

Final Report



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Delivery partner: AUSVEG SA

Project code: VG19015

Project:

VegNET SA (VG19015)

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Funding statement:

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

Publishing details:

ISBN 978-0-7341-4753-0 Published and distributed by: Hort Innovation Level 7 141 Walker Street North Sydney NSW 2060 Telephone: (02) 8295 2300 www.horticulture.com.au

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Summary

This project (VG19015) is for AUSVEG SA to support the continuation of extension services as part of the VegNET SA project for a period of 18 months from 1 April 2020 to 30 September 2021(VegNET phase 2.0). The VegNET SA project aims to provide an important link between growers and the R&D funded by Hort Innovation under the National Vegetable Levy.

Delivery of this project was conducted by the VegNET SA Industry Development Officer, Yanyu Liang, with oversight and management from Jordan Brooke-Barnett, AUSVEG SA CEO and support from the Association Board of Directors and VegNET SA Regional Extension Advisory Group (REAG).

In the initial stages of VegNET phase 2.0, a key foundational activity was to develop the 5-year regional extension plan and project plans with input from REAG and Hort Innovation training providers. Priorities for the 5-year regional extension plan and project plans were established after analysis from the regional context and challenges and opportunities, together with the AUSVEG SA Board and the REAG group.

As part of this 5-year plan, four major focus areas of VegNET SA in this and future projects were identified:

- 1. New markets and value adding
- 2. Efficiency management
- 3. Salinity and other regional production issues
- 4. Business Capability Building

A key focus of this project was to develop a 5-year regional extension plan, M&E strategy and stakeholder relations plan to underpin the roll out of VegNET 2.0 in its first year of operation and future years under the next project (VegNET 3.0). While these documents were also included in previous Milestones under this project, they have also been included for information as **Appendices 6-8** of this report.

Further to the overarching strategies above, the VegNET SA project also developed a work plan to cover the first year of the program and deliver initial project outputs to progress the 5 year regional extension plan and its supporting strategic documents. This report will report on the specific outputs and progress of the first year of the operational plan, with all agreed deliverables met for the first year. A full copy of this operational plan is included at **Appendix 1** to this report.

In addition to the specific outputs in the plan, the VegNET SA project has continued to deliver a pathway to the adoption of best practices by utilizing an innovation systems approach. The project focused on creating awareness of high priority issues identified in SA and facilitate the extension of best practices to increase the knowledge, skills and aspirations of growers and lead to on-the-ground practice change. Additional and significant challenges throughout the life of the project included the impacts of the COVID-19 pandemic, which were managed by implementing alternative service delivery methods to growers (i.e phone calls over face to face consultations).

VegNET SA has been working on providing growers in our regions with access to credible and timely information and act as a trusted broker of information to support practice change. Key extension activities delivered in the past year include one-on-one grower support, educational events and communications to inform growers of best practices and business opportunities.

Keywords

VegNET SA, Hort Innovoation, AUSVEG SA, Extension, R&D, Vegetables, Horticulture, South Australia, Regional Development Officer.

Introduction

The VegNET SA projects (VG15045 and VG18003) left a strong legacy of engagement and application of Hort Innovation funded research to address regional issues. This VegNET phase 2.0 (VG19015) project continued to provide an important link between growers and the R&D funded by Hort Innovation and allowed AUSVEG SA to better support the industry by applying research findings to real-life situations.

This VegNET phase 2.0 was delivered by AUSVEG SA with the aim of increasing R&D extension and capacity building activities for South Australian Vegetable Farms. This project was developed due to an obvious gap within research, development and extension within South Australian vegetable businesses. The project has delivered a large volume of R&D extension activities throughout its duration and was effective in coordinating industry feedback in terms of what research and development should be communicated to the South Australian growers.

The total farmgate value of South Australian vegetable production is estimated at \$700 million per annum. South Australia is a national leader in the production of greenhouse crops such as tomatoes and cucumbers (\$350 million pa) and large-scale field production of potatoes, onions and carrots (\$300 million pa).

The main production areas for leviable vegetables are the Northern Adelaide Plains, Adelaide Hills and Murray Mallee. Growers in South Australia can be broadly segmented based on their size and scale of operation.

As part of this project, Hort Innovation provided training and support to AUSVEG SA to develop a 5year regional extension plan for the industry in South Australia. This was then developed into operational workplans to turn this strategy into action.

The goal of this process was to integrate an "innovation systems approach" into the delivery of the project and improve service delivery and alignment of VegNET SA activities with broader strategic outcomes for industry.

As part of this process AUSVEG SA undertook a series of industry engagement processes and analyses and identified regional challenges and opportunities, which were:

- a. Opportunity- Exploring new markets and value-adding opportunities to increase profitability
- b. Challenge/Opportunity Becoming more efficient and cutting input costs
- c. Challenge Addressing salinity and other regional production issues
- d. Opportunity Increasing business capability and management knowledge for growers

Based on the outstanding issues above, the four key priorities in the regional extension plan were developed:

- 1. New markets and value adding
- 2. Efficiency management
- 3. Salinity and other regional production issues
- 4. Business Capability Building

These priorities then provided the basis of activities in the first year of this project.

Methodology

The project was developed and delivered using the methodology below:

Project team

Following on from the success of the project VG18003 was led and delivered by Jordan Brooke-Barnett, CEO of AUSVEG SA as Project Lead and Ms Yanyu Liang as the contracted Industry Development Officer. In April 2019, AUSVEG SA continued the engagement of Yanyu Liang from the interim project due to her continued development in our industry.

Initial stages phase 1 of the project- Hort Innovation engagement and development of project plans and M&E plans etc.

In the initial stages of the project, The VegNET SA IDO participated in all necessary training facilitated by Hort Innovation to understand the new innovation systems approach and participated in the mentorship process to develop the project plans.

Following this, with the management and support from AUSVEG SA, SA RDO developed all necessary planning documentation as required under the project contract, which included:

- A regional discussion paper
- 5-year Regional Extension Plan (strategy)
- 5-year project plans
- 5-year Project logic
- 5-year M&E plan
- Stakeholder engagement plan
- Operational regional extension work plan for year 1

Initial stages phase 2 of the project - grower extension group facilitation and project strategy approval

Following the initial project phase, AUSVEG SA ran a selection process to identify representatives for the regional extension advisory group (REAG) and commenced consultation and finetuning of all project strategy documents.

The initial project planning comprised the majority of project activities from the period spanning 1 April to 1 December 2020 and much of the project focus was around developing the project plans and strategy to guide the next 5 years of the project.

To guide the ongoing implementation of the Regional Extension Workplan, AUSVEG SA then held a face-to-face meeting with the Regional Extension Advisory Group on 2 March 2020 to finalise the regional strategy and supporting documents.

The middle stage of the project

At the mid-stage of the project, AUSVEG SA delivered a broad range of activities which were conducted according to the operational plan. These activities include one-on-one grower visits, phone calls, emails, video conferences, newsletters and R&D events.

On-farm information gathering assisted to identify priority issues for workshops and other R&D activities. Throughout the project, AUSVEG SA aimed to link growers to R&D extension opportunities that met major needs in the region. Through this process, AUSVEG SA was able to deliver a strong programme of communications and workshops across a broad range of topics of industry need. We were also able to raise awareness of Hort Innovation and key projects funded by the National Vegetable Levy.

As part of this project, a variety of outputs have been developed and deployed, which have been divided into 5 categories:

- R&D events (Workshop, Conference)
- Resource development (consolidated list, greenhouse biosecurity toolkit)

• Communications and engagement (one-on-one grower visits, phone calls, emails, Newsletter, articles in industry magazine, advisory groups)

• Project planning, management & program participation (project planning documents, M&E plan, workplan, Hort Connections meetings, mentorship scheme, regular video meeting, milestones etc)

• Other extension activities (regional campaign participation, Business health check etc.)

A further outline of key deliverables and communication materials are included in the Outputs section below, as well as copies of all major outputs which are included as Appendices to this report.

Final stages of the project

Finalisation of all reporting including reporting against the regional extension plan and reporting successful completion of all agreed program outputs.

Outputs

The following section outlines key outputs throughout this project as outlined in the project contract.

Strategic documents

The following strategic documents were developed as part of this project and have been submitted as part of previous project Milestones. The most important documents are included as Appendices to this report.

- A regional discussion paper
- 5-year Regional Extension Plan (strategy)
- 5-year project plans
- 5-year Project logic
- 5-year M&E plan
- Stakeholder engagement plan
- Operational regional extension work plan for year 1

Progress against Year 1 Operational plan

A full copy of the Year 1 Operational Plan is included at **Appendix 1** of this report. The operational plan outlines key outputs to be delivered against each of the four regional priorities. AUSVEG SA has completed all outputs outlined in the Operational Plan for Year 1.

A detailed summary of key outputs delivered against the workplan is included below.

Project Plan	Outputs	When	Status
1. New markets and	1.1 Engage with three leading experts	October 2020	1.1 complete
value adding	to be thought leaders to support the	- 30	(4 experts engaged)
	project.	September	
	1.2 One extension and training event/	2021	1.2 complete
	1.2 One extension and training event/ seminar at the Northern Adelaide		(One extension
	Plains and Adelaide Hills. Targeted		workshop held on 18
	growers who are interested in new		of May 2021)
	markets and value-adding		
	opportunities.		1.3 Complete
			(1 list for this priority-
	1.3 Consolidate a list of existing		Appendix 5.1)
	researchers and resources to promote with growers		
	with growers		1.4 Complete
	1.4 Inclusion of value-adding content		(8 newsletters and 5
	in AUSVEG SA Newsletter or VegNET		articles in Vegetables
	project updates in Vegetables		Australia- Appendix 2
	Australia magazine.		&3)

	1.5 At least 30 one-on-one growers visits throughout the first year of the project.		1.5 Complete (38 grower visits conducted)
2. Efficiency management	2.1 Engage with three leading experts to be thought leaders to support the project.	October 2020 – 30 September 2021	2.1 complete (4 experts engaged)
	2.2 One extension and training event/ seminar at the Northern Adelaide Plains and Adelaide Hills. Targeted growers who are interested in efficiency management opportunities (likely focused on waste		2.2 complete(One extension workshop held on 1 April 2021)2.3 Complete
	management).		(1 list for this priority- Appendix 5)
	2.3 Consolidate a list of existing researchers and resources to promote with growers		2.4 Complete (8 newsletters and 5
	2.4 Inclusion of efficiency management content in AUSVEG SA Newsletter or VegNET project updates in Vegetables Australia magazine.		articles in Vegetables Australia- Appendices 2&3)
3. Salinity and other regional production issues	3.1 Engage with three leading experts to be thought leaders to support the project.	October 2020 – 30 September 2021	3.1 complete (4 experts engaged)
	2.2. Conduct de altre andieux of comment	2021	3.2 Complete
	3.2 Conduct desktop review of current		(1 list for this project
	and previous programs and research		priority- Appendix 5)
	3.3 Establish a production advisory		3.3 Complete
	group with agronomists to guide		(established on 17
	future work		March 2021)
	3.4 Work with levy funded research projects such as Soil Wealth and ICP to establish a practice trial site in South Australia		3.4 Complete, trial methodology with Soil Wealth ICP established and working with resellers to identify
	3.5 Initial outreach to salinity-affected growers with a target of engaging with		relevant sites.
	at least 3 affected growers willing to trial new practices as part of future activities.		3.5 Complete, trial methodology developed and initial growers canvassed
	3.6 Identify potential management		for future work.
	practices to manage salinity at the property and regional level for		3.6 Complete, salinity
	inclusion in communications and		a major focus of
			communications and

	extension outputs.		resource development.
4. Business Capability Building	 4.1 Engage with three leading experts to be thought leaders to support the project. 4.2 Conduct desktop review of current training opportunities and resources in business capability and leadership available through Hort Innovation and other providers. 4.3 Develop a format for a Young Leaders Program to support greater engagement and communication between young people in the SA 	October 2020 – 30 September 2021	 4.1 complete (3 experts engaged) 4.2 Complete (1 list for this project priority- Appendix 5) 4.3 Complete (Appendix 7)
	 industry 4.4Communicate training and development opportunities to the industry through the development of a web portal and regular communications with industry 4.5 Inclusion of business capability management and leadership content in AUSVEG SA Newsletter or VegNET project updates in Vegetables Australia magazine. 		 4.4 Complete (VegNET SA is maintaining regular grower outreach through our one-on- one grower visits and has identified opportunities for industry) 4.5 Complete (8 newsletters and 5 articles in Vegetables Australia- Appendix 2 &3)

Project Milestones

AUSVEG SA has met all milestones for this project (outlined below).

PROJECT MILESTONES		
DUE DATE	DESCRIPTION	STATUS
1/10/20	• 5-year extension plan developed	Milestone 102 approved
	• 5-year regional extension plan and project plans	
	Brief progress report	

1/12/20	• 5-year Project logic (template provided by Sean)	Milestone 103 approved
	• 5-year M&E plan (templates provided by Sean)	
	• Stakeholder engagement plan	
	 Regional extension work (operational) plan from October 2020 to the end of the work plan. Progress report 	
1/5/21	 Progress report on implementation of workplan and M&E plan 	Milestone 104 approved
30/9/21	• Final report including evaluating project against M&E plan to 30/09/21	Complete

Project Governance

AUSVEG SA has participated in all project governance activities required by the project, including the key meetings and activities below:

PROJECT GOVERNAN	ROJECT GOVERNANCE ACTIVITIES	
ΑCTIVITY	DATE	STATUS
Attendance at Hort Connection in Brisbane	June 2021	RDO and AUSVEG SA CEO attended
Monthly VegNET RDO online catch up	Monthly	RDO attended all meetings
Bio-monthly VegNET RDO and AUSVEG meeting	Bi-monthly	RDO attended
REAG group meeting	2 March 2021	RDO, AUSVEG SA CEO and Hort Innovation Regional Manager attended

Outcomes

The project was designed to achieve the following intended outcomes:

Priority 1. New markets and value adding

Through VegNET SA, develop new initiatives that help link growers to R&D knowledge and expertise that results in growers being able to develop new products and market opportunities (by better understanding market intelligence data and ability to access export markets).

Priority 2. Efficiency management

Using VegNET SA to apply current R&D knowledge and expertise, linking growers to suitable resources that will assist them to improve energy, waste and productive efficiency.

Priority 3. Salinity and other regional production issues

Using VegNET SA to address regional production issues such as salinity management, and other issues/opportunities as they arise.

Priority 4. Business Capacity Building

Increasing business capacity and management skills by linking growers with available training and development opportunities

Evidence of achievement of outcomes:

The VegNET SA project has delivered a number of initiatives under each of the priorities which are outlined in the Operational Plan. The following section outlines these in detail and how they have contributed to each of the priorities listed in the 5 Year Regional Extension Strategy.

Consolidated lists

In addition to priority specific initiatives, VegNET SA developed a consolidated list (business support directory) of programs and support available for growers looking at each of the priority areas in the 5 Year Strategy. The lists are now available on the AUSVEG SA website and contains a number of programs and resources available to support growers looking at improving their business and production practices. These resources will continue to be utilised by the VegNET SA program as important extension resources.

Priority 1. New Markets and value adding

A summary of key activities under this priority is included below.

Communication and Engagement

VegNET SA has had regular engagement with AUSVEG national and the National Vegetable Export Program to extend opportunities to South Australian growers. The VegNET SA IDO has been engaged in regular IFAM briefing sessions and ensuring that export related information has been distributed to SA growers during a difficult trading environment with COVID-19. The VegNET SA IDO has also had interaction with the Export Facilitators Program supported by Hort Innovation and was involved in site visits with Manus Stockdale to visit growers in March. While COVID-19 has dampened some of the export ambitions of growers over the past year, VegNET SA has been involved in supporting existing exporters with important information necessary to maintain their trade relationships and underpin existing exports.

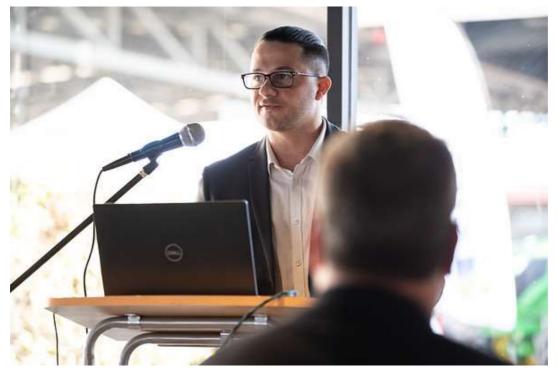
The other key focus under this priority has been establishing relationships with the SARDI product development and food science team to support growers looking for opportunities for value-adding. The VegNET SA IDO has been involved in linking interested growers to services available through SARDI to develop and test products and has engaged with growers who are already value-adding to better understand their needs and journey to-date.

Extension events

Hort SA Conference

The inaugural Hort SA Conference attracted around 300 attendees and over 40 exhibitors at the South Australian Produce Markets on Tuesday 18 May.

The one-day event was kindly supported by key event partners, Primary Industries and Regions South Australia, and provided an opportunity for South Australian growers to develop industry connections and hear from leading speakers and exhibitors. This event contained a number of R&D speakers relevant to the New Markets and Value Adding and Business Capability building priorities of the 5 year plan in particular.



Nielsen Research Senior Manager Lewis Muscat presents Harvest to home at the Hort SA Conference.



Founder of Think Digital, Tim Gentle demonstrates the latest in virtual and augmented reality (VR and AR) in agriculture at the Hort SA Conference.

Photography by Andrew Beveridge.

The Hort SA Conference contained various sessions across several different key topics, which included but were not limited to:

• Nielsen Research Senior Manager Lewis Muscat talked about the latest market data on vegetable consumption across Australia

- Enza Zaden Director of Business Development Australia and New Zealand, Ton Van Der Velden, who focused on international ag-tech developments and commercial developments in international markets.
- Rabobank International Senior Analyst Michael Harvey presented on trends in agricultural lending, currency markets and other financial markets in the coming year.
- Viscon Australia National Engineering Manager Jon Ferguson presented on key trends and innovations in packhouse and production technology overseas.
- James Northcote, Principal at William Buck Accountants and Advisors, presented the importance of succession management.

The exhibitors brought valuable products that were showcased, and key speakers provided industryleading information. This generated positive feedback from attendees.

Priority 2. Efficiency management

A summary of key activities under this priority is included below.

Extension events

VegNET SA worked with AUSVEG SA to hold a workshop on Advanced Waste Management in vegetable production on Thursday 1 April 2021 at the South Australian Produce Market.

The event achieved a strong attendance of 30 industry members. Overall, the event received strong feedback with attendees rating the content and delivery as good to excellent.

There was also a substantial increase in knowledge for attendees in Waste Management in vegetable production.



Advanced Waste Management in vegetable production on Thursday 1 April 2021 at the South Australian Produce Market

Based on 23 effective forms that have been collected, 8 attendees said they intended to make practice changes including the adoption of compostable packaging options as a result of attending the event.

AUSVEG SA has also developed a number of resources for growers looking at improving their waste management efficiency and save money in their businesses.

The fact sheet resources were developed with leading waste consultancy Rawtec as part of the Advanced Horticulture Waste Management Program funded by Green Industries SA. While these were developed as part of external project, the resources will still be very useful to promote via the VegNET SA network as ongoing resources for industry.

As part of this program fact sheets have been developed on several key topics identified as part of this program to be an ongoing resource for growers.

- Fact Sheet 1: Effective Procurement of Waste and Recycling Services to Save Money
- Fact Sheet 2: Tips for Improving Waste and Recycling Management at Produce Farms and Packhouses
- Fact Sheet 3: Compostable Packaging for SA Produce Growers & Packers
- Fact Sheet 4: Advanced Waste Management Case Studies: How Improved Waste Management Planning is Delivering for SA Growers

All the above resources are available on our website <u>https://www.ausvegsa.com.au/resources</u>.

Priority 3. Salinity and other regional production issues

The VegNET SA Regional development officer has contributed to a number of extension activities over the past year to contribute towards this priority area including:

• VegNET SA supported the development and promotion of a series of 'Sustainable Success Stories' to showcase the efforts of SA growers who have adopted improved management practices (conducted in conjunction with the Adelaide and Mount Lofty Ranges NRM Board).

• VegNET SA assisted AUSVEG SA to host a series of webinars relating to salinity and irrigation management and crop nutrition (conducted in conjunction with the Adelaide and Mount Lofty Ranges Natural Resources Management Board (AMLR NRM) and RMCG.

• VegNET SA supported the promotion and rollout of a salinity guide for SA vegetable growers as part of a separate AUSVEG SA project funded by the AMLR NRM board.

• The VegNET RDO assisted Adam Goldwater from Applied Horticulture Research to meet with some growers and agronomists regarding a Hort Innovation project investigating internal rot in Capsicum. Internal rot is not a significant problem in SA due to protected cropping growing practices, however, VegNET SA assisted to put AHR in touch with a few key agronomist contacts who could provide sampling to support the project.

VegNET SA Production Advisory Group

In order to help guide our production-related extension activities for the coming years (trial site development, workshops, training etc), the VegNET SA team established a Production Advisory Group of Agronomists and Researchers and successfully hosted our first Production Advisory Group meeting earlier this year.

At this stage, VegNET SA keeps engaging with agronomists and researchers to determine needs and assistance. In the next stage of this project, AUSVEG SA and VegNET SA plan to use input from the group to establish a trial site in the state and conduct practice change trials on salinity management. This site will be coordinated through the Hort Innovation-funded Soil Wealth and ICP project at Swanport Harvest in Murray Bridge and other sites throughout the state identified by the Production Advisory Group.

The site will investigate irrigation, soil and crop management approaches to manage soilborne diseases with on-site management conducted via local agronomists and Dr Doris Blaesing of Soil Wealth and ICP providing support for the project. At this stage, the site is yet to be established, with ongoing discussions with the grower involved however AUSVEG SA is hopeful to have something up and running later this year. AUSVEG SA had intended to have a trial site running by the final quarter of 2021, however, COVID-19 has impacted the travel of interstate researchers and the ability for resellers to confirm arrangements with potential partner growers. In the meantime, however, VegNET SA has been working with the Soil Wealth and ICP project to develop a trial protocol for the project and assess materials requirements for the next stages.

other key activities

Beet Cyst Nematode Trials

AUSVEG SA has received initial results from a trial into Beet Cyst Nematode facilitated by the VegNET SA project. Beet cyst nematode causes in excess of \$2 million in crop damage throughout field crops in the South Australian vegetable industry such as cabbage, broccoli and cauliflower by causing a loss of quality and yield. In response, AUSVEG SA contacted leading soil fumigation provider Trical Australia to work with growers to determine whether targeted use of fumigation

would be able to suppress nematode numbers. Trical Australia is well respected for their work in soil fumigation, having been past AUSVEG SA State and AUSVEG National Researcher of the Year Award winners for their work with industry. Trials were conducted with support from SARDI's nematology group led by vegetable soilborne disease research scientist Mike Rettke who assisted with trial oversight and monitoring. Initial trial results have exceeded expectations with harvest yields increasing from 60 per cent to 80 per cent. Head size on trial blocks of cabbages also increased by one third, showing that fumigation was effective in suppressing nematode numbers in the trials. VegNET SA has been instrumental in communicating results of these trials and in assisting with the liaison and engagement with key local researchers.

Serpentine Leaf Miner and Biosecurity Issues

The VegNET SA team has played an important role in communicating research related to key biosecurity issues in SA and in facilitating contact between national researchers and local industry. The VegNET SA RDO has been actively communicating research projects with local industry such as the vegetable leafminer project (MT16004 & MT20005) to ensure local industry is kept up to date.

Ag-tech demonstrations

AUSVEG SA has recently partnered with the South Australian Ag-tech committee and a start-up group of Ag-tech entrepreneurs to assist them to work proactively with industry and link them with interested growers. A key part of this work was facilitating an Ag-tech display at the recent Hort SA Conference in May so that growers could view emerging technologies and opportunities. VegNET SA played a key role in establishing the tech display at the conference and also in conducting follow up linking interested companies with growers for trial work including use of drone and spectral imaging for crop monitoring and the development of autonomous crop monitoring and weeding platforms for pivot vegetable crops.

Extension events

VegNET SA assisted AUSVEG national to deliver 2 biosecurity and pest and disease R&D workshops on the 25th of March 2021 and 9th of September 2021. VegNET SA supported the promotion and helped to present the regional situation to attendees. Our team also showed researchers and AUSVEG national around the SA Produce Market for a better understanding of the local wholesale environment.



Jordan presenting to growers on-farm biosecurity



Tour around the SA Produce Market





Peri-urban Biosecurity Pilot Program workshop #2 diagnosis

Cathy Todd (PIRSA-SARDI)- Disease

Priority 4. Business Capacity Building

A summary of key activities under this priority is included below.

Finalised format for the regional Emerging Leaders Program

VegNET SA team developed a format for an Emerging Leaders Program to support greater engagement and communication between young people and emerging leaders in the SA industry after a consultation process led with prominent young growers in the industry.

This Emerging Leaders Program sits under priority 4 of the 5-year plan and targets young growers and staff members of large growing businesses who want to improve their interaction with their peers and access leadership development opportunities. VegNET SA aims to have 10-20 young and emerging growers engaged in the group and meet 1-2 times per year as a group for networking, engagement with R&D experts and facilitated grower tours to other regions. The plan is to roll out the young grower group in years 2-5 of the regional extension plan as a way of fostering development opportunities for emerging leaders in the industry.

Business Health Check Assessments

AUSVEG SA and Hort Innovation agreed on additional program funding for this project to establish a series of Business Health Checks as part of the VegNET SA Program. VegNET SA engaged leading not-for-profit rural financial advisors Rural Business Support to deliver a series of business health check assessments across our industry.

As part of this project, Rural Business Support provided up to 10 vegetable businesses with a free on-site business assessment using a detailed checklist. From these assessments, business owners have been able to identify risks to their business as well as business capability/capacity constraints, and potential opportunities for sustainable growth.

This program was aimed at business owners of all sizes looking to take stock and improve their current practices and utilised key staff from Rural Business Support who are experienced in providing independent business advisory support to farmers across Australia. A more detailed report

on this program is included in project Milestone Reports and the final outstanding individual business assessments included as attachments to this report.

Other Project foundational activities and liaison with industry stakeholders

Communications development

VegNET SA has developed 8 newsletter articles relating to Hort Innovation funded R&D projects (featured in the AUSVEG SA bi-monthly newsletter) and 5 VegNET SA updates in the *Vegetables Australia* magazine.

Grower outreach

Around 38 farm visits have been conducted so far. This has provided a means of catching up with growers to discuss key issues and opportunities for VegNET SA to assist the industry. The majority of farm visits were conducted in the Northern Adelaide Plains and Adelaide Hills. Key crops included greenhouse vegetable lines like cucumbers and capsicums, field brassica lines and pivot lines such as carrots. In addition, a significant number of calls to growers have been conducted on a regular basis and the VegNET SA officer spends each Friday morning touring the market and having informal breakfast meetings with key growers with the AUSVEG SA CEO to keep up to date with the latest industry information.

Grower support activities included:

- Supported a grower to access ChemCert training
- Collection of grower data (as part of a 'State of the Industry' survey) to ascertain key issues for growers in SA
- Supported a grower to run a project called "Feed the Need" which involves outreach to the University sector to support careers in horticulture
- Worked with Biosecurity SA to support the trial of a new greenhouse biosecurity toolkit
- Provided general outreach to growers to ascertain issues and problems facing the vegetable industry

• Labour has been a key focus of the VegNET SA team over the past year. We have kept ongoing engagement with stakeholders on this issue and collected regional data sets to better ascertain the problems in our key production regions. This further expands on the Hort Innovation funded work estimating labour shortages and demand conducted at the national level.

Monitoring and evaluation

Monitoring and evaluation (M&E) plan was developed at the start of the project and then continued throughout the entire period of the project. This M&E plan allowed for appropriate targets to be developed in the annual work plan and to be reported in the regular project Milestone Reports. The Monitoring and Evaluation Plan can be found in **Appendix 6** along with comments about how each of the M&E requirements outlined in the plan have been addressed.

In addition, feedback forms were also collected from R&D workshops where applicable. Note that for many workshops VegNET SA collected information on behalf of other projects (AUSVEG national biosecurity projects) so these were collated separately by researchers and reported on as part of separate project reporting requirements.

A detailed summary of the feedback from workshops is included at **Appendix 4**, however, it is worth noting that all were well-attended, had strong positive feedback and provided growers with ideas and concepts which motivated them to trial new practices following the events.

Project Effectiveness

This project has been effective in meeting all requirements outlined in the Operating Plan and M&E plan for year one of the project. VegNET SA has been highly effective in not only delivering core services, but identifying further opportunities to add value through collaboration with researchers and other parties. Year one of the 5-year plan was intended to build many of the foundational networks, plans and structure of the activities to continue under the VegNET 3.0 program due to commence in October 2021.

Project Relevance

This project was highly relevant to the needs of the South Australian Vegetable growers. The project was constantly being re-assessed by the Regional Development Officer through feedback from growers, industry members and other R&D projects interstate. M&E data and feedback has shown that activities are well-targeted and relevant to industry and the VegNET SA project involved growers and industry leaders in all stages of the strategy development process for the 5 Year Regional R&D Plan.

Project Process appropriateness

A large number of growers have been involved and engaged with via this project at some point over the past year, although this varied by participant. AUSVEG SA and the VegNET SA project staff ensured regular input from industry in all aspects of program delivery to ensure that information and activities were well-tailored to the needs of industry. The VegNET SA staff ensured regular onfarm information gathering contributed to identifying priority issues for R&D activities both in terms of the strategy development and ongoing delivery of extension activities. As a result the VegNET SA team was able connect growers to R&D extension opportunities that fulfilled important regional requirements throughout the project and achieve a number of important results for industry.

Project Efficiency

The project was consistently delivered in an efficient manner. Even in the face of challenges such as COVID-19 restrictions the VegNET SA team was able to continue to deliver group support and services using phone and technology and adapt our services to growers.

Recommendations

While some of the key recommendations resulting from this project are similar to past iterations of the VegNET SA project, the increased focus on strategy and the implications of COVID-19 provided some additional challenges for industry. AUSVEG SA have provided some of our insights as a delivery partner for this project below:

- 1. The process of developing a regional 5-year plan was highly positive in clarifying the key issues to progress in the South Australian industry. Training on the "innovation systems approach" and other support provided by Hort Innovation to the VegNET SA project was comprehensive and well-delivered. The VegNET SA team valued the opportunity to collaborate with Hort Innovation and industry to develop this important document which will set the strategy in SA for the coming years.
- 2. AUSVEG SA has valued the opportunity to work with our Hort Innovation Regional Extension Manager as an important advisor on the roll out and implementation of our strategy. This has helped build understanding between Hort Innovation as investor and regional delivery partner and helped build a strong and collaborative working relationship.
- 3. The VegNET RDO must be an active participant in the industry, attending as many regional meetings and social events as feasible. This is particularly important to develop relationships and trust which is critical to allow for staff to achieve outcomes and results.
- 4. COVID-19 required the VegNET SA team to pivot quickly and adapt to a telephone and teleconferencing mode of delivery. In our experience growers appreciated ongoing contact throughout lockdowns as many were facing pressures from ensuring paths to market, transport and delivery of key farm inputs were able to continue throughout. Maintaining flexibility in how grower extension events and consultation are conducted will be critical in the coming year or so.

Refereed scientific publications

None to report.

References

None to report.

Intellectual property, commercialisation and confidentiality

None to report.

Acknowledgements

None to report.

Appendices

Appendix 1: Annual VegNET SA regional extension Workplan

A full copy of the Annual VegNET SA regional extension Workplan for this project is included as a separate **Appendix 1** report to this final report due to difficulties in combining the document into this report template

Appendix 2: Newsletter Articles

R&D Newsletter1

VegNET SA R&D Update: 2021 Nuffield Scholarships Open, New Leafminer Resources for Industry

Latest levy-funded research of interest to South Australian growers.

Brought to you by:



2022 Nuffield Scholarship Applications Now Open!

Applications are now open for the prestigious Nuffield Scholarship with several competitively awarded scholarships potentially open including the Hort Innovation funded vegetable grower scholarship and Woolworths sponsored scholarship.

The Nuffield Scholarship provides a \$30,000 research bursary to fund a domestic or internationally focussed research project over 14 weeks.

Past South Australian horticulture scholars have included leading growers such as Michael Vorrasi of Comfresh and Scott Samwell of Eastbrook Farms who have used the program to study research projects beneficial to both their businesses and the broader industry.

Click here to download the Nuffield Brochure!

AUSVEG SA and the VegNET SA team encourage any interested growers to apply and are happy to provide overarching guidance and support to anyone interested in preparing an application.

New Serpentine Leafminer Resources Available for the industry!

Hort Innovation has developed a new webpage with updates on Serpentine Leafminer which compiles the latest information and guidance for industry.

Serpentine leafminer (SLM – *Liriomyza huidobrensis*) is a recently arrived exotic insect pest with the potential to significantly impact a wide range of commercial crops (vegetables, broadacre, ornamentals and non-commercial hosts). Leaf miners, including SLM, are in the top 20 of Australia's Top 42 Exotic and Unwanted Plant Pests (see <u>https://www.agriculture.gov.au/pests-diseases-weeds/plant</u>) and is categorised as a high priority pest in the vegetable and potato industry biosecurity plans, highlighting the risk posed by SLM.

Serpentine leafminer was found infesting field-grown vegetables in western Sydney in late October 2020. Since then, there have been confirmed cases of serpentine leafminer in regional NSW as well as the Fassifern Valley region of Queensland.

Click here to access the new resources



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

R&D Newsletter 2

R&D Update: Plant Growth Tracking Goes High-Tech

TriCal Australia has been tracking growth differences between fumigated and nonfumigated ground in research in a seed potato crop.

Partnering with researchers, the team have been using hyperspectral imaging, which can detect event the subtlest of growth differences. Hyperspectral imaging can capture the colour of different items, including crops, and can break the image down into hundreds of colours, enabling researchers to detect subtle growth differences.

This development work was instigated by TriCal to demonstrate the value of healthier crops and soils through the prescriptive application of soil fumigants to rehabilitate soils affected by soil pests and diseases specific to horticultural crops.

TriCal has been developing economic threshold values for the suppression of soil pests and pathogens in horticultural crops over the last six years with the aim of improving growers profitability.

The Australian Plant Phenomics Facility Lead Resercher, Dr Darren Plett has been using its FieldExplorer, a ground-based field phenotyping platform with RGB and hyperspectral camera, to collect plant images from the ground level as well as lidar (laser radar) to measure canopy development and structure of the potato plants.



Growers can meet the Trical Australia team and see the FieldExplorer Unit and AirborneLogic drones as part of outdoor displays at the upcoming Hort SA Conference on Tuesday 18 May!

Further hyperspectral images were collected for the 30-hectare pivot area using an eight-propeller drone flown by AirborneLogic Managing Director, Andy Chambers. AirborneLogic hyperspectral specialist Dr Davina White used a backpack hyperspectral unit to measure individual points throughout the crop.



Airborne Logic drone in action in a seed potato crop

All of these data images will be used to identify any features such as nutrient levels, disease incidence and growth habits within the seed potato crop.

This work is being pursued with the aim of developing crop service applications to better allow growers to manage their crops through prescriptive inputs and to maximise economic thresholds for pest and disease control.

R&D Newsletter 3

R&D Spotlight: Parasitoids for the management of fruit flies in Australia

Latest levy-funded research of interest to South Australian growers.

Ongoing Project

Project title: Parasitoids for the management of fruit flies in Australia **Project Leader:** Paul Cunningham, Victorian Department of Jobs, Precincts and Regions **Project Number**: MT19003

Summary

The aim of this project is to deliver the knowledge needed to evaluate the use of parasitoid wasps as a potential strategy for fruit fly management. The use of natural beneficials such as parasitoids against insect pests is regarded as a core component in sustainable pest control and will provide horticulture industries with another method to use for fruit fly management.

This investment is delivering the knowledge needed to evaluate the use of parasitoid wasps as a potential strategy for fruit fly management.

This research is being conducted through two complementary components – firstly by improving current knowledge of fruit fly parasitoid distribution in Queensland and northern New South Wales, and secondly by trialling a new mass rearing and release strategy for the southern states.

Parasitoid distribution is being studied by collating and analysing existing data, as well as through a targeted survey and a detailed review of the scientific literature on fruit fly parasitoids. The resulting information will enable prioritisation of fruit fly parasitoids for future research and identify new RD&E required to rapidly integrate parasitoids into the fruit fly management toolkit.

Mass rearing and release will ultimately be trialed in fruit orchards and urban/peri-urban areas of Victoria. Working alongside the distribution component, wild fruit fly parasitoids will be collected for culturing and a mass-rearing protocol developed for two parasitoid species. Research will focus on optimising parasitism rates in culture, adult wasp fitness and longevity and ensuring good survival on delivery to release sites. Release trials are expected to be conducted during the 2020/2021 season.

Further information

Click <u>here</u> or email Paul Cunningham at <u>paul.cunningham@agriculture.vic.gov.au</u> to access this project.



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. hortputture com.au

R&D Newsletter 4

Pest in focus: keep and eye out for exotic leafminers entering SA

Ongoing Project Project Title: RD&E program for control, eradication and preparedness for vegetable leafminer

Project Partners: Cesar (project lead), Plant Health Australia, the University of Melbourne, the Department of Agriculture, Water and the Environment's Northern Australia Quarantine Strategy, and AUSVEG

Project Number: MT16004

Summary:

The Serpentine leafminer (SLM; Liriomyza huidobrensis) has been reported in Western Sydney and Southern Queensland in late October 2020. And this is a vital alert for us. There are numerous species of leafmining flies established within Australia, most posing little to no economic risk. However, some exotic species are significant pests of horticulture globally and are a threat to Australian horticulture.

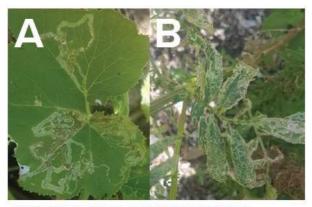
Identification and in-field early detection monitoring for VLM is challenging, but support and resources are available. Early detection is vital, as inappropriate chemical use causes populations to flourish.

The pests and impacts:

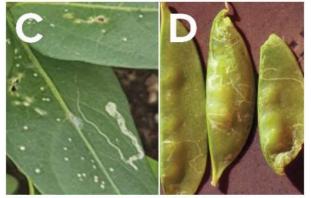
Put simply, the exotic leafminers of most concerns to horticulture in Australia are vegetable leafminer (Liriomyza sativae), potato leafminer (L. huidobrensis) and American serpentine leafminer (L. trifolii).



VLM has four lifestages. Adults create holes to feed on leaves and to lay eggs inside leaves, creating 'stippling' damage. Upon hatching, larvae tunnel through leaves, feeding and creating thick white trails, called 'leaf mines'. Larvae then emerge from the leaves to pupate in the soil and finally emerge as a fly. At 25°C, the lifecycle takes about 3 weeks. Most damage occurs at the larval stage. Heavy leaf mining can reduce plant growth or even kill young plants. Oviposition and feeding holes created by adults expose plants to a secondary infection.



(A) Moderate damage on melons, (B) heavy damage on ornamental flowers. Images: Elia Pirtle, cesar Pty Ltd.



(C) Stippling and mining damage on beans, (D) leaf mining in bean pods. Image C: Elia Pirtle, cesar Pty Ltd. Image D: Whitney Cranshaw, Colorado State University, Bugwood.org

Exotic leafminers are polyphagous, meaning they attack a wide variety of crops including vegetables, nursery crops, melons, and potatoes. Examples include, but are not limited to, beans, capsicum, chilli, cucumber, potato, eggplant, melons, and ornamentals such as petunia and snap dragon.

In short, the impact of exotic leafminers on a production region can be significant. Early detection monitoring is therefore crucial. Surveillance should focus on the damage created to the plant and will be extremely important when a high-risk season overlaps with young crops.

Damage and control

The most significant damage is caused by leafmining, which occurs when larvae move through the leaf feeding on green material, forming characteristic thick, white trails called leafmines. Leafmining can damage photosynthetic tissue, which may disrupt plant growth. When too many mines are created, a crop may drop leaves, fail to fruit, or die.

Damage may be less significant when mines are made late in the production cycle of vegetables and melons, or more damaging when heavy infestations affect young crops. However, yield losses can be variable, depending on plant age, environment, pest density and management practices.

An effective integrated pest management (IPM) approach is the best long-term approach to managing VLM. IPM involves managing pests using a combination of techniques such as biological control, modifying cultural practices, monitoring pests, and using IPM friendly insecticides. However, the best way to control VLM is to reduce the risk of the pest entering your property. There are some chemical control options for the three exotic VLM which can be found <u>here</u>. An interactive tool to explore VLM risk across regions and seasons can be assessed via <u>here</u>.



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 hortbulture.com.au

R&D Newsletter 5

Fully-funded scholarships available for the 2021 PMA Produce Executive Program

Hort Innovation are currently offering four fully-funded scholarship places in the 2021 Produce Marketing Association (PMA) Produce Executive Program (23-28 May 2020)

This program is geared towards senior managers and growers and provides a combination of industry insights and leadership development support across 5 days in residence at Waurn Ponds, VIC.

What you will gain

Sharpen your skills in decision-making, team leadership, idea generation, problemsolving, and collaboration while strengthening your personal resilience and industry network – along with the chance to practice these skills in the context of the latest market and consumer trends in the produce industry.

Click here to Download the brochure or enrol now

R&D Newsletter 6

R&D Spotlight: Impact of groundwater quality on the management of centrepivot-grown vegetable crops

Latest levy funded research of interest to South Australian growers.

Brought to you by:



Ongoing Project Project leader: Julie Finnigan (Serve-Ag) Project Number: PT16001

Summary: This project is investigating how regional and seasonal water-quality variability impacts on potato production and quality and to look at groundwater quality in areas of potato production in South Australia (where groundwater quality is most variable). It will ultimately deliver effective management strategies and tools for sustainable and profitable potato production under varying soil and water conditions. This project is funded by both the fresh and processing potato industries.

The project began with an extensive data collecting for nine major potato varieties across three South Australian growing regions: the South East, the Mallee and the southern Murraylands. The researchers were looking at site groundwater and plant conditions to see how specific conditions impact on the growth and health of plants, and associated quality and yields, illustrating the nutrition programs to maximise plant nutrient uptake and water use under a range of conditions.

For now, the project has expanded considerably with trial sites now established across the Southeast and Mallee regions. Two infiltration trials have been established, one in the Mallee and one in the Southeast, and a general agronomy trial has been set up in the South East.

A comprehensive assessment of sites including soil types and textures, soil pathogens and beneficial biology, soil chemistry pre-plant and post-harvest, along with irrigation water quality and local groundwater conditions has been conducted. EM38 mapping, satellite NDVI imagery (regular assessments of crop performance) and Sap testing of potato plants had been utilized in this project for monitoring and data collecting.

The results were both informative and encouraging with early findings. During the past six months, field assessments and data collection have occurred throughout the potato growing seasons for the Lower Southeast and the Mallee regions. Early results from the trial harvests are indicating improved yields with soil conditioner use, with noticeable decreases in blemishes such as greens, misshapen tubers, insect and browsing damage, and disease presence.

The general agronomy trial site in the Southeast has also been harvested, with data analysis underway. This trial, also replicated in the Mallee, focused on three main areas:

- Re-addressing crop nutrition through regular monitoring
- Reducing salt accumulation within the upper soil profile
- Improved stress relief through the application of specialty products and

amendments.

Results from this trial showed that a liquid fertiliser markedly reduced the chloride and sodium levels in potato plants, when applied early to the crop. The fertiliser that was used provides calcium and sulphur to plants, and acts as a soil amendment helping to flush harmful salts from the root zone, as well as improving water penetration. Later applications were not effective, so earlier and repeat applications in highly saline situations should help to mitigate salinity issues faced by many fresh and processing potato growers in South Australia.

For more information on this project

For more information contact Julie Finnigan on 0408 270 068 or jfinnigan@serveag.com.au or visit here.

&D Newsletter 7		
Hort Innovation	VEGETABLE FUND	This project his 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

R&D Spotlight: Area-wide management of vegetable diseases project update

Latest levy funded research of interest to South Australian growers.

Brought to you by:



Ongoing Project

Project leader: Cherie Gambley, The Queensland Department of Agriculture and Fisheries

Project Number: VG16086

Summary

This project's aim is to investigate the most damaging bacteria and viral diseases of brassicas and cucurbits and deliver resulting information to industry levy payers to better manage and prevent diseases. This R&D Spotlight provides the newest information based on updated results and key findings from this project, particularly in the field of virus diseases affecting zucchini, brassicas and curcubits.

A major focus of this project was to deal with some most serious viral and bacterial diseases which affecting vegetable crops. The strategy researchers developed is called 'area wide management ' (AWM), including viral diseases with different sources of infection and pest management approaches.

Recently, the project team have produced a number of fact sheets detailing the symptoms, spread and control measures for viruses affecting various vegetable crops:

- Managing virus diseases on zucchini
- Viruses infecting brassicas
- Virus diseases of curcubits in Australia

You can access a copy of the accompanying fact sheets and project reports here.



R&D Newsletter 8

Australian Potato Pest and Disease R&D Program Update

Project leaders RMCG have provided an update on the national Pest and Disease R&D program for SA growers.

Program Update

The program update <u>attached</u> provides an update on current projects within the potato pest and disease program.

Pink rot fact sheet

RMCG have developed the fact sheet <u>attached</u> on pink rot for growers and advisors.

Further information

If interested growers or advisers would like further information on this program they can

contact Dr Kristin Stiring at RMCG on 0488 908 416.

Dr Kristen Stirling SENIOR CONSULTANT



Level 1 East, 1100-1102 Toorak Road, Camberwell, Victoria 3124

0488 908 416 — (03) 9882 2670 — <u>rmcg.com.au</u>

У in

Appendix 3: Articles for Vegetables Australia

Article 1- Vegetables Australia Spring 2021

VA Spring 2021 – VegNET SA update

R&D tag: VegNET – South Australia

Heading: Establishing networks between SA vegetable growers and wider industry

Stand-first: AUSVEG SA is the state-wide representative body for South Australia's \$2 billion vegetable industry. It works with governments at all levels to advocate on key issues and deliver several key industry development programs that include facilitating VegNET – South Australia, an investment that keeps vegetable growers informed about current R&D activities, results and resources. VegNET – SA Regional Development Officer Yanyu Liang provides an update.

Body text:

Hort SA Conference

The inaugural Hort SA Conference attracted around 300 attendees and over 40 exhibitors at the South Australian Produce Markets on Tuesday 18 May.

The one-day event was kindly supported by key event partner, Primary Industries and Regions South Australia, and provided an opportunity for South Australian growers to develop industry connections and hear from leading speakers and exhibitors.

The Hort SA Conference contained various sessions across several different key topics, which included:

- Enza Zaden Director of Business Development Australia and New Zealand, **Ton Van Der Velden**, who focused on international ag-tech developments and commercial developments in international markets.
- Nielsen Research Senior Manager Lewis Muscat talked about the latest market data on vegetable consumption across Australia
- Rabobank International Senior Analyst **Michael Harvey** presented on trends in agricultural lending, currency markets and other financial markets in the coming year.
- Viscon Australia National Engineering Manager **Jon Ferguson** presented on key trends and innovations in packhouse and production technology overseas.
- James Northcote, Principal at William Buck Accountants and Advisors, presented the importance of succession management.

The exhibitors brought valuable products that were showcased, and key speakers provided industry-leading information. This generated positive feedback from attendees.

Business Health Check Assessments

AUSVEG SA and Hort Innovation have joined forces to establish a series of Business Health Checks as part of the VegNET SA Program. For this, VegNET SA has engaged leading not-for-profit rural financial advisors Rural Business Support to deliver a series of business health check assessments across our industry.

As part of this project, Rural Business Support will be providing up to 10 vegetable businesses with a free onsite business assessment. From these assessments, business owners will be able to identify risks to their business as well as business capability/capacity constraints, and potential opportunities for sustainable growth.

This program is aimed at business owners of all sizes looking to take stock and improve their current practices, and utilises key staff from Rural Business Support who are experienced in providing independent business advisory support to farmers across Australia.

Looking to the future

VegNET SA has already engaged with several different emerging leaders in the horticulture industry. It plans to establish a long-term emerging leader program based on an effective communication format, and is currently working to consult with stakeholders to determine the appropriate timing and format for the event.

The event is planned to be held on-farm in September or October, which will allow for sit down presentations in a shed followed by a field walk. This will likely take place over three hours in the afternoon followed by catering and drinks. Planning is well-underway for this event, and VegNET SA will provide further updates as it develops the format.

Find out more: Please contact VegNET – South Australia Regional Development Officer Yanyu Liang on 0432 742 896 or at <u>yanyu.liang@ausveg.com.au</u>, or AUSVEG SA CEO Jordan Brooke-Barnett on 0404 772 308 or at <u>jordan.brooke-barnett@ausveg.com.au</u>.

VegNET – South Australia is a strategic levy investment under the Hort Innovation Vegetable Fund.

This project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.

Project Number: VG19015

Article 2 – Vegetables Australia Winter 2021



Extension update: Full steam ahead for South Australia

AUSVEG SA is the statewide representative body for South Australia's \$2 billion vegetable industry. It works with governments at all levels to advocate on key issues and deliver a number of key industry development programs that includes facilitating VegNET -South Australia, an investment that keeps vegetable growers informed about current R&D activities, results and resources. VegNET - SA Regional Development Officer Yanyu Liang provides an update

An upcoming event not to be missed!

AUSVEG SA will hold its first-ever South Australian horticulture conference on Tuesday 18 May. As part of this event, VegNET SA will work with AUSVEG SA to have a number of R&D speakers planned as a development and learning opportunity for South Australian growers.

The inaugural Hort SA conference will be held at the SA Produce Markets, featuring over 30 industry exhibitors along with a full program of leading industry speakers and early evening social networking drinks (kindly sponsored by the SA Produce Markets).

The event will offer an opportunity for growers and industry supporters to see a large number of exhibitions and catch up with industry colleagues at

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South Australia's home of fresh produce, the SA Produce Market.

Project update

AUSVEG SA has established a Production Advisory Group of agronomists and researchers to help guide its productionrelated extension activities for the coming year (trial site development, workshops, training etc). As part of this program, there are plans to establish a trial site in the state, conduct practice change trials and hold periodic farm walks and workshops over the coming years.

In the recent Regional Extension Advisory Group meeting, AUSVEG SA provided an overview of planned activities for VegNET SA for the coming year, focusing on the priority areas of Business Development, New Product and Market Development and Salinity Issues. There were several key discussions around the proposed workplan for the coming year, which included opportunities investigation for SA growers to access apprenticeships and other support available from the Department of Innovation and Skills for traineeships.

Waste in-focus at workshop

On 1 April, VegNET SA worked with AUSVEG SA to hold a workshop entitled Advanced Waste Management in Vegetable Production.

Held at the South Australian Produce Market, the workshop achieved a strong attendance of 30 industry members. Overall, the event received positive feedback with attendees rating the content and delivery as good to excellent. There was also a substantial increase in knowledge for attendees in waste management in vegetable production. Some of the attendees intended to make practice changes as a result of the day including adoption of compostable packaging options.

VegNET SA support for growers

VegNET SA is investigating some gross margin tool resources available to the industry, and ways to extend this to the industry either via a future workshop or the development of resources for communication with the industry. It will continue to work to advance the interests of our industry in 2021 and looks forward to working with growers to deliver results in the coming season.

Find out more 🔘

Please contact AUSVEG SA CEO Jordan Brooke-Barnett on 0404 772 308 or at jordan brooke-barnettgausweg com au or VegNET -South Australia RDO Varnyu Llang on 0432 742 896 or at yangu Tangibausveg com au

MegNET – South Austhativis a strategic levy investment under the Hort Innovation Vegetable Fund.

This project has been funded by Hort imovation using the vegetable research and development levy and contributions from the Australian. Government

Hort VEGETABLE

Quick chat with Marlon Motlop

Works at: Native Co.

Can you please give me a brief

What challenges do you face as

How do you manage these challenges, or try

to overcome them? We are distributing our products into restaurants and getting the customers to sit down and experience the natives in meals. Hopefully, we market that through the restaurant well enough for the public Eventually, we hope it would be one of the condiments that Australian people can use in their homes every day. We understand the marketing and how case the native products is not stop figure out ways on how we can show case the native product to the general public. Talso want to do a bit of advertising about Native Co. at the upcoming Hort SA Conference. Lam interested to show case our products at the event on 16 May, and let people know about their value.

when you are not working on





Looking for workers? We can help.



Article 3– Vegetables Australia Autumn 2021

VegNET – South Australia continuing to support the state's veg growers

AUSVEG SA is the state-wide representative body for South Australian vegetable growers, and it facilitates the VegNET -South Australia project, which supports the continuation of extension services, and provides an important link between growers and levy-funded R&D. It also allows AUSVEG SA to better support the industry by applying research findings to reallife situations. VegNET - South Australia Regional Development Officer Yanyu Liang provides a project update.

Vegetables are the largest sub-sector within horticulture in South Australia, valued at around \$700 million in farmgate and \$2 billion total value per annum. The VegNET – South Australia team is continuing to support growers across the state, ensuring they remain sustainable and profitable.

In recent months, we teamed up with TriCal Australia and the South Australian Research and Development Institute (SARDI) to conduct soil furnigation trials that focused on the suppression of beet cyst nematode in cabbage and brassica crops on the Northern Adelaide Plains. The trials produced strong suppression results, showing how the application of targeted furnigation is a successful tool in managing the rise of beet cyst nematode – a pest



that is causing in excess of \$2 million in crop damage across the state each season lturn to page 44 for more).

Serpentine leafminer updates

VegNET – South Australia and AUSVEG SA remain engaged in discussions with Biosecurity SA on the emerging serpentine leafminer issue. We want to ensure the ongoing protection of our key industries. Additionally, we are liaising with members of the project team who worked on The strategic levy investment project RDFE program for control, eradication and preparedness for Vegetable Leafminer (MT16004).

Labour shortages

Labour has been a key focus early into the new year. We continue to engage with our stakeholders on this issue and have collected regional data sets to better ascertain the problems in our key production regions. This further expands on the Hort Innovation-funded Ernst & Young report released late last year that estimated labour shortages and demand on a national level.

Upcoming R&D events

VegNET SA is working with AUSVEG SA to develop a program for the first-ever South Australian Hort Conference, which will be held in May. As part of this event, there will be a number of R&D speakers planned as a development and learning opportunity for South Australian growers.

The conference will be held at the SA Produce Market and will feature speakers including a representative from Nielsen Research who will discuss the Harvest to Home project, as well as productionrelated speakers, and a grower showcase where growers can display new products with chefs and retailer stakeholders.

In the first quarter of 2021, VegNET SA is planning a number of other workshops on topics such as waste management and biosecurity.

VegNET SA will continue to work towards advancing the industry in 2021, and looks forward to working with growers to deliver results throughout the upcoming season.



Please contact AUSVEG SA CED Jordan Brooke Barneti on 0404 772 308 or at, contactionolik-barnett Bautweg com au or Veg(ET - South Australia RDD Yanyu Liang on 0432 742 1966 or at yietyu Liang bioaveg com au melowic casually building to grow vegetable toxinessee - South Australia Sa strategic levy investment under the Host innovation Vegetable Fund.

This project has been funded by Hort Inhovali on using the vegetable research and development levy and contributions from the Australian Government



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Article 4 – Vegetables Australia Summer 2020/21



Extension project supporting South Australia's veg growers

AUSVEG SA is the state-wide representative body for South Australia's \$700 million vegetable industry. The VegNET – South Australia project allows AUSVEG SA to support the continuation of extension services, and provides an important link between growers and levy-funded R&D. It also allows AUSVEG SA to better support industry by applying research findings to real-life situations. VegNET Regional Development Officer Yanyu Liang provides a project update.

LEAN Efficiency program

Review and identify opportunities for automation

This program aims to utilise a "LEAN" manufacturing approach with horticultural and vegetable producers that involves reviewing current business efficiency and automation. This program extends the trial opportunities on the Northern Adelaide Plains to the Murraylands and Riverland regions. It also provides vegetable and horticultural growers in those regions with the opportunity to access specialist and expertise.

There are three program objectives:

- Assist selected participants to review their current business efficiency, and identify opportunities for automation in the field and packhouse production.
- Assist eligible clients to identify achievable productivity improvements.
- Develop a series of actionable improvements to business process and

infrastructure in a form that the project participant can implement. Up to 10 places in the pilot program will be competitively awarded via a selection process. Once growers are

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selected, they will then participate in an introductory workshop.

Waste assessments

AUSVEG SA conducting waste

assessments with Rawtec AUSVEG SA and Green Industries SA (GISA) have partnered to deliver the Advanced Horticulture Waste Management Program for South Australian horticultural growers.

As part of the program, AUSVEG SA and waste and resource management consultancy Rawtec will conduct a series of site assessments with growers to identify ways to improve efficiency (better use of inputs) and to avoid, reduce and recycle waste for economic and environmental benefits.

This program offers a significant opportunity to participating growers to review their current waste management procedures, better manage the costs and usage of materials inputs – such as packaging – and assess their current performance to put in place improvements over time.

Modern horticultural businesses are facing increasing attention from local governments, regulators and supermarkets to demonstrate sustainable practices in their business. This program offers an opportunity for interested growers to receive information and business support to assess their current performance and identify improvements across the business.

Planning activities

Upcoming R&D events

AUSVEG SA has already engaged with a number of research projects and plans to hold a number of R&D extension events as a result. These include workshops on value-added waste management and engagement with the Harvest to Home project (MTI7017), which is delivered by Nielsen. AUSVEG SA will roll out these events and opportunities for growers over the coming year.

Progress update: Regional extension plan

Following grower discussions and input, AUSVEG SA has established the Regional Extension Advisory Group. This now means that project foundational activities have been completed.

The five-year regional extension plan and project plans have been developed and approved. This was achieved with input from Regional Extension Advisory Group and Hort Innovation. The next stage of the project will involve delivering against the annual work plan, and successful delivery of extension activities and events.

Find out more

Please contact AUSVEG SA CED Jordan Brooke-Baneti at Jordan Grooke-barrollitikauveg.com au or VegNET SA RDO Yanvu Lang at yatiyu JangBautiveg.com au wgNET - South Australa is a strategic levy investment Under the Host Immovation Wegetable Fund This project has been funded by Host Innovation sung the vegntable reasonch and development levy and contributions from the Australian Government

Project Number, VG19015

Article 5 – Vegetables Australia Spring 2020



Extension update: Full steam ahead for South Australia

AUSVEG SA is the statewide representative body for South Australia's \$700 million vegetable industry. It works with governments at all levels to advocate on key issues and delivers a number of key industry development programs, which include facilitating VegNET SA – an investment that keeps vegetable growers informed about current R&D activities, results and resources. VegNET SA Regional Development Officer Yanyu Liang provides an update.

Salinity in the spotlight

In recent years, salinity has been a key issue in South Australia. It has particularly affected areas such as the Northern Adelaide Plains, where it has caused significant land damage and crop losses.

With support from the Adelaide and Mount Lofty Ranges Natural Resources Management Board (AMLR NRM) and RM Consulting Group, AUSVEG SA hosted a series of webinars in June with national experts covering all aspects of salinity management.

The expert session online was delivered with a focus on irrigation management, salinity and crop nutrition, and recordings are available online from the Soll Wealth

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website: soilwealth.com.au.

As part of the project, Dr Doris Blaesing will be available to work with growers following the session to trial new management practices to address specific on-farm issues.

In addition, AUSVEG SA partnered with Dr Blaesing to develop a salinity guide for South Australian vegetable growers. The guide outlines several key concepts, such as identifying and managing salt stress in crops, salt tolerances of potential cover crops and management techniques for growers and advisors for managing salinity in South Australian conditions.

To access an electronic version of the guide or to receive a hard copy, please contact AUSVEG SA on the email addresses provided below.

'Clean Your Farm': biosecurity focus

The 'Clean Your Farm' project has been run as a partnership between Biosecurity SA and AUSVEG SA as a means of supporting growers with the management tools and resources necessary to protect their business against biosecurity incursions.

The design for a new biosecurity program under Clean Your Farm is in progress. The team plans to work closely with industry to roll-out biosecurity guides and resources, and support growers with additional waste management initiatives.

Showcasing veg growers

AUSVEG SA has developed a series of 'Sustainable Success Stories' to showcase the efforts of South Australian growers who have adopted new growing or management practices.

The series was developed with support from the Adelaide and Mount Lofty Ranges NRM Board to highlight growers in the region who had adopted new growing or management practices, and sharing these local success stories more broadly with government and industry.

Planning activities

Under AUSVEG SA's management, the VegNET project in SA has engaged with the South Australian vegetable industry in the initial stages of phase two, AUSVEG SA participated in the training facilitated by Hort Innovation. This looked at understanding the innovation systemsapproach under the new project and participating in the mentorship process to develop the new regional extension plan. For now we have selected and

For now, we have selected and convened the Regional Extension Reference Group and commenced development of the Regional Extension Plan incorporating an innovation systems-approach.

The initial project plan has comprised the majority of project activities from the period spanning 1 April to 1 July 2020, and much of the project's focus will be around developing the project plans and strategy to guide the period following.

The focus areas include, but are not limited to:

- Working with AUSVEG SA management to scope and deliver programs in LEAN manufacturing, energy efficiency and waste management efficiency.
- Scoping new training opportunities.
- Liaising with growers.

Find out more

Pease contact AUS/EG SR CEO Jordan Broble-Barreth al jordan brooke-barnettalausver com au or VephET SR RDO Yanyu Liang at yanyu liang bauweg com au

VegNET – South Australia is a strategic levy investment under the Hort Innovation Vegetable Fund.

This project has been funded by Hori Innovation using the vegetable research and development liny and contributions from the Australian Government Project Number v619015



Appendix 4: R&D activities post-event feedback

Appendix 4.1

Event Feedback Summary

VegNET SA R&D Workshop – April 2021

Thursday 1st April 2021

Overview

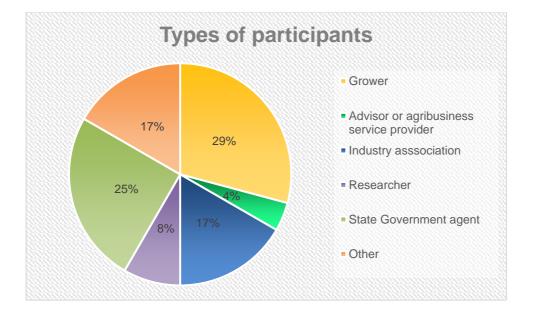
31 people registered for the event, 30 of them arrived and 1 apologized. In total, 30 people attended our Advanced waste management workshop on 1st April of 2021.

30 forms had been delivered to field attendees, and 23 effective forms have been collected. Please see the summary below.

Observation of participants

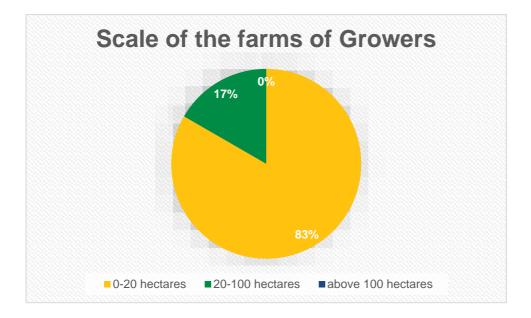
Note: Some participants play multiple roles.

Type of participants	Numbers of participants
Grower	7
Advisor or agribusiness service provider	1
Industry asssociation	4
Researcher	2
State Government agent	6
Other	4
total	24



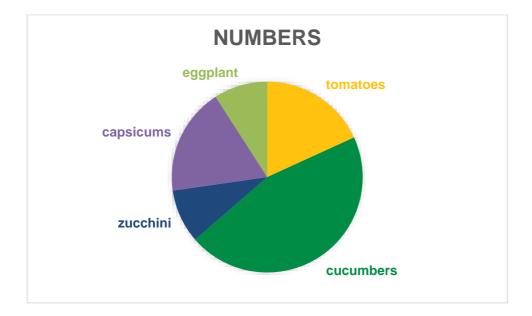
Scale of the farms of Growers

scale	numbers
0-20 hectares	5
20-100 hectares	1
above 100 hectares	0
total	6



Analysis of Scale of the farms of Growers

Type of Crops	Numbers
tomatoes	2
cucumbers	5
zucchini	1
capsicums	2
eggplant	1



Satisfaction of the delivery of acknowledge

(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 event Please circle	Following the event Please circle	
	1 = Limited – 5 = Expert	1 = Limited – 5 = Expert	GAP
Rawtec- key challenges facing the industry in waste managemen & key findings from the site visits and common opportunities identification	3.50	4.52	1.02
Foodbank's presentation	3.33	4.29	0.96
Peats Soil - Green waste opportunities and the opportunity to utilise their BioBin technology on-farm	3.57	4.33	0.77
YCA recycling	ecycling 3.27		1.06

The data from the chart above sample in total participants. Most of the participants agree that their knowledge in these four fields have a certain increase.

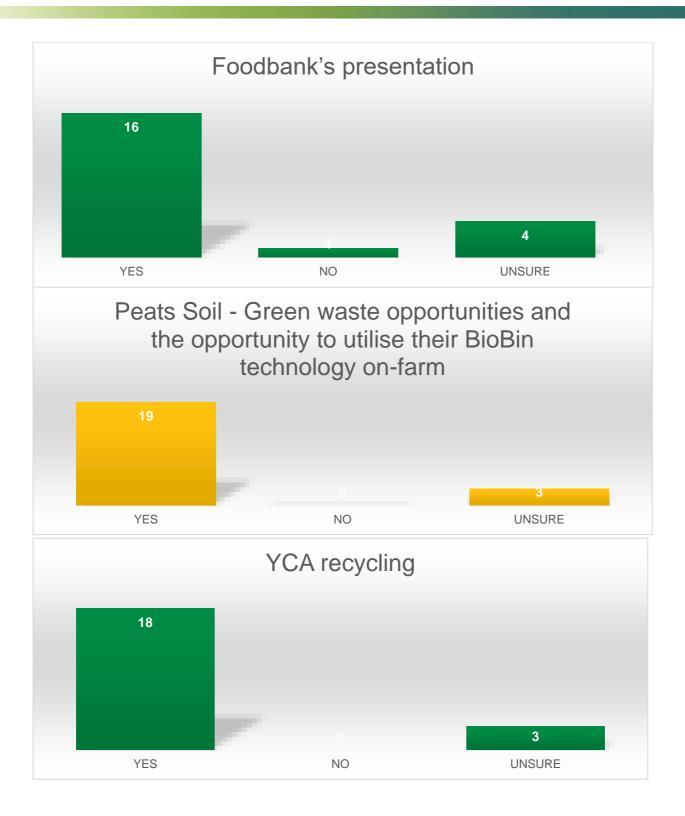
Especially, we find that participants think they benefit more from the topic of *Rawtec- key challenges* facing the industry in waste managemen & key findings from the site visits and common opportunities identification and YCA recycling.

1. Analysis --- Are you able to make more informed decisions about the content discussed following the event?

	YES	NO	UNSURE
Rawtec- key challenges facing the industry in waste managemen & key findings from the site visits and common opportunities identification	15	1	5
Foodbank's presentation	16	1	4
Peats Soil - Green waste opportunities and the opportunity to utilise their BioBin technology on-farm	18	0	3
YCA recycling	19	0	3







According to the raw data, it shows that most of the participants think they are able to make more informed decisions after attending this workshop.

How many people would likely change farm practices or advice following the event?

Note: 6 of them choose Unsure

8 of 15 participants would likely change farm practices or advice following the event.

Please provide details of what you are planning to follow up and/or take actions on. (Comment)

- YCA of plastic washing + recyc
- Hope to hav plastic recycling related
- Advice provide to clients
- Green house plastic waste management
- Zero waste
- Explore funding options to support future activities
- Bio bin, YCA recycling

Overall satisfaction

Overall satisfaction of the workshop is 4.69 which is relatively higher than last time.

	Poor	Less than adequate	Adequate	Good	Excellent	
Topic & content	1	2	3	4	5	
			3	11	9	4.67
	Poor	Less than adequate	Adequate	Good	Excellent	
Delivery	1	2	3	4	5	
			3	10	11	<mark>4.95</mark>
	Poor	Less than adequate	Adequate	Good	Excellent	
Relevance to business	1	2	3	4	5	
		1	3	5	12	4.33
	Poor	Less than adequate	Adequate	Good	Excellent	
Venue location	1	2	3	4	5	
		2	6	4	12	4.67
	Poor	Less than adequate	Adequate	Good	Excellent	
Catering	1	2	3	4	5	
		1	2	6	13	4.62
	Poor	Less than adequate	Adequate	Good	Excellent	
Timing (date and hour or day)	1	2	3	4	5	
		1	3	8	11	4.67
	Poor	Less than adequate	Adequate	Good	Excellent	
Role of Field Officer (AUSVEG SA)	1	2	3	4	5	
<u> </u>			1	5	16	<mark>4.90</mark>

Other Comments & Feedbacks

- Excellent, very informative
- Tell front gate about event
- Very timely information useful info from YCA
- Great workshop
- Thanks for having us, congrats to raw TEC, AUSVEG SA
- All good at this moment
- All is well

Appendix 4.2

A full copy of the Hort SA Conference post-event feedback for this project is included as a separate Appendix 4.2 report to this final report due to difficulties in combining the document into this report template.

Appendix 5. Consolidated lists

A full copy of the Hort SA Conference post-event feedback for this project is included as a separate Appendix 5 report to this final report due to difficulties in combining the document into this report template.

Appendix 6: 5-year VegNET SA Five-year M&E Plan

A full copy of the 5-year VegNET SA Five-year M&E Plan for this project is included as a separate **Appendix 6** to this final report due to difficulties in combining the document into this report template.

Appendix 7: Stakeholder Management Plan

A full copy of the Stakeholder Management Plan for this project is included as a separate **Appendix 7** to this final report due to difficulties in combining the document into this report template.

Appendix 8: 5-year VegNET SA Regional Extension Plan

A full copy of the 5 Year Regional Extension Plan for this project is included as a separate **Appendix 8**to this final report due to difficulties in combining the document into this report template.

Appendix 9: Emerging leaders communication format

Emerging Leaders program proposal

(Revised: 19th March 2021)

Program

This Emerging Leaders program is under the category of priority 4 - Business Capacity Building which belongs to the VegNET SA five-year regional project plans. The current VegNET SA project (VG19015) has been funded by Hort Innovation.

A key focus of this program is to establish an Emerging leaders communication format to support greater engagement and communication between young people in the SA horticulture industry. The program also will continue its role as an important link between growers and the R&D funded by Hort Innovation.

Purpose

Emerging Leaders program can be shaped like a regular communication tunnel, targeting at whom want to improve their interaction with their peers and access leadership development opportunities.

VegNET SA team will use AUSVEG SA's association resources to encourage more growers to attend the forward programme of activities. Meanwhile, to better convey the regional input into the Emerging Leaders program, a Management & Advisory group will be established to give advice and support to the VegNET SA for the delivery of the program activities. In this way, this program can be leading by VegNET SA in the first stage. If this program can gain a certain reputation in the SA industry, the possibility of self-raised and self-

management activities can be cultivated among the group.

Format / Communication approach

Following is a complete list of all proposed communication approaches (the maximum numbers of the activities in the first year will be 4):

Activities	Format	Frequency
Activity #1	Farm tour/ field walk	Once a year
Activity #2	Growers BBQ/ R&D showcase	1-2 times per year

Group structure

To better assist the operation of the Emerging Leaders program and to ensure the continuation of it, an informal Management & Advisory group will be established to give advice and support to the VegNET SA for the delivery of the program activities.

The key purpose of the Management & Advisory group's includes:

- 1. To oversee the development and implementation of execution strategies for each activity of this program to ensure it meets the practical needs of the vegetable industry regionally, including growers, advisors, extension providers and other key stakeholders.
- 2. To be a conduit between growers, research, extension, and the private sector both within and across regions including the promotion of the activities.
- 3. Ensure the Emerging Leaders program stays focussed on its required outcome including review of effectiveness in the execution strategies will be required which can be subject to the conditions.
- 4. Act as a 'sounding board' to the Regional Development Officer (RDO).

To maximise the program benefits among emerging leaders, the Management & Advisory committee is to be comprised of growers and different industry stakeholders from across the South Australia region.

Management & Advisory committee

Jordan Brooke-Barnett (Project Lead, CEO of AUSVEG SA) Yanyu Liang (VegNET SA Regional Development Officer, AUSVEG SA) Renee Pye (Grower representative, Zerella Fresh) Erin Cranwell (Grower representative, AE Cranwell & Sons) Anthony De Ieso (Grower representative, Thorndon Park Produce) Kevin Le (Grower representative, P'Petual Holdings) Daniel Hoffman (Agronomist, Growers Supplies)

Ordinary members (aims to approach member growers first)

Younger growers and staff members of large growing businesses who want to improve their interaction with their peers and access leadership development opportunities. Age limitation will be set as under 45 years old.

Appendix 10: Final Business Health Check Reports

The final Business Health Check Reports as part of the VegNET 2.0 contract variation are included attached as separate documents to this Final Report as flagged in the recent **Milestone 106** report.