-Eastern regions of Victoria by RMCG through VG15048, funded by Horticulture Innovation Australia Limited using the vegetable industry levy and funds from the Australian Government.





The study concluded that washing vegetables in water containing 100 ppm of chlorine remains the most suitable system available to growers that wash on-farm. This conclusion is based on the sanitisation outcomes achieved, cost effectiveness and ease of handling. The study did note, however a new emerging technology, Electrolysed Oxidised Water (EOW), produced excellent results as a sanitizing treatment, as well as increasing the shelf life of baby spinach. Furthermore, EOW can be claimed as chemical free sanitisation.

Electrolysed Oxidised Water (EOW)

The findings around EOW caught the attention of Schreurs & Sons. Interested in the benefits of using EOW as a sanitiser, Schreurs began to work with Unipolar Water Technologies, to design the configuration of the unit that best suited the Schreurs process.

The 12-cell unit, now installed at Schreurs, is used to generate EOW to sanitise the pre-cut celery. Start-up of the sanitation tank takes around 35 minutes each day, and is as simple as adding a cup of everyday table salt to a bath of potable water and pushing a button. As the system is constantly keeping the EOW at the required chlorine concentration (15ppm), staff don't have to manually add any other inputs to the system.

The concentration levels can be read from a screen in the packing shed, and a warning light is triggered if the system varies out of specification. Whilst the system is running, the QC team conduct three chlorine test strip checks across the day, and the cholrine probes are calibrated every 4 months. The unit also self-cleans the electrodes using reverse electrolysis, meaning that no manual cleaning is needed. Despite initial concerns raised by some in relation to the energy demand, the unit is relatively energy efficient, having a power consumption of 1.0 - 1.5kWh/kL.



The Unipolar Water Technologies EOW system at Schreurs & Sons

Schreurs concede they have encountered a few challenges with the EOW system, including the initial capital cost of the system, time delays of approximately 30-45 minutes if the water needs to be changed for a different product line and the shed floor space required by the unit (1m x 3m for 12 cells).

Despite these challenges, the benefits of the EOW system have exceeded expectations for Schreurs, including:

- · No chemicals needed (other than table salt)
- EOW reverts back to water and salt over time
- Can be used for direct food applications without rinsing
- Provides more effective clean than conventional sanitisers
- Cost efficient to run and operate
- Is automated and continuously produces desired concentrations of sanitisers
- The system automatically records chlorine levels
- Safer for staff than other sanitisers from a workplace health and safety perspective

How is Electrolysed Oxidised Water produced at Schreurs & Sons?

- Water is pumped into one of the cells of the unit
- A cup of cooking salt (NaCl) is added to increase the ion concentration
- The electrode within the cell turns on, and begins to run a DC current through the water
- Initially, the ions provided by the salt helps to conduct the current, and then dissociate (Na+ and Cl-)
- Other natural salts dissociate/split up
- These products then form into new combinations with the hydrogen and oxygen already present in the water (H_2O) (HCI, HCIO, H_2O_2)
- The probes detect the Chlorine concentrations have reached a certain level (15 ppm at Schreurs)
- The EOW is then recirculated through the holding tank or wash bath

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Local context to national challenges Lessons in club root sampling



VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Horticulture research projects start out with the right intentions to address a particular industry need; the research questions they intend to explore, however, do not always have universal application in every growing region.

This was a localised lesson, at least, for a Hort Innovation funded project to improve soilborne disease diagnostic capacity for the Australian vegetable industry (VG15009). Delivered by the South Australian Research and Development Institute, or SARDI, the project set about to use DNA testing technology as a tool to help growers to assess their risk of soilborne disease, such as cavity spot in carrots or clubroot in brassicas, prior to planting.

The intent of the soil pathogen DNA testing was to measure the amount of a specific pathogen in the soil prior to planting. The subsequent results could provide an indication of the risk of disease for that soil type, especially when considered in conjunction with the crop type, how it will be managed and any relevant environmental conditions such as humidity. In theory, this type of information would be available to growers to help inform decisions based on the risk of soil borne disease to:

- Adjust planting plans to minimise the risk,
- · Modify control measures, or
- Avoid the risk entirely and not plant that crop at that time.

The national research project led by SARDI sought to validate their tools on commercial farms and to establish the risk thresholds for specific crops. For brassica crops a primary focus was club root, caused by Plasmodiophora brassicae. The intention of the field trials was to collect pre-plant soil samples and nutrition tests, record any control measures applied for soilborne disease management, and assess the presence of any diseases during the crop growth. This also included the collection of plant tissue culture to assist in the calibration of the diagnostic tool.

The methodological design of the research was sound, and the project had engaged regional VegNET officers from across the country to identify interested growers to participate in the trials in order to validate the tool. In the Victorian growing region of Werribee, however, growers had identified an alternative research question they wanted to explore in relation to club root.

The transmission risk of club root in Werribee was poorly defined, and growers were interested in exploring several theories of the movement of Plasmodiophora on their farm, including possibilities of distribution via groundwater or wind dispersal. This was particularly relevant in identifying the risk profile of club root infection of plants within nurseries and the subsequent risk of transmission of the disease into the field.

Through the support of the local VegNET Field Officer, Clinton Muller, the research framework that SARDI sought to explore was revised in consultation with local growers and agronomists to be regionally tailored to meet this pressing need of the growing community.



Figure 1: In-field sampling as part of the Hort Innovation project to improve soilborne disease diagnostic capacity for the Australian vegetable industry.

rt VEGETABLE FUND

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

A win-win scenario for the research project and the application of findings to levy paying growers.

As a result, in collaboration with the research project and the participating growers, the VegNET Field Officer undertook a structured sampling regime across several brassica farms. This included consecutive plant samples from nurseries traced through to in-field samples, which included pre-plant soil tests, visual assessments over the growing season and post-harvest plant sampling.

The findings from the samples provided the evidence required by the interested growers to confirm some existing theories in relation to the movement of club root on farm, as well as identify new theories for further investigation. The localised focus design of the levy funded research assisted in better understanding the local risk profile of the soilborne disease as to inform on-farm decision-making for subsequent seasons, as well as inform future research priorities.

The collaborative efforts facilitated through VegNET between growers, agronomists and research providers has resulted in the delivery of a more targeted research focus to meet the priority needs of industry. This is an example of the co-delivery model of national research with local extension officers. Opportunities to replicate this success in Werribee with other research providers on different projects in different regions has also been explored during the first phase of VegNET.



Figure 3: Club root presence in-field during sampling.



Figure 2: The sampling framework for the project was revised in consultation with local growers and agronomists to explore the risk profile of club root in nurseries.

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The power of extension in the Indian community



VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

Over recent years in the Greater Shepparton region has seen an increase in vegetable businesses with a number of the local Indian community, diversifying from fruit growing into vegetable production. There are a dozen or so growers producing mainly cucurbit crops like zucchini, kale, broad beans, sweet corn and brassica crops.

Information provision and advice on vegetable growing had traditionally been limited, with some growers having contact with Agriculture Victoria and a few service providers. This limited their capacity to enter the profession with the right knowledge.

Most of the growers operate small holdings, with farm sizes varying from 5 to 50 hectares. One of the bigger growers has been operating a 50 ha vegetable farm with his family since 2010, and acted as a mentor to others in the Indian community growing vegetables.

With the help of VegNET the growers have been exposed to communication networks, agronomic and research programs, and the latest news from late 2016 to the present.

There was a need to provide vegetable information to the local growers in the Goulburn Valley. Very few had an awareness or contact with the greater vegetable network, industry bodies, journals, extension materials, advisory staff and electronic data sources.

The major communication issues confronting the growers were a lack of:

- · Communication from industry bodies
- Awareness of vegetable growing extension material
- · Vegetable industry support in the area
- · Good vegetable advisors in the area.

A workshop was held in 2016 by the University of Melbourne in conjunction with the Greater Shepparton City Council and the Agriculture Victoria to extend the results of a feasibility study to encourage further development of the vegetable industry within the region. This workshop was a sounding board to involve the VegNET Field Officer, Ken Orr. Some 12 growers who attended this meeting were keen to receive information and conduct workshops on topics and issues that interested them.

Some of the grower's issues were:

- High waste output from produce e.g. marking on zucchinis from harvesting
- Conflict with supplying product to agents and getting poor prices
- Choosing crop types and varieties best suited to the Goulburn Valley
- · Lack of service providers with vegetable knowledge
- Advice from service providers
- Cover crops
- Disposing waste plastic
- Producing own seedlings
- · Pest and disease management
- Irrigation practices.

Growers indicated that the best form of communication for them was a newsletter, coupled with emails and simple workshops between 5.30-8.00 pm on weekdays (see Figure 1).

Service providers in the district were also identified and asked whether they wanted to be part of the communication network. Most were unaware of what was available as advisory aids, such as the Pest, diseases and disorder handbooks produced by Hort Innovation.

A group of 12 growers and 5 service providers has since been developed to address the issues identified and coordinated by the VegNET project.

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This project has been funded by Hort Innovation using the vegetable research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au Each month growers and service providers were sent the VegNET e-newsletter, Growing Veg Businesses. They were also placed on the AUSVEG Weekly Update newsletter and mailed Vegetables Australia.

Regular emails are also sent out to growers and service providers covering issues related to the industry (e.g. Horticulture code of conduct) by VegNET Field Officer, Ken Orr.

Websites links were provided to expose growers to where they could source extension resources through other levyfunded projects and research, such as Soil Wealth ICP, Hort Innovation, AUSVEG InfoVeg database, AUSVEG Vic, VegPro, PMA-ANZ - Food safety and Agriculture Victoria Biosecurity Branch.

A number of workshops have also been held over the years, that have covered new crops, Melbourne Market information, biosecurity, cover crops, as well as soil and tissue testing.

As a result of the VegNET project, 12 growers and 5 service providers have been exposed to up to date information relevant to the vegetable industry, as well as access to industry experts and lessons from other regions that would otherwise not occurred. This has been a real win-win situation, that was filling a gap and meeting the needs of industry.

Growers have been linked to research programs and attended presentations on industry topics which they have identified as issues, such as alternative vegetable crops, cover crops, biosecurity, marketing vegetables and soil testing.

The growers have now become active and aware of what information and support is available to them on a regular basis, which they did not do previously. Inquiries and support to the VegNET Field Officer have continued to increase since the group's inception, as more become aware of the service on offer and see the benefits.

As the group has continued to progress, some of the future challenges identified include:

- · More proactive involvement in industry planning activities in northern Victoria
- Considering cultural requirements for certain groups within the vegetable growing community
- · Region being seen as a proactive vegetable growing region
- · Maintaining contact exposure to industry programs there is no VegNET support
- Further investigating suitable crop types and varieties for the region to grow, such as baby salads and herbs.

These challenges will be important to continue to address in any future industry development activities and services in the Goulburn Valley region of Victoria with the Indian growing community.



Figure 1: The range of VegNET activities on offer in the northern growing region from 2016-2019

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Impact Case Study 3 of 5

Servicing organic growers in Swan Hill-Robinvale The importance of connection in remote growing regions



National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

In the Swan Hill-Robinvale region in northern Victoria there is in excess of 350 hectares of organic vegetables grown annually. The crops include carrots, pumpkins, leafy cut salad, kale, corn, beetroot, onions, zucchini, tomato, melon, cos lettuce and brassica crops. All these crops are irrigated with centre pivots, fixed sprinkler, or drip tape.

There are eight growers in the Swan Hill-Robinvale region with farm sizes varying from 10 to 300 hectares. Production comes from three major growers with several smaller growers supplying produce to the larger businesses. The larger growers have key market outlets with major super markets and have been producing organic vegetables for more than 10 years. The retail organic vegetable market in Australia is less than 3 percent (2017) of total vegetable sales.

Information and advice on organic vegetable growing has traditionally been limited to the organic accredited associations, organic suppliers and what individual growers could glean locally and from overseas.

There was a need to engage the organic growers in the Swan Hill-Robinvale region as there was no local communication channel to disseminate any information on a regular basis. However, the larger growers had an awareness of the broader vegetable industry or contact with industry bodies. Two of the growers have been recognised with several industry awards in the past.

The major issues confronting the industry in this region are:

- Remoteness from other major vegetable growing regions and markets
- · Lack of vegetable industry support
- Weed control and high labour input systems
- Spray drift from other agricultural and horticultural enterprises
- · Limited access to vegetable advisors.

Some of the specific grower's issues include:

- Alternative weed control measures
- Obtaining quality compost product
- · Cover crops providing a fumigant affect (e.g. caliente)
- Cover crops providing residual nitrogen (e.g. legume)
- · Soilborne disease management (e.g. sclerotinia)
- More efficient irrigation practices.

Growers indicated their preference for communication was a combination of one-to-one, local group activities, newsletters or emails. Most were unaware of existing industry development resources available, such as the Pest, diseases and disorder handbooks produced by Hort Innovation.

Each month organic growers and service providers in the region were sent the VegNET e-newsletter, Growing Veg Businesses. Regular emails were also sent to growers and service providers covering issues related to the industry (e.g. Horticulture Code of Conduct) by VegNET Field Officer, Ken Orr.

Website links were provided to expose growers to where they could source extension resources through other levyfunded projects and research, such as Soil Wealth ICP, Hort Innovation, AUSVEG InfoVeg database, AUSVEG Vic, VegPro, PMA-ANZ - Food safety and Agriculture Victoria Biosecurity Branch.

A workshop on irrigation was held to demonstrate monitoring soil moisture status and scheduling for vegetable crops grown in sands, in collaboration with the levy funded VegPRO project (Figure 1). There were further links to the other industry projects addressing soilborne diseases, with soil sampling and pathogen testing using DNA technology undertaken on multiple properties in collaboration with the South Australian Research and Development Institute (SARDI). The VegNET Field Officer, Ken Orr, visited each property at least twice each year between 2016 and 2019.

Hort VEGETABLE

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

As a result of the VegNET project, growers and service providers have been exposed to up to date information relevant to the vegetable industry, as well as access to industry experts and lessons from other regions that would otherwise not have occurred.

Growers have been linked to research programs and attended presentations on industry topics which they have identified as issues, such as weed control, pathogen testing, cover crops, and irrigation scheduling.

The growers have now become active and aware of what information and support is available to them on a regular basis, which they did not do previously.

Some of the future challenges identified for organic growers in the region include:

- More active and continued involvement in industry development programs like VegNET and industry bodies (e.g. AUSVEG VIC or VFF)
- Building a reputation as a major organic growing region
- Further exposure to robotics especially for weed control
- Greater retention of nitrogen in the soil (e.g. use of legume cover crops and compost).

These challenges will be important to continue to address in any future extension services in the Swan Hill–Robinvale region of Victoria.



Figure 1: One of the VegNET activities on offer for organic growers in the northern growing region from 2016-2019

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Lardner Park

RM

AUSVEG

Timing is everything Targeted responses in biosecurity management



National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

With short production cycles, irrigation scheduling, and restricted windows for optimum harvest; critical time management is part and parcel of good vegetable production. Naturally, it makes sense then that the delivery of targeted extension programs is reflective of the importance of critical time periods to meet the needs of vegetable growers.

The delivery of the VegNET project in Victoria (Northern, Western and South-Eastern) has responded to this fundamental need of the vegetable industry by ensuring targeted and timely delivery of extension activities, particularly in relation to issues of biosecurity management. Several relevant lessons have emerged during the delivery of the project that are valuable to reflect on in ensuring future extension services continue to meet the needs of the vegetable industry in Victoria, and across the country.

Tomato potato psyllid awareness

The early 2017 detection of tomato potato psyllid (TPP), Bactericera cockerelli, in Western Australia prompted a national biosecurity response. TPP, a tiny sap-sucking, winged insect has the potential to significantly impact Australian horticulture production, attacking a range of plants in the Solanaceae family including potato, tomato, eggplant, capsicum and chilli.

Information about the biosecurity threat at the time was unclear. This was in large due to uncoordinated efforts between the relevant state governments, including protocol requirements for the transportation and movement of plant material between Western Australia and the eastern states.

To assist in clarifying the situation, and support vegetable growers to improve their understanding of the threat, surveillance and their responsibility; a VegNET round table information session was held in June 2017. Hosted at the location neutral venue of the E.E. Muir & Sons training room in Clyde, south east of Melbourne, the session provided timely information to interested vegetable growers in relation to the identification of the biosecurity threat and management options.

Local entomologist, Angelica Cameron from IPM Technologies, was engaged to provide practical identification information to growers and shared experiences from the TPP incursion in New Zealand. The Victorian Government response to the risk, including surveillance measures was provided by Agriculture Victoria Biosecurity Officers, with the industry and government response process outlined by Dr Jessica Lye from AUSVEG (now at **cesar**).

The session generated significant discussion and identified gaps in the communication of information to industry. This was particularly highlighted by the number of potato growers who attended the event to have access to a forum with Biosecurity Officers from the State Government, as to get a better understanding of the extent of the surveillance measures. The event highlighted the importance of ensuring targeted and timely information to industry, and resulted in a greater flow of information to industry from State Government in relation to TPP. This included subsequent monitoring and surveillance activities, as well the establishment of a taskforce to link with other industry and interstate efforts.

Lettuce necrotic yellows virus response

Following an outbreak of lettuce necrotic yellows virus (LNYV) in the Werribee South production area, west of Melbourne, in late January 2019, an industry information session was organised to discuss what the LNYV detection meant for growers and outline available management strategies.

Positive detections from Werribee South were made from lettuce crop samples that included mixed infections of Mirafiori lettuce big-vein virus, Lettuce necrotic yellows virus and Lettuce big-vein associated virus as part of the Hort Innovation project Area Wide Management of vegetable diseases: viruses and bacteria (VG16086), led by the Queensland Department of Agriculture and

RMCG

lort VEGETABLE

This project has been funded by Hort Innovation using the vegetable research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au Fisheries, partnering with Agriculture Victoria and NSW Department of Primary Industries.

The detections were hypothesised due to higher than usual aphid pressure observed in the Werribee South production area in late 2018, with the assumption that the aphids may have been a vector for the plant virus' expressed in crops detected through the Area Wide Management project.

A discussion of Werribee South growers was organised on farm at leading vegetable grower, Fresh Select, in mid-February 2019. The discussion focussed on the practical identification and biology of the LNYV infection and the broader context of crop management by the Area Wide Management project team from Agriculture Victoria and Queensland Department of Agriculture and Fisheries. Local agronomical expertise was provided by E.E. Muir & Sons agronomist Stephen Moore who outlined the treatment options for LNYV and other viral infections, as well as other strategies to minimise on-farm disease risk profiles.

The timely delivery of the discussion, facilitated through the VegNET project, in partnership with other levy investments through Hort Innovation and local trusted service providers, was reflected by the strong attendance at the session. As a result, the region is now in a better position to identify and respond to future viral infections.

Takeaway lessons

These two examples of targeted delivery of biosecurity information to growers through the VegNET project highlight that timing is everything when it comes to extension delivery.

The importance of strong regional networks established throughout industry, including amongst growers and service providers, ensures that not only are priority topics addressed, but the right people to address them are engaged in the delivery of efficient and effective information and advice to industry.

Future extension services need to ensure that regional networks are maintained in order to understand the priority needs of industry and respond in a timely and strategic manner.





Figure 1: Participants during the lettuce necrotic yellows virus discussion held at Fresh Select in Werribee South, February 2019

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Watch this informative and interactive one-hour session to get the latest updates from vegetable industry experts, including IPM Technologies, E.E. Muir & Sons and Schreurs & Sons.

More Info »

Impact Case Study 5 of 5

s and intelligent systems in Australian vegetable production systems (webinar recording)



Robotics and intelligent systems are used throughout various agricultural industries to control, monitor and improve farm³, a systems. The development of various systems to aid in increasing the economic performance of farms is prevalent in both Australia and internation

Watch this informative and interactive one-hour session to get the latest updates from vegetable industry experted of Sydney, Queensland Department of Agriculture and Fisheries, and DataFarming.

Digital action Reflecting on the national webinar series we

Chemicals play an important role in vegetable production and are regularly used *



om the University

National Vegetable Extension Network

VICTORIA - NORTHERN, WESTERN & SOUTH EASTERN

How do you address persistent production problems in vegetables that are common to growing regions across Australia? What is the best way to connect growers, researchers and practitioners to get updates and learn from each other to manage these problems?

The VegNET project tackled this by delivering a national webinar series over 12-months. Webinars are like a virtual workshop conducted online, where presenters can interact with participants, just like if the discussion was held on farm or in a packing shed, with the exception you don't have to physically be in the same location. Webinars are also a great resource following the event, as they are recorded and available for viewing online through platforms like YouTube.

The quarterly webinar sessions were planned in conjunction with the VegNET Project Reference Group, comprised of growers and industry experts, as well as the VegNET national coordinators and delivery partners at an annual meeting. This ensured the webinars covered issues and topics that were of relevance to the industry.

To avoid duplication and maximise attendance it was decided to run a national webinar series, rather than a larger number of regional webinars. Some VegNET officers also had commitments to deliver webinars in their work plans, but did not have the experience in facilitating the discussion or using the webinar software. Therefore, they could learn from others about how to run a successful webinar.

Throughout 2018, the VegNET Victoria (Northern, Western and South-Eastern) Field Officer, Carl Larsen, coordinated and delivered the following webinars (Figure 1):

- 1. Are you ready? Biosecurity lessons in planning and response for the Australian vegetable industry
- 2. Spray technology for vegetable growers: a guide to getting it right
- 3. Future focus robotics and intelligent systems in Australian vegetable production systems

4. Integrated Pest Management of vegetable pests - a more sustainable approach.

Each webinar featured three presenters to provide the perspective on the issue from a researcher, agronomist/ practitioner and grower. The format allowed for a short presentation from each speaker and plenty of time for Q&A for the participants, all within a 1-hour timeframe over lunch.

The webinar topics were also covered by a complementary video series developed by the VegNET national coordinators, AHR, on biosecurity, spray technology, robotics and IPM. This enabled participants to access additional resources and be prepared for the discussion with new thoughts and questions.



Figure 1: The webinars in action

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Almost 100 people were engaged in the webinar series, with over 200 registering for the four events. Some of the main outcomes for vegetable growers and advisors from the four webinars included (Figure 2):

- 82% increased their knowledge and confidence on biosecurity, spray technology, robotics and IPM
- 84% had improved ability to make more informed decisions following the webinar
- 53% will change farm practices or advice following the webinar, with a further 36% unsure
- 90% satisfaction rating for webinar topic, content and delivery
- 80% satisfaction rating for the relevance of the webinar to their business.

What growers and advisors said:

"First webinar attended – found it very easy, straight forward. Excellent presentation and organisation." – Grower webinar participant

"Really useful presentation ... good science as well as practicalities and outcomes." – Agronomist webinar participant

"Well selected and presented topics." – Grower webinar participant

"Thanks for the informative session. I look forward to the next one." – Agronomist webinar participant

"Great webinar, thank you." - Grower webinar participant

The national webinar series was an innovative way of engaging growers and advisors on priority national issues for the vegetable industry. Some of the benefits of the approach include:

- Ability to engage a large number of growers and industry stakeholders at once, irrespective of location around the country (or world!)
- Being able to watch the recordings after the event engages more people, and is a resource for future reference for the industry
- Having researchers, agronomist/practitioners and growers all present during the same session provides multiple perspectives, and makes sure management options are practical and useful
- · An efficient use of levy payers' funds to deliver



Will change farm practices or advice following the event





extension events – there were no flights, accommodation, room hire or catering costs involved.

In future, VegNET may consider:

- Being more proactive in planning and marketing the webinar sessions to engage even more people, and ensure priority topics are covered as they emerge
- Exploring the reasons for the greater number of people registering compared to attending the sessions was it just to receive the webinar recording link, or is there a better or more convenient channel?
- Continually improving the format of the webinars by involving diverse and expert speakers, as well as providing more opportunities for panel discussion and interaction between participants
- Leveraging the webinar recordings even further through other industry communication, events or training material.

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Appendix 8: Evaluation scorecard summary

| Component | Unit | Data | Proportion |
|--|------|--------|------------|
| Population | | | |
| Number of growers (N, W, SE) | # | 588 | 100% |
| Growing area (N, W, SE) | ha | 21,881 | 100% |
| Delivery and engagement | | | |
| Number of activities delivered | # | 29 | 121% |
| Co-delivery of other industry events | # | 57 | - |
| Grower engagement with project | # | 790 | 134% |
| Area covered | ha | 30,802 | 141% |
| Engagement of service providers and others | # | 646 | - |
| Improved awareness from involvement | # | 1,292 | 90% |

9,831 from needs analysis survey 45% area

| | | | | | | | | | | | | | | | | | | | Robotics, | | | | | | | | | | | | | | | | |
|--|------------------|-----------|------------|-----------|----------|------------|-----------|------------|------------|------------------|----------|---------------|---------------|------------|------------|-------------|------------|-------------|-----------|----------|--------------|--------------|--------------|-------------|--------------|--------------|------------------|-------------------|-------------|----------------|----------|-----------------|------------|------------------|---------------|
| | | | | | | | | | тр | P | | Spray | | | Creating | Biosecurity | Creating | | farm | | Loofo | iner | | | | Poh | Cor otice use | npost | | | | l off | | | |
| | | | | Nematodes | | Workpla | ce Strate | egic Exp | ortand ide | ntification Pre- | cision | application F | arm Ho | rticulture | value from | nlanning | value from | | and | Biosecu | ritv works | hop | Vegeta | able | | and | oucs use mai | , nagement int | egrated | So | il and | nec | rotic | | |
| | Post-harvest Con | nsumer | R&D tax | in | Weed | training | and Inves | tment supp | oly and | d agri | iculture | and chem. b | iosecurity Co | de of | vegetable | and | vegetable | Vegetable | vegetable | and regi | onal and m | arket Spray | innova | ation Irrig | ation Irriga | tion inte | lligent and | food Pe | st | tis | sue N | lutgrass yell | ows Spr | ay Total/ | Proportio |
| Topic | management insi | ights | incentives | brassicas | manageme | nt develop | ment Plan | chai | ns ma | inagement tech | hnology | management p | lanning Co | nduct | waste | response | waste | leafminer | leafminer | commun | ities inform | nation techn | ology trends | mar | agement man | igement syst | tems safe | ety Ma | anagement C | over crops tes | ting n | nanagement viru | s app | lication average | ge (% |
| Attendance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Date | 7-Sep-17 1 | 18-Oct-17 | 18-Oct-17 | 18-Oct-17 | 8-Mar-1 | 17 8-M | lar-17 8- | -Mar-17 | 5-Apr-17 | 13-Jun-17 | 2-Aug-17 | 17-Aug-17 | 7-Sep-17 | 6-Oct-17 | 24-Oct-17 | 22-Mar-18 | 28-Mar-1 | 8 28-Mar-18 | 24-Apr- | 18 2-Ma | ay-18 2-l | May-18 24-I | May-18 3-A | lug-18 1 | 5-Aug-18 16 | i-Aug-18 2 | 3-Aug-18 | 6-Sep-18 | 18-Oct-18 | 7-Nov-18 | 7-Nov-18 | 14-Feb-19 1 | 8-Feb-19 1 | 0-Apr-19 | |
| Attended | 12 | 9 | 9 | 9 | 2 | 20 | 20 | 20 | 23 | 25 | 42 | 28 | 41 | 18 | 21 | 15 | 2 | 7 2 | | 35 | 36 | 11 | 25 | 15 | 6 | 6 | 24 | 21 | 35 | 4 | 4 | 29 | 25 | 15 | 657 |
| Completed survey | 9 | 6 | 6 | 6 | | 4 | 4 | 4 | 13 | 9 | 12 | 13 | 13 | 13 | 0 | 9 | | 8 8 | | 6 | 23 | 6 | 10 | 15 | 4 | 5 | 8 | 9 | 18 | 4 | 4 | 9 | 11 | 12 | 281 43 |
| Knowledge and skills | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Change in knowledge and confidence (1 = not | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| very much, 5 = a lot) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prior to the event | | 4.0 | 1.8 | 1.8 | 3 | 3.5 | 3.0 | 3.0 | 2.4 | 1.7 | | 3.5 | 2.8 | - | - | - | | - | . 2 | 2.8 | - | - | - | 3.1 | 3.3 | 3.0 | - | - | - | - | - | - | 2.9 | | 2.8 57 |
| Following the event | 4.5 | 4.1 | 3.1 | 3.3 | 4 | 1.0 | 4.0 | 3.5 | 3.8 | 3.7 | 3.5 | 4.1 | 3.9 | - | - | 3.7 | 2. | 8 3.6 | 3 | 3.7 | 3.9 | 3.7 | 4.3 | 4.9 | 3.8 | 4.3 | 4.1 | 3.9 | 4.1 | 2.5 | 3.0 | 3.2 | 3.8 | 4.0 | 3.8 75 |
| Change (%) | - | 2% | 44% | 47% | 13 | 3% | 25% | 14% | 37% | 54% | | 15% | 28% | - | - | - | | - | . 24 | 1% | - | - | - | 37% | 13% | 30% | - | - | - | - | - | - | 24% | | 25% |
| Improved ability to make more informed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| decisions following the event | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Yes | 9 | 5 | 5 | 4 | | 3 | 3 | 3 | 10 | 7 | 10 | 12 | 11 | 12 | - | 8 | | 5 6 | ; | 5 | - | - | 10 | - | - | - | 5 | 9 | 15 | 4 | 3 | 6 | 8 | 12 | 190 |
| Proportion (%) | 100% | 83% | 83% | 67% | 75 | 5% | 75% | 75% | 77% | 78% | 83% | 92% | 85% | 92% | - | 89% | 63 | % 759 | 83 | 3% | - | - | 100% | - | - | - | 63% | 100% | 83% | 100% | 75% | 67% | 73% | 100% | 68% |
| No | 0 | 1 | 0 | 1 | | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | - | 0 | | 0 (|) | 0 | - | - | 0 | - | - | - | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 8 |
| Proportion (%) | 0% | 17% | 0% | 17% | 0 | 1% | 25% | 0% | 8% | 11% | 0% | 0% | 8% | 0% | - | 0% | 0.0 | % 09 | | 0% | - | | 0% | - | - | - | 0% | 0% | 0% | 0% | 0% | 11% | 9% | 0% | 3% |
| Insure | 0 | 0 | 1 | 1 | | 1 | 0 | 1 | 0 | 2 | 2 | 1 | 1 | 0 | | 1 | | 1 (| | 1 | | | 0 | | | | 3 | 0 | 3 | 0 | 1 | 2 | 2 | 0 | 24 |
| Proportion (%) | 0% | 0% | 17% | 17% | 25 | .0/_ | 0% | 25% | 0% | 22% | 17% | 8% | 8% | 0% | | 11% | 130 | × 09 | . 17 | 794 | - | | 0% | - | | | 38% | 0% | 17% | 0% | 25% | 22% | 18% | 0% | 0% |
| Practice change | 0.70 | 0 /0 | 17.70 | 1770 | 20 | 7.0 | 0 /0 | 2370 | 0 /0 | 22/0 | 17.70 | 070 | 070 | 0.10 | | 1170 | 15 | /0 0/ | | 79 | - | - | 0 78 | - | | - | 50 /0 | 0 /0 | 17.70 | 0.70 | 2370 | 22 /0 | 1070 | 0 /0 | 5 70 |
| Will change form practices or advice following | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| the event | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vos | 0 | 1 | 1 | 1 | | 2 | 2 | 2 | 0 | F | 5 | 0 | 11 | 7 | | 4 | | 2 | | | | | 10 | | | | 2 | 2 | | 2 | 2 | 5 | F | 10 | 100 |
| | 0.00/ | 470/ | 4.70/ | 4.70/ | 5.0 | 2 | 2 5.0% | 50% | 0% | 5 CW | 4.0% | 6.0% | 0.5.% | E 40/ | | 4 | 2.00 | J , | | - | - | | 100% | - | | - | 250/ | 2001/ | 440/ | E00/ | E 00/ | 500/ | 450/ | 0.20/ | 200/ |
| Proportion (%) | 09% | 17.76 | 1770 | 1770 | 50 | J 76 | 50% | 50% | 0.76 | 0070 | 42% | 0270 | 0070 | 34% | - | 4476 | 307 | 70 307 | | - | - | - | 100% | - | | - | 20% | 2270 | 44 % | 50% | 50% | 50% | 43% | 03% | 39% |
| No | 1 | 2 | 2 | 2 | | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 1 | - | 1 | | 0 (| 1 | - | - | - | 0 | - | | - | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 20 |
| Proportion (%) | 11% | 33% | 33% | 33% | 0 | 0% | 0% | 0% | 46% | 11% | 0% | 0% | 0% | 8% | - | 11% | 09 | % 09 | | - | - | - | 0% | | - | - | 13% | 22% | 0% | 0% | 0% | 0% | 9% | 0% | 7% |
| Unsure | 0 | 2 | 2 | 2 | | 1 | 1 | 1 | 4 | 1 | 7 | 2 | 1 | 3 | - | 4 | | 3 3 | | - | - | - | 0 | - | - | - | 5 | 4 | 7 | 2 | 2 | 3 | 3 | 2 | 65 |
| Proportion (%) | 0% | 33% | 33% | 33% | 25 | 5% | 25% | 25% | 31% | 11% | 58% | 15% | 8% | 23% | - | 44% | 38 | % 389 | | - | - | - | 0% | - | - | - | 63% | 44% | 39% | 50% | 50% | 33% | 27% | 17% | 23% |
| Appropriateness (1 = very poor, 5 = very rele | evant) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Topic & content | 4.5 | 4.0 | 4.0 | 4.0 | 4 | 1.8 | 4.8 | 4.8 | 4.4 | 4.5 | 4.1 | 4.6 | 4.4 | 4.4 | - | 4.1 | 4. | 3 4.3 | 1 3 | 3.8 | | - | 4.7 | 4.8 | 4.3 | 4.8 | 4.9 | 4.2 | 4.4 | 3.0 | 3.0 | 3.9 | 4.1 | 4.7 | 4.3 86 |
| Delivery | 4.5 | 4.3 | 4.3 | 4.3 | 5 | 5.0 | 5.0 | 5.0 | 4.4 | 4.4 | 4.1 | 4.5 | 4.4 | 4.8 | - | 4.1 | 4. | 2 4.2 | 4 | 1.0 | - | - | 4.7 | 4.8 | 4.3 | 4.2 | 4.9 | 4.1 | 4.4 | 3.0 | 3.0 | 3.8 | 4.7 | 4.8 | 4.4 87 |
| Relevance to business | 4.5 | 4.0 | 4.0 | 4.0 | 4 | 1.8 | 4.8 | 4.8 | 4.3 | 4.4 | 3.9 | 4.4 | 4.6 | 4.8 | | 3.8 | 4. | 5 4.5 | 4 | 4.0 | 4.2 | - | 4.7 | 4.6 | - | - | 3.5 | 4.3 | 3.9 | 3.5 | 3.5 | 4.1 | 4.2 | 4.8 | 4.3 85 |
| Venue location | - | 4.1 | 4.1 | 4.1 | 4 | 1.5 | 4.5 | 4.5 | 4.7 | 4.4 | - | 4.2 | 4.6 | 4.9 | - | - | 4. | 8 4.8 | | - | - | 4.0 | - | 4.4 | 4.3 | 4.8 | - | 4.2 | - | 3.0 | 3.0 | 4.0 | 4.4 | 4.8 | 4.3 86 |
| Catering | | 4.6 | 4.6 | 4.6 | 5 | 5.0 | 5.0 | 5.0 | 4.9 | 4.3 | - | 4.5 | 4.2 | 4.4 | - | - | 3. | 3 3.3 | | - | - | - | - | 4.4 | - | - | - | 4.0 | - | 3.3 | 3.3 | 3.6 | 4.0 | 4.8 | 4.3 85 |
| Timing (date and time of day) | - | 4.0 | 4.0 | 4.0 | 4 | 1.8 | 4.8 | 4.8 | 4.7 | 4.1 | - | 3.9 | 4.3 | 4.4 | - | - | 3. | 8 3.0 | | - | | - | - | 4.4 | 4.3 | 4.4 | - | 3.7 | - | 2.8 | 2.8 | 4.3 | 4.1 | 4.3 | 4.1 82 |
| Role of Field Officer (RMCG) | - | 4.3 | 4.3 | 4.3 | 5 | 5.0 | 5.0 | 5.0 | 4.6 | 4.5 | - | 4.5 | 4.5 | 4.6 | - | - | 4. | 5 4.5 | 4 | 1.0 | | - | - | - | 4.8 | 4.8 | - | 4.6 | - | 3.0 | 3.0 | 4.1 | 4.1 | 4.7 | 4.4 88 |
| Priority issues addressed | | | | | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Farm productivity | | | | 1 | | 1 | | | | 1 | | | 1 | | | 1 | | | | | 1 | 1 | 1 | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 15 35 |
| Resource use | | | | | | | | | | | | 1 | | | 1 | - | | | | | | | | | 1 | 1 | | 1 | | 1 | | | | | 6 14 |
| Business management | | | 1 | | | | 1 | 1 | | | | - | | 1 | | | | | | | | 1 | | 1 | | | | | | | | | | | 6 14 |
| Markets and consumers | 1 | 1 | | | | | | | 1 | | | | | | | | | 1 | | | | | | 1 | | | | | | | | | | | 5 12 |
| Technology | | | | | | | | | | | 1 | 1 | | | 1 | | | 1 | | 1 | | | 1 | | 1 | 1 | 1 | | | | | 1 | | 1 | 11 26 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 43 100 |

Note: average area of vegetable growing farms in Victoria in 2014-15 was approximately 213 hectares, of which 52 hectares was planted to vegetables (ABARES 2017)

Appendix 9: Project partners' Statement of Intent

Statement of Intent 10 October 2016

This is a statement of intent between the East Gippsland Food Cluster, RMCG, and AUSVEG VIC.

The statement of intent relates to an intention to work together, drawing on the principles of collaboration and innovation, for the purpose of improved delivery of capacity building services for the vegetable growing sector in Victoria, Australia. The principle focus will be on efficient communications; utilising existing infrastructure, expertise, plans and databases thereby improving reach and engagement with growers and industry stakeholders across Victoria.

1. Purpose of the Document

The parties recognise the benefit of collaboration and innovation in relation to building the capacity of the vegetable sector in Victoria. The mix of two industry-led, member-based organisations (East Gippsland Food Cluster, and, AUSVEG VIC) and one consulting group (RMCG) will deliver shared outcomes and enhance the quality of deliverables for the individual parties, their respective projects and/or remit.

This statement of intent is created to support a relationship of collaboration, respect and cooperation between the parties.

All parties acknowledge that this statement of intent does not reflect any legal relationship between the parties. Nothing in the Statement of Intent will be construed or implied to constitute a contractual arrangement, partnership, joint venture association, principal and agent association or any other relationship of which one party may be liable for the acts or omissions of the other.

The parties commit in good faith to negotiate constructively and deliver the defined undertaking.

2. Subject of Collaboration

The parties agree to work together for the purpose of improving the delivery of capacity building services for the vegetable growing sector in Victoria through a collaborative and open innovation undertaking which:

"Repurposes existing communications infrastructure, expertise, plans and databases to deliver shared value for the parties and thereby improve reach and engagement with vegetable growers and industry stakeholders across Victoria." The parties endorse Horticulture Innovation Australia's unifying values of Greatness, Results, Optimism and always asking What's Next? and we share and respect the following key principles in order to G-R-O-W this undertaking:

- "collaboration" striving to achieve mutually beneficial outcomes for each party and the broader Victorian vegetable growing community through collective effort, whilst respecting that each party will also have their own specific goals and milestones to be met;
- *"innovation"* investigating and applying appropriate solutions to meet our collective needs;
- "rigour" ensuring structured and controlled ways of planning, developing, analysing our collective work, including special care in the way we present the outcomes of our work to our stakeholders and other interested audiences;
- *"excellence"* striving for excellence in the outcomes we achieve and the way we work together; always mindful of the needs of growers and others in the value chain.

The specific individual interests and needs of the collaborating parties are-:

- 1. East Gippsland Food Cluster
 - To successfully deliver the research project (VG15047) funded by Horticulture Innovation Australia;
 - In delivering the project, to work collaboratively with the capacity building project delivering capacity building services for other vegetable growing regions of Victoria (South East, West and Northern regions);
 - In delivering the project to acknowledge and support capacity building service delivered nationally (across all NVEN projects);
 - To support outcomes which are aligned with the Cluster's purpose; particularly as it relates to the sustainable development of the region's agrifood sector.
 - The EGFC also has a secondary interest in further understanding effective 'collaborative' models and processes.
- 2. RMCG
 - To successfully deliver the extension project (VG15048) funded by Horticulture Innovation Australia;

- In delivering the project, to work collaboratively with the capacity building project delivering capacity building services for other vegetable growing regions of Victoria (Gippsland region);
- In delivering the project to acknowledge and support capacity building service delivered nationally (across all NVEN projects);
- To support an innovative, profitable and sustainable vegetable industry recognising that AUSVEG VIC plays an important role in providing coordinated services to Victorian industry;
- To ensure the most efficient and effective use of resources in delivery of services.

3. AUSVEG VIC

- To work collaboratively with RMCG and the EGFC to ensure that the outcomes of projects VG15047 & VG15048 are communicated to Victorian growers as effectively and efficiently as possible.
- Work collaboratively with RMCG and the EGFC to ensure that the outcomes of levyfunded R&D result in tangible improvements in on-farm productivity and profitability.
- Provide input and feedback as required by RMCG and EGFC to ensure the successful delivery of the projects.
- Ensure that any agri-political issues uncovered during the delivery of VG15047 & VG15048 are managed appropriately by AUSVEG VIC.
- Secure the appropriate funding to ensure that AUSVEG VIC has the necessary resources available to achieve the above outcomes (to be negotiated once further detail relating to the scope of the project has been provided).

3. Process of Collaboration

The parties agree that:

- Regular meetings will be undertaken with suitably authorised representatives from the parties' organisations, for the purposes of sharing, planning and monitoring the undertaking;
- Information is shared that is relevant to the delivery of support services with confidentiality agreements signed where any information is of a sensitive nature and not for sharing;

- There is the will to working collaboratively in the delivery of support services and that each party will keep the others fully informed of activities implemented and/or opportunities and/or challenges that may arise in relation to scope of this statement;
- Acknowledgement of areas of mutual operation between the three parties, but recognition of difference. For example, research and development (R&D) is the sole focus of EGFC and RMCG, while agri-political activities will not be addressed and are the domain of AUSVEG VIC;
- RMCG will take the lead to secure additional funding to deliver complementary communication activities until 30 April 2019;
- Key tasks will be identified to support the above goal and assigned for completion by members of all organisations;
- Assigned tasks will be completed to an appropriate professional standard and to clear and agreed timelines with advance notice provided to the other parties if there is risk of them not being met and to discuss appropriate mitigation strategies;
- A person will be nominated from each of the parties' organisations who will be the key link for the undertaking and who will also 'champion' the undertaking internally, create internal alignment and support internal 'problem-solving' as required to support the broader outcomes sought through this collaborative effort.

4. Review

The parties agree to periodically review the provisions of the statement of intent and make adjustments as required to the statement and/or the way it is being interpreted and/or enacted.

5. Effective Date and Termination

This statement is effective from the date of execution. It will conclude on 30 April 2019.

Any party may terminate this Statement of Intent by giving one month's written notice in advance of their intention to withdraw to the other parties.

Signed by:

East Gippsland Food Cluster Inc

Dr Nicola Watts Executive Officer

8th November 2016 Date

RMCG

A.M. Boland

Dr Anne-Maree Boland Principal

9 November 2016 Date

AUSVEG VIC

Kurt Hermann State Manager

2016

Date