

Final Report

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

Project leader:

Carl Larsen

Delivery partner:

RM Consulting Group Pty Ltd.

Project code:

VG19012

Project:

VegNET – Victoria (South-East, West and Northern Regions) (VG19012)

Disclaimer:

Horticulture Innovation Australia Limited (Hort Innovation) makes no representations and expressly disclaims all warranties (to the extent permitted by law) about the accuracy, completeness, or currency of information in this Final Report.

Users of this Final Report should take independent action to confirm any information in this Final Report before relying on that information in any way.

Reliance on any information provided by Hort Innovation is entirely at your own risk. Hort Innovation is not responsible for, and will not be liable for, any loss, damage, claim, expense, cost (including legal costs) or other liability arising in any way (including from Hort Innovation or any other person's negligence or otherwise) from your use or non-use of the Final Report or from reliance on information contained in the Final Report or that Hort Innovation provides to you by any other means.

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 978-0-7341-4752-3

Published and distributed by: Hort Innovation

Level 7 141 Walker Street North Sydney NSW 2060

Telephone: (02) 8295 2300

www.horticulture.com.au

© Copyright 2021 Horticulture Innovation Australia

Content

VegNET – Victoria (South-East, West and Northern Region	1
Content	3
Summary	4
Keywords	6
Introduction	7
Methodology	9
Outputs	13
Outcomes	23
Monitoring and evaluation	27
Recommendations	29
Refereed scientific publications	30
Intellectual property, commercialisation, and confidentiality	31
Acknowledgements	32
Appendices	33

Summary

The National Vegetable Extension Network (VegNET) project aims to build regional capacity of the vegetable industry by providing research and development (R&D) extension services, products, and communication to vegetable growers.

VegNET Victoria (South-East, West and Northern regions) is one of 10 regions within the national VegNET project and has been delivered by RM Consulting Group (RMCG) since 2016.

The key objectives of the VegNET project are to:

- Improve capability of levy payers to adopt best management practices and new innovations, arising from the improved extension of research outputs to address a geographically and culturally diverse vegetable industry
- Improve levy payer awareness and attribution of the vegetable levy investments.

This iteration of the VegNET Victoria project builds upon the services provided through the previous VegNET Victoria Phase 1 VG15048 (2016-19) and Phase 1 Extension VG18003 (2019-March 2020) investments. These projects provided extension services to Victoria's south-eastern, western, and northern vegetable industry in areas related to farm productivity, resource use, business management, markets and consumers, and technology.

Phase 2 (this phase) operated from April 2020 to September 2021 and had an increased focus on grower and industry stakeholder engagement, as well as improved linkages between growers and researchers as part of its co-innovation model.

Key project achievements

- Regional Extension Strategy: Developed a 5-year Regional Extension Strategy for the south-eastern, western, and northern regions of Victoria, focusing on priority industry needs of water, profitability, pest and disease management, soil nutrition management, and precision agriculture
- Sub-project briefs: Developed 3 Sub-Project Briefs focusing on soil moisture monitoring (water); resource
 use optimisation (profitability) and native vegetation insectaries (pest and disease management) that
 operationalised the Regional Extension Strategy
- Project planning, monitoring and engagement: Developed an Annual Regional Extension Work Plan, 5year Monitoring and Evaluation (M&E) Plan and Stakeholder Engagement Plan to guide implementation and track impact
- Knowledge transfer and events: Delivered 3 technical webinars and planning underway for 2 grower workshops/networking events (delayed due to COVID-19), 380 one-one-one farm visits and meetings undertaken (42% with growers) covering 70% of the total vegetable area across the three regions
- Extension and communication material: Developed 4 case studies, 3 fact sheets/posters, 2 videos and 1 podcast, distributed 11 editions of the project e-newsletter complemented by strong industry media coverage, project website and Twitter account
- Industry coordination and engagement: Linked to 18 other levy and non-levy funded research projects, regular participation in the Hort Innovation national coordination meetings to improve collaboration between the 10 VegNET regional delivery partners, and regular engagement with industry bodies including AUSVEG VIC, AUSVEG and government departments including Agriculture Victoria. The project also sponsored the AUSVEG VIC R&D Adoption and Industry Impact Award after developing the inaugural award in 2017
- **Flexible delivery:** Adapted and delivered during ongoing COVID-19 lockdowns and restrictions in Greater Melbourne and regional Victoria, with around 50% of the 18-month project delivered during this time.

Industry outcomes and impact

The main project outcomes were:

- Increased reach and knowledge of vegetable levy R&D outputs
- Increased awareness and engagement of stakeholders with regionally relevant R&D

Effective and efficient partnerships and linkages established across industry.

Progress toward project outcomes: Strong delivery and engagement (380 grower and industry stakeholder engagements), improvement in knowledge and skills relating to improved decision-making (84% of webinar attendees) and practice change (53% of webinar attendees), while increasing collaboration with industry to deliver on the priority issues and needs of Victorian vegetable growers.



Keywords

Vegetable, extension, co-innovation, regional, network, industry development, awareness, knowledge, adoption, practice change, research, and development (R&D), Victoria.

Introduction

Historical background

VegNET Phase 1 was delivered from April 2016 to March 2020 and encompassed 10 regionally delivered extension projects in key vegetable growing areas across Australia, including Victoria (VG15048 and VG18003 extension).

RMCG has delivered the VegNET project throughout the south-eastern, western, and northern regions of Victoria since May 2016 (this project is referred to as VegNET Victoria and excludes East Gippsland, which is delivered by Food and Fibre Gippsland). Phase 1 of the project aimed to build the capacity of Victoria's vegetable industry to adopt best management practices and improve grower awareness of vegetable levy investments. This was achieved through extension activities related to farm productivity, resource use, business management, markets and consumers, and technology.

Building on the national network developed during Phase 1, an extension strategy for the Australian vegetable industry (VG18003) was completed in late 2019. This informed the development of VegNET Phase 2 (this project) which was delivered from April 2020 to September 2021. Importantly, Phase 2 had an increased focus on one-to-one grower and industry stakeholder engagement as well as improved linkages between growers and researchers as part of its co-innovation model.

VegNET Phase 3 will build on the planning and regional strategy activities developed during Phase 2 and will continue for another five years from October 2021 to September 2026.

Project rationale

VegNET Victoria Phase 2 provided research and development (R&D) extension services, products, and communication to the Victorian vegetable industry. These services addressed key priority issues in the region identified through a detailed needs analysis related to:

- Water
- Profitability
- Pest and disease management
- Soil nutrition management
- Precision agriculture.

The objectives of the project were to effectively extend R&D information to Victorian vegetable growers through the continued delivery of regional VegNET services until the end of September 2021. These services included:

- Delivering targeted, one-on-one regional capacity building services to the vegetable industry in Victoria (excluding East Gippsland)
- Increasing awareness of vegetable R&D and facilitate the adoption of R&D by vegetable businesses in Victoria
- Increasing the reach of the vegetable R&D program by engaging stakeholders in the vegetable value chain and developing trusted networks at a regional, state, and national level
- Providing linkages to national vegetable industry communications, knowledge management and industry development services.

The project aimed to assist with building the profile and connection with productivity and R&D with growers and other industry stakeholders.

Significance to industry

The intended intermediate outcomes of this Phase 2 project are to:

- Increase reach and knowledge of vegetable levy R&D outputs
- Increase awareness and engagement of stakeholders with regionally relevant R&D
- Establish effective and efficient partnerships and linkages across industry.

At the end of Phase 3 by 2026, this is expected to lead to:

- Improved capability of levy payers to adopt best management practices and new innovations arising from the improved extension of research outputs to address a geographically and culturally diverse vegetable industry
- Improved levy payer awareness and attribution of the vegetable levy investments.

The VegNET Victoria project will continue to contribute towards strategies and plans relevant to the Australian vegetable industry. This includes:

- Outcome 5 of the Vegetable Strategic Investment Plan 2017-2021: 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.
- Outcome 3 of the draft Vegetable Strategic Investment Plan 2022-2026: Extension and capability Building
 capability and an innovative culture will support the use of relevant investment outputs across the supply and
 demand initiatives to better manage risk and create positive change.

Methodology

Project planning and support

In the early stages of Phase 2, the project team participated in VegNET Regional Development Officer (RDO) training teleconferences with Hort Innovation and an independent Monitoring and Evaluation (M&E) specialist consultant to improve the strategic planning process.

A Regional Extension Advisory Group (REAG) was also established to support project delivery.

Regional Extension Strategy

A 5-year Regional Extension Strategy was developed using a standardised approach across all VegNET regions (provided in Appendix 1).

The Regional Extension Strategy provided an overview of the regional landscape in Victoria's vegetable industry and the priority regional issues identified through extensive consultation with the industry. These included:

- Water
- Profitability
- Pest and disease management
- Soil nutrition management
- Precision agriculture.

A gap analysis was undertaken for each of the five focus areas and action areas were identified including improving connectivity and brokering partnerships; increasing confidence and decision-making ability; and raising awareness and improving knowledge.

Project support services (referred to as Ranked Potential Actions) were developed which related to different segments of the vegetable industry and influenced where the VegNET Victoria project targeted its efforts to increase the awareness, knowledge, and uptake of R&D.

Figure 1 outlines how the Ranked Potential Actions link to the Regional Extension Strategy's priority regional issues and subsequent 5-year sub-projects.

Figure 1: Ranked Potential Actions matrix

	Regional Extension Strategy Ranked Potential Actions (project support services)				
Priority regional issue (technical focus topics)	Raise awareness and improve knowledge Target = stable and advancing growers	Improve connectivity and broker partnerships Target = growers, advisors, researchers and R&D investments	Increase confidence and decision-making ability Target = advancing and progressive growers, advisors		
Water (8.6/10)		Soil Moisture Monitoring and Retention sub-project			
Profitability (8.4/10)		Profitability – Resource Use Optimisation sub-project			
Pest and disease (8.4/10)	Native Vegetation Insectaries sub-project				
Soil Nutrition Management (8/10)			Soil Moisture Monitoring		
Precision Agriculture (6.8/10)			and Retention sub- project		

Sub-project focus

Sub-projects were developed from the five priority areas outlined in the Regional Extension Strategy to determine and operationalise how the project could best meet the needs of growers. The sub-projects involve raising awareness of:

- Improved soil moisture monitoring and retention (Water)
- Improved resource use optimisation (Profitability)
- Benefits of native vegetation insectaries (Pest and disease management).

Individual 5-year project briefs were developed to outline each issue and opportunity; practice gaps; objectives and indicators of success; benefits of change; risks; and a project strategy (provided in Appendix 2). These were approved by the REAG and included their feedback on operational aspects, such as allowing for responses to ad hoc industry needs outside the sub-project briefs.

Annual Regional Extension Work Plan

A 12-month Regional Extension Work Plan was developed to guide the delivery of the VegNET Victoria project from 1 April 2020 to 30 September 2021.

The work plan outlined activities around industry coordination and engagement (including regular VegNET teleconferences and REAG meetings), knowledge transfer and events (including site visits and events/webinars), extension material (including fact sheets, case studies, videos and podcasts), communications support (including regular industry e-newsletters, social media and industry articles), project management and reporting. It also outlined the specific activities related to each of the sub-project briefs.

Each activity included an approach for target audience engagement, existing information and resources that could be provided to growers and key performance indicators.

Evidence of progress and completion of these plans were included in milestone reporting to Hort Innovation.

More information is available in the 'Outputs' section of this report. Progress against the work plan is provided in Appendix 3.

Monitoring and evaluation

A M&E Plan was developed to guide how the project tracked and assessed progress against the stated objectives. This included contributions to Outcome 5 of the Vegetable Industry Strategic Investment Plan, and the end-of-project outcomes:

- Improved capability of levy payers to adopt best management practices and new innovations arising from the improved extension of research outputs to address a geographically and culturally diverse vegetable industry
- Improved levy payer awareness and attribution of the vegetable levy investments.

It included a program logic (see) and information on project M&E scope, performance expectations, data collection and analysis, and reporting and continuous improvement.

More information is provided in the 'Monitoring and evaluation' section of this report, as well as progress against the M&E Plan in Appendix 4.

mproved capability of levy payers to adopt bes End-of-project management practices and new innovations arising from Improved levy payer awareness and attribution of the the improved extension of research outputs to address a outcomes vegetable levy investments geographically and culturally diverse vegetable industry Effective and efficient partnerships Increased awareness and Intermediate Increased reach and knowledge of engagement of stakeholders with and linkages established across outcomes vegetable levy R&D outputs regionally relevant R&D industry Industry coordination and Extension and communication Outputs Knowledge transfer and events engagement, project management material and reporting Workshops, webinars, targeted National VegNET teleconferences, Fact sheets, case studies, videos, one-on-one farm visits, link with e-news updates, industry articles project team meetings, REAG Activities other industry events, regional AUSVEG VIC website, social media meetings, Hort Connection APEN extension strategy stakeholder event, regional R&D forum industry engagement Conference, work plan reporting Packaged R&D outputs and innovation for growers, 5-year Regional Extension Strategy and associated advisors and other vegetable industry stakeholders discussion paper for consultation Foundational outputs Monitoring and Evaluation Stakeholder Engagement Sub-project briefs Annual Work Plan Plan Plan Needs analysis and Program management Establishment and review of levy-funded and governance: Foundational coordination of the R&D activities and contact database. Project administration activities Regional Extension material relevant to the engagement log, Advisory Group region partner collaboration

Figure 2: Program logic for VegNET Victoria Phase 2

Stakeholder engagement and communication

A Stakeholder Engagement Plan was developed to guide engagement and communication with stakeholders (primarily growers) during implementation of the Regional Extension Strategy and the associated subprojects. It is closely aligned with the annual work plan and M&E plan. It also included an extensive stakeholder engagement directory.

The Stakeholder Engagement Plan identified the core stakeholders for the project, including:

- Vegetable businesses including progressive, advancing, and stable growers
- Advisors and agribusiness service providers including commercial resellers and agronomists, private agrichemical 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, Department of Environment, Land, Water and 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.

These stakeholder groups were considered and analysed to determine the most appropriate engagement methods in terms of type, delivery, timing, and location.

A communications plan was developed to underpin the stakeholder engagement plan and included:

- Target audiences and outcomes. The main stakeholder groups outlined in the engagement plan included
 a desired outcome from communicating with each group and 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
- Delivery approach. A collaborative team approach was used where the RDO worked with the internal project team and growers, advisors, and industry partners to deliver targeted services that addressed regional priorities and supported the adoption of regionally relevant R&D.

The full plan is provided in Appendix 5.

Regional Extension Advisory Group

The purpose of the REAG was to:

- Oversee the development and implementation of a Regional Extension Strategy to ensure it met the needs of the vegetable industry regionally, including, growers, advisors, extension providers and other key stakeholders
- Provide regional input into the industry level extension plan
- Be a conduit between growers, research, extension, and the private sector both within and across regions
- Ensure the regional VegNET Phase 2 project stays focused on required outcomes including review of progress and effectiveness in Regional Extension Plan implementation every 6 months
- Act as a 'sounding board' to the RDO.

The key was to ensure the REAG had appropriate regional representation and stakeholder engagement. At a minimum the REAG had to comprise:

- 3 growers who must represent a cross section of the regional grower base and must not be solely drawn from the delivery partner's own committee/Board.
- 2 technical advisors researchers, agronomists
- VegNET RDO
- Hort Innovation project manager.

See: https://www.iap2.org.au/Tenant/C0000004/0000001/files/IAP2 Public Participation Spectrum.pdf

Outputs

A list of outputs delivered from 1 April 2020 to 30 September 2021 is provided below. Refer to Appendix 3 for the updated Annual Regional Extension Work Plan, including sub-project activities.

Managing Victorian COVID-19 lockdowns and restrictions

Throughout Phase 2, the project team adapted to ongoing COVID-19 lockdowns and restrictions in Greater Melbourne and regional Victoria, with around 50% of the 18-month project delivered during strict lockdowns, particularly in the western and south-eastern regions.

This meant that delivering traditional extension activities such as face-to-face events or networking opportunities for growers and researchers was hampered in addition to the already COVID-19 constrained operating environment.

However, REAG and individual grower engagement proceeded to the best of the project team's ability using remote engagement techniques and conducting site visits when restrictions were intermittently lifted.

Knowledge transfer and events

Delivery of three industry webinars

- 9 December 2020: Managing irrigation requirements over the Victorian summer using soil moisture technology to inform decisions (linked to soil moisture monitoring and retention sub-project)
 - 30 registered and 16 attended: 2 growers including 1 grower from New Zealand (Fragapane Farms and LeaderBrandNZ), 1 advisor, 5 suppliers, 5 industry members, 2 researchers and 1 government agency
- 17 February 2021: Compost calculator knowing the value of organic amendments in your Victorian vegetable nutrition program (linked to resource use optimisation sub-project)
 - 40 registered and 20 attended: 2 growers (Coolibah Herbs and Jurgens Produce), 3 agronomists, 7 suppliers, 6 industry members, 1 researcher and 1 government agency
- 2 September 2021: Field and landscape management for beneficial arthropods (linked to native vegetation insectaries sub-project, Figure 3)
 - 42 registered and 25 attended: 3 growers (Bulmer Farms, Harvest Moon and Boratto Farms), 11
 extension officers, 3 from other horticulture industries (such as apple and pear, turf), 3 researchers,
 3 suppliers, 1 agronomist and 1 student.

Figure 3:Example webinar flyer



Planning for two industry workshops

- VegNET Victoria partnered with AUSVEG's peri-urban biosecurity surveillance program to deliver an industry workshop with speakers from Agriculture Victoria and Nielsen. The event was originally planned to be held in person at the Melbourne Market in September but will be conducted online in October due to Victorian COVID-19 lockdown restrictions. VegNET Victoria organised a speaker from Nielsen to present on the latest consumer purchasing trends for fresh produce in Victoria, with a focus on impacts during COVID (linked to resource use optimisation sub-project)
- Discussions are also continuing with AUSVEG VIC to co-deliver a northern grower workshop to increase engagement in this region, which was also postponed due to Victorian COVID-19 lockdown restrictions. This event could also be an opportunity to incorporate discussions around mental health, which was raised as a concern for growers in this region due to the lack of face-to-face industry events in the past year and challenging growing conditions, labour shortages and COVID-19 impacts.

Site visits and discussions

One-on-one farm visits and meetings were undertaken with 380 growers and industry stakeholders. Approximately 42% were growers, which represents approximately 70% of total hectares grown in the northern, south- eastern and western regions of Victoria². Further detail is provided in Appendix 6.

The project team also attended the AUSVEG VIC Awards for Excellence in May 2021. While unable to attend Hort Connections in June 2021 as originally planned, the project team joined the speaker sessions remotely and produced a special edition of the Regional Update e-newsletter with conference information tailored to Victorian growers.

Site visits were conducted in all three regions in November-December 2020 and March-May 2021. Resources and information were provided to growers to address a range of regional R&D issues which are summarised below and linked to the three sub-projects.

- Northern region
 - Cover cropping
 - Strip tillage
 - Resource use optimisation and environmental stewardship through the EnviroVeg program
 - Soil moisture monitoring and retention

Australian Bureau of Agricultural and Resource Economics and Sciences (2019) Australian vegetable-growing farms: An economic survey, 2017-18 and 2018-19, Australian Government, Canberra

- o Disease management (particularly Rhizoctonia and Pythium)
- o Pest management (diamondback moth and pumpkin beetle, integrated pest management)
- o Improving organic matter in soils
- Biosecurity (silverleaf whitefly area freedom status, tomato yellow leaf curl virus, serpentine and American leafminer and fall armyworm)
- o Precision agriculture
- Managing plastic waste
- Site visits also facilitated the collection of plant samples to support Agriculture Victoria's project on area wide management of insect-vectored viral and bacterial diseases in vegetables. The results from these plant samples will help to inform what diseases are present in key growing regions across Victoria in the event of any future incursion or biosecurity response (Figure 4).

Figure 4: Engaging with northern growers during site visits in Swan Hill and Wemen in March 2021





South-eastern region

- Weed management (particularly nutgrass)
- Cover cropping
- Resource use optimisation and environmental stewardship through the EnviroVeg program (Figure
 5)
- Changes to chicken manure requirements and using compost safely
- Pest and disease management (onion maggot, Fusarium basal rot)
- Biosecurity preparedness (serpentine and American leafminer and fall armyworm)
- Cost of production and economic viability of farming systems.

Figure 5: South-eastern site visits with the EnviroVeg program in May 2021





Western region

- Native vegetation insectaries including progress updates on plantings in Werribee South (Figure 6)
- Soil health and quality (particularly in relation to sodicity and salinity)
- o Disease management (clubroot, white blister and anthracnose)
- Biological crop protection and integrated pest management
- Value-adding and minimising product waste.

Figure 6: Native vegetation insectaries plantings at AAA Farms in Werribee South in April 2021





Sub-project progress

- Soil moisture monitoring and retention 75% complete: Trial site visits and researcher engagement was conducted for the Unlocking the True Value of Organic Soil Amendments Smart Farming Partnerships Project delivered by LaTrobe University and Queensland University of Technology, which directly relates to the soil moisture monitoring sub-project. There is also an opportunity to collaborate with VegNET Gippsland to share the results of a soil moisture monitoring trial site that has been developed by the project with additional funding from the Australian Government and disseminating this information to the wider Victorian industry through case studies
- Resource use optimisation 60% complete: As the project team was unable conduct many face-to-face meetings with growers due to Victorian COVID-19 restrictions, this hindered progress with the EnviroVeg

- self-assessments as it was challenging to engage growers on the benefits of the program in a remote setting. This is an area which can be further progressed in Phase 3
- Native vegetation insectaries 100% complete: Following a delay with the Werribee South plantings in April 2021, all outputs for this sub-project were completed. However, it will be essential to continue monitoring this site and sharing updates with growers following the spring/summer 2021-22 season and after the native plants have had a full year to establish.

Refer to the Annual Regional Extension Work Plan in Appendix 3 for more information on sub-project activities.

Extension material

4 case studies (see: https://www.ausvegvic.com.au/resources/case-studies/)

- Beneficial bugs boosted through native vegetation insectaries trials in Werribee (linked to native vegetation insectaries sub-project)
- Celebrating R&D adoption in Victoria's vegetable industry
- EGVID 2020: A virtual success for R&D
- Translating precision agriculture data at Fresh Select (linked to resource use optimisation subproject).

3 fact sheets and posters (see: https://www.ausvegvic.com.au/communication/veg mof/)

- Tech time: A guide to getting soil moisture monitoring right poster (linked to soil moisture monitoring sub-project)
- VG16062 updates to existing fact sheet on native vegetation insectaries permanent habitat for beneficial insects (linked to native vegetation insectaries sub-project)
- Who's who in the zoo fact sheet.

Figure 7: Case studies and posters produced by VegNET Victoria.





2 videos

- Channel 10 My Market Kitchen national TV episode appearance and promotion of VegNET Victoria project in conjunction with Hort Innovation R&D Manager Jemma O'Hanlon (see: https://youtu.be/BaCTlrwal0E)
- Category-specific consumer insights and market data in collaboration with Nielsen's Harvest to Home project for broccoli (western region), leek (south-eastern region) and carrots (northern region) (see: https://www.ausvegvic.com.au/communication/video-2/

1 podcast

 A shortened 30-minute podcast of the field and landscape management of beneficial insects webinar (see: https://soundcloud.com/user-1137739/vegnet-victoria-podcast-field-and-landscape-management-for-beneficial-insects) (linked to native vegetation insectaries sub-project)

See Appendix 7 for the collated written extension material above.

Communication material

Vegetables Australia columns published quarterly (see: https://ausveg.com.au/news-media/publications/)

- Spring 2020: Native Vegetation Insectaries: Benefiting vegetable growers and communities
- Summer 2020: Continuing to address grower needs: Focus on awareness, connectivity, and confidence
- Autumn 2021: Vic veg growers put cover crops and IPM to the test
- Winter 2021: Bring on the good bugs: Native vegetation insectaries trial underway and grower Q&A with Jake Shadbolt
- Spring 2021: Delivering during tough times: A look back on VegNET Victoria Phase 2 highlights.

Regional Update e-newsletters

- 11 editions were circulated to 544 subscribers with an average 39.9% open rate (above industry average of 33%) and average 5.9% click rate. Editions included:
 - o 26 May 2020
 - o 6 August 2020
 - 17 September 2020
 - 22 October 2020
 - o 3 December 2020
 - o 25 February 2021
 - o 15 April 2021
 - 15 June 2021 (Hort Connections special edition for Victorian growers and stakeholders)
 - o 15 July 2021
 - o 12 August 2021
 - o 23 September 2021

SMS updates

25 August 2021: Text message update sent to 371 growers to remind them to be prepared for the potential arrival of serpentine leafminer and link to further information.

AUSVEG VIC e-newsletter submissions

- October 2020: Wild pollinators and beneficial insect's webinar
- November 2020: Managing irrigation requirements over the Victorian summer
- December 2020: Vegetables Australia Summer 2020/21 edition RDO update on regional engagement and soil moisture monitoring
- February 2021: Webinar recording: Compost calculator measures value of organic amendments
- March 2021: Nominate a worthy winner of the R&D Adoption and Industry Impact Award
- May 2021: Promotion of the VegNET Victoria R&D Adoption & Industry Impact Award; Bring on the good bugs: Native vegetation insectaries trial underway; EnviroVeg: Victorian growers supported to take the next step.

- July 2021: Recap of the AUSVEG VIC Awards for Excellence and R&D Adoption and Industry Impact Award
- August 2021: New resources and events in the pipeline from VegNET Victoria; Jake Shadbolt Q&A
- September 2021: Field and landscape management for beneficial arthropods webinar recording.

Note: New resources developed in August/September 2021 will be published following the reporting period.

AUSVEG Weekly Update articles

- 2 June 2020: Creating a permanent habitat for beneficials through insectaries
- 7 July and 14 July 2020: Veg focus on Channel Ten's My Market Kitchen
- 28 July 2020: Integrated Pest Management of vegetable pests: A more sustainable approach
- 11 August 2020: Lessons from the field: Translating precision agriculture data at Fresh Select
- 25 August 2020: Spray technology for vegetable growers: A guide to getting it right
- 8 September 2020: Get ready for summer irrigation
- 15 September 2020: Native vegetation insectaries: Benefiting vegetable growers and communities
- 8 December 2020: Managing irrigation requirements over the Victorian summer using soil moisture tech
- 8 December 2020: A short video guide on Harvest to Home data for broccoli (developed specifically for Western Victorian growing region with Nielsen)
- 22 December 2020: Managing irrigation requirements over the Victorian summer using soil moisture tech
- 9 February 2021: Webinar: Compost calculator to highlight value of organic amendments
- 9 March 2021: Webinar recording: Compost calculator measures value of organic amendments
- 6 April 2021: EnviroVeg: Victorian growers supported to take the first step
- 23 March, 30 March and 6 April 2021: AUSVEG VIC Awards for Excellence 2021 (including VegNET Victoria sponsorship of the R&D Adoption and Industry Impact Award)
- 11 May 2021: AUSVEG VIC Awards for Excellence 2021 recap
- 29 June 2021: Lessons from the field: Translating precision agriculture data at Fresh Select
- 10 August 2021: VegNET Victoria Q&A with Jake Shadbolt
- 24 August 2021: Field and landscape management for beneficial arthropods event
- 7 July 2021: Field and landscape management for beneficial arthropods webinar recording.

Note: New resources developed in August/September 2021 will be published following the reporting period.

Other media

- 11 September 2020: Planning for Summer: Irrigation and water management (vegetablesWA e-news)
- 4 December 2020: Harvest to Home update broccoli (vegetablesWA e-news)
- 12 March 2021: Compost calculator measures value of organic amendments (vegetablesWA e-news)
- 7 April 2021: AUSVEG VIC and EE Muir & Sons Awards for Excellence Dinner locked in for May 7 (Good Fruit & Vegetables)
- 27 August 2021: Field and landscape management for beneficial insect's webinar recording (vegetablesWA e-news)
- 1 September 2021: On-farm insectarium trials webinar (Food and Fibre Gippsland VegNET e-newsletter)
- September 2021: Werribee South case studies on precision agriculture and native vegetation insectaries (Star Weekly newspaper – print and online).

Project website: https://www.ausvegvic.com.au

• Significant contribution to the content of www.ausvegvic.com.au, which was fully redeveloped by our VegNET project during Phase 1. An overview of the analytics over the past 18 months include:

Users: 18,357Sessions: 21,662

o Session duration: 01:11 minutes

Bounce rate³: 71.66%
Most popular pages:

/about-us/: 9,654 (24.67%) pageviews

• /communication/: 5,865 (14.99%) pageviews, particularly statistics/map regional_victoria/

/research-and-development/: 3,506 (8.96%) pageviews

/my-region/: 1,169 (2.99%) pageviews

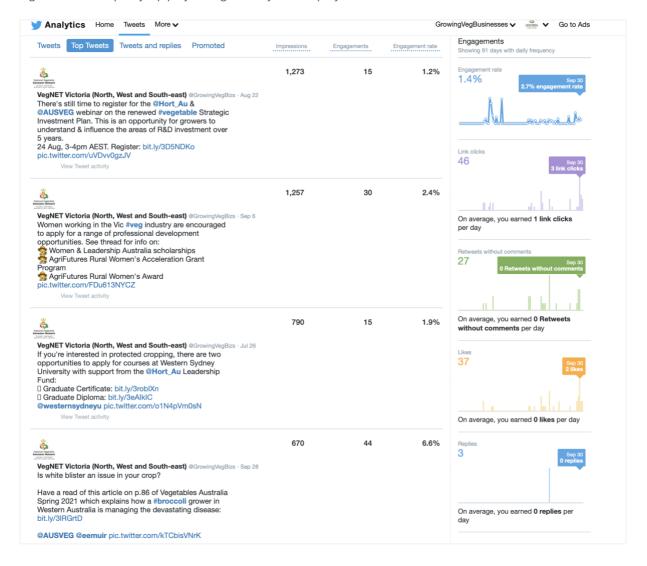
Twitter account: @GrowingVegBizs (see: https://twitter.com/growingvegbizs?lang=en)

653 followers (up from 566 followers in April 2020)

Tweets earned 8.9K impressions⁴ from July-September 2021 (Figure 8)

Average 1,700 impressions per month.

Figure 8: An example of top performing Tweets from the project's Twitter account



Note: Represents the percentage of website visitors who enter the site and then leave rather than continuing to view other pages within the same site.

⁴ Impressions are the number of times content was displayed, regardless of if it was clicked or not.

Industry coordination and engagement

Research projects

The project is the central point of contact and referral for the vegetable industry in the relevant Victorian regions.

Strong industry coordination and engagement is evidenced by the linkages to other levy and non-levy funded research projects including:

- The EnviroVeg Program 2017-2022 (VG16063)
- Field and landscape management to support beneficial arthropods for IPM on vegetable farms (VG16062)
- A strategic approach to weed management for the Australian vegetable industry (VG15070)
- Soil Wealth and Integrated Crop Protection (VG16078)
- Peri-urban surveillance and diagnostics project (AUSVEG)
- Area wide management of viral and bacterial vegetable diseases (VG16086, Agriculture Victoria and Queensland Department of Agriculture and Forestry)
- Nielsen's Harvest to Home project (MT17017)
- Potato Link (PT20000)
- National biosecurity project (AUSVEG)
- iMapPESTS: Sentinel Surveillance for Agriculture (Rural R&D for Profit Program)
- Vegetable Strategic Investment Plan renewal
- Hort Innovation Horticulture Sustainability Framework
- Hort Innovation Leadership Fund (Women and Leadership Australia scholarships, Western Sydney University Protected Cropping courses)
- Agricultural Plastics Stewardship Scheme (Australian Government's National Product Stewardship Investment Fund)
- Agricultural and Environmental Work Crews (Port Phillip and Western Port Catchment Management Authority)
- Exploration of further collaboration and funding opportunities through the Department of Agriculture, Water and Environment's (DAWE) Future Drought Fund NRM Drought Resilience Program for the Werribee region in conjunction with Port Phillip & Westernport CMA, AUSVEG, AUSVEG VIC and Precision Agriculture. There is further interest and alignment of R&D priorities between these organisations in exploring the application of cover cropping and irrigation technology to improve resilience of production systems to a drying climate in the future
- Exploration of support and extension of R&D information to emerging vegetable growers in northern
 Victoria (Shepparton and Tatura) with Agriculture Victoria
- Growers were also connected to three PhD students in Victoria conducting research on the role of vegetable production in future food systems; Septoria fungal isolate samples; and the impacts of digital agriculture.

REAG meetings

Quarterly meetings were also undertaken with an engaged and informed REAG to seek feedback and guidance on project delivery over the 18-month period:

- 27 August 2020
- 23 September 2020
- 25 March 2021
- 26 August 2021.

The minutes and key outcomes from each REAG meeting are provided in Appendix 8.

Industry engagement

- Regular meetings and collaboration with peak industry bodies including AUSVEG and AUSVEG VIC
- Regular attendance at monthly VegNET RDO meetings with Hort Innovation
- Regional discussions and sharing of lessons learnt with other RDOs (particularly Gippsland, Tasmania, South Australia, and New South Wales).

R&D Adoption and Industry Impact Award

The development of the R&D Adoption and Industry Impact Award at the AUSVEG VIC Awards for Excellence is a key achievement for VegNET in Victoria and demonstrates the value that the project has delivered to the industry.

This award was developed by VegNET Victoria and VegNET Gippsland in 2017 to highlight how Victorian growers are benefiting from R&D outcomes on-farm — whether it's pre-harvest, post-harvest or sharing key findings with the wider industry.

The projects continue to collaborate closely with AUSVEG VIC in the development and sponsorship of the award to recognise and promote:

- A vegetable grower who has demonstrated a commitment to industry funded 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.

In 2021, the winner of the R&D Adoption and Industry Impact Award (2020 East Gippsland Vegetable Innovation Days) was automatically nominated for the Industry Impact award at the Hort Connections National Awards for Excellence, which they also won.

Outcomes

Context

The development of foundational outputs such as the Regional Extension Strategy, Sub-Project Briefs, Annual Regional Extension Work Plan, M&E Plan and Stakeholder Engagement Plan required substantial time investment at the beginning of Phase 2. This was in addition to ongoing COVID-19 lockdowns and restrictions in Victoria and delayed some of the momentum achieved during the latter parts of Phase 1 in 2019-2020.

The project successfully transitioned the RDO role from Hugh Wardle to Dimi Kyriakou in January 2021 and focused on servicing industry to effectively implement the Regional Extension Strategy and meet the needs of levy payers.

Significant progress has been made against the intermediate outcomes, as outlined below.

Improved reach and knowledge of vegetable levy R&D outputs

The VegNET Victoria knowledge transfer, events and engagement have improved the reach and knowledge of vegetable R&D outputs as evidenced below.

One-on-one site visits

- Site visits in the northern, western, and south-eastern regions continued to address the key grower issues
 of water, profitability, pest and disease, soil nutrition management and precision agriculture
- Discussions on-site have led to important follow-up and distribution of R&D resources to growers, particularly in connecting growers with researchers and levy funded projects such as EnviroVeg, and building grower knowledge of integrated pest management, cover cropping and strip tillage, soil moisture monitoring technologies, biological products, and biosecurity preparedness.

Events (webinars)

- The following outcomes have been achieved from the three webinars on using soil moisture monitoring to inform irrigation scheduling; understanding the role of organic amendments in vegetable nutrition programs; and field and landscape management for beneficial arthropods
- This shows participants improved their knowledge and confidence (3.2/5 weighted average across the webinars); had greater ability to make more informed decisions (84%); are likely to change farm practice or advice to clients (53%); highly rated the topic, content, and delivery (4.2/5); and relevance of the topic to their business (4.0/5).

Table 1-1:Outcome of events

Outcome from events (three webinars)	Average	Yes	No	Unsure
Improved knowledge and confidence of topic covered (/5)	3.2	-	-	-
Ability to make more informed decisions on topic covered	-	84%	0%	16%
Likely to change farm practice or advice to clients following engagement	-	53%	16%	31%
Rating of topic, content and delivery of event (/5)	4.2	-	-	-
Relevance of topic to business (/5)	4.0	-	-	-

Examples of what participants were planning to follow up and/or take actions on include:

- "Will try and find the 7-day ETo [evapotranspiration] forecast."
- "Greater use of manure and green waste in order to minimise fertiliser."
- "Create the document 'Farm Biodiversity Plan' for our farm. Continue with our current use of flower strips. Investigate placement options and costs for a permanent native insectary. Investigate funding to help with

the costs."

"More confidently encourage the use of native insectariums to growers."

Increased awareness and engagement of stakeholders with regionally relevant R&D

Consistent and high-quality communication material focused on industry needs has increased awareness and engagement of stakeholders with regionally relevant R&D as evidenced below.

Regional Update e-newsletter

- The e-newsletter was distributed approximately every six weeks to provide follow-up from engagement and access to R&D outputs. This was particularly important given lockdowns in Victoria throughout Phase
 2
- The e-newsletter is currently sent to 544 Victorian growers, advisors, and industry members. While this is down from 616 since the start of Phase 2, only 16 have unsubscribed and the remaining recipients have left their organisations
- It has an average open rate of 179 and an average click rate of 33 (peaking at 215 opens and 55 clicks during the project)
- In recent editions, VegNET Victoria resources including the R&D Adoption and Industry Impact Award case study, soil moisture monitoring poster and outputs on native vegetation insectaries were the most popular links clicked, as well as levy R&D resources on white blister, weed management including nutgrass, compost and nutrient management, cover crops, calculating the cost of production and potato R&D. Links to non-levy R&D such as plastic waste and changes to silverleaf whitefly area freedom status were also popular.

Twitter

- The project has 653 followers (up from 566 followers since the beginning of Phase 2 in April 2020).
- There was high engagement on posts relating to events and webinars, particularly the native vegetation insectaries and 'compost calculator' webinars and AUSVEG peri-urban surveillance workshop in Werribee.
- Popular tweets on levy R&D information included the R&D Adoption and Industry Impact Award case study, EnviroVeg self-assessment site visits, field and landscape management for beneficial insect resources, updates to the Vegetable Strategic Investment Plan and Hort Innovation scholarships for protected cropping and women in horticulture leadership courses.

SMS updates

• Feedback on the SMS update on preparing for serpentine leafminer indicated that growers were proactively contacting their advisors to ensure they were prepared for a potential incursion.

Examples of feedback on communication activities include:

- "I just wanted to say that the Regional Update editions have been excellent at connecting R&D to the industry. I think that resources provided are very professional and are very useful guides."
- "The information is world class."

Effective and efficient partnerships and linkages established across industry

Ongoing commitment to industry coordination and engagement has continued to build effective and efficient partnerships and linkages across industry as evidenced below.

REAG

- The REAG was continuously engaged during Phase 2 through four meetings and one-on-one conversations with the RDO. Members provided valuable input and guidance to the RDO on delivery considerations and maximising the impact of the project.
- Suggestions included supplementing communications with SMS updates to reach a farm worker audience;

creating podcasts from webinar recordings to increase accessibility of content for growers; sharing updates for on-the-ground issues such as changes to the use of chicken manure, prevalent pests and diseases and biosecurity threats; and continuing to work collaboratively with AUSVEG VIC.

Researchers and industry

- VegNET Victoria's continued sponsorship of the R&D Adoption and Industry Impact Award in conjunction with VegNET Gippsland at the AUSVEG VIC annual Awards for Excellence now in its fifth year of operation is a true legacy of Phases 1 and 2 of the VegNET investment in the state.
- The project has continued partnerships with researchers and service providers such as La Trobe University, Charles Sturt University, University of New England, Port Phillip and Westernport Catchment Management Authority, Agriculture Victoria, AUSVEG, AUSVEG VIC, Nielsen, Applied Horticultural Research, and others.

There was some very positive feedback received from La Trobe University researchers following the webinar on 'Compost calculator – knowing the value of organic amendments in your Victorian vegetable nutrition program'. This is a large project led by the Queensland University of Technology with a number of other research and industry partners under the Federal Government Smart Farming Partnerships (DAWE).

Hi Carl

Thank you very much for running the session today! You are so calm and professional, it made everything flow very seamlessly. The use of the questions up the front was a good way of engaging the participants. We are very interested to see the results when they are available.

Kind regards

Dr Scott Mattner

Contribution to end-of-project outcomes

The end-of-project outcomes for VegNET Victoria after 5-years are:

- Improved capability of levy payers to adopt best management practices and new innovations arising from the improved extension of research outputs to address a geographically and culturally diverse vegetable industry
- Improved levy payer awareness and attribution of the vegetable levy investments.

While the outcomes were developed with an end-of-project timeframe of 2026, considerable progress has been made towards achieving these outcomes during Phase 2, as illustrated by the examples below.

Focusing on R&D adoption

- Sharing the stories of Victorian vegetable growers who have benefited from the application of levy-funded R&D has been a focus of outputs during Phase 2 and have helped to increase the capability of levy payers to adopt best management practices as well as improve awareness of levy R&D investments
- This is clearly demonstrated through the AUSVEG VIC R&D Adoption and Industry Impact Award case study, which looks back on the winners of the award since 2017. It explains what R&D was adopted onfarm and how it has benefited the growers, as well as updates on how the initiatives are progressing today. It also demonstrates the value of VegNET in Victoria pioneering the development of the award to bring the R&D achievements of the state's growers into the spotlight
- "Being recognised for adopting this technology through the R&D Adoption Award in 2018 was an honour and a great opportunity for this technology to be brought to the attention of a much wider audience. We have had many growers and processors visit our site to look at the technology since implementation and several have successfully adopted it themselves." – Chris Schreurs, Schreurs & Sons
- The importance of research translating to on-farm outcomes for growers was further bolstered through the integration of the Industry Impact category with the award from 2019 onward. The R&D Adoption and Industry Impact Award is now commonplace and sits alongside the coveted Grower of the Year category as part of the annual AUSVEG VIC Awards for Excellence

■ The case study on the 2020 East Gippsland Vegetable Innovation Days also helped to raise grower awareness of regionally relevant R&D including advancements in agrichemical and seed trials as well as cover cropping. It helped to raise awareness of an online library of videos from the event, which growers can access as an ongoing R&D resource.

Awareness and benefits of native vegetation insectaries

- By sharing regular updates on the benefits of native vegetation insectaries and the plantings in Werribee South, significant progress was made to the end-of-project outcomes for VegNET Victoria.
- An existing fact sheet on the practicalities of setting up an insectary on-farm was updated with new information from Charles Sturt University's project on Field and landscape management to support beneficial arthropods for IPM on vegetable farms (VG16062) and was re-shared with growers. There was also extensive interest in two practical fact sheets from the project which were shared through VegNET Victoria's communication channels and the AUSVEG VIC website.
- Information on native vegetation insectaries was developed and shared through multiple formats to boost awareness, including written case studies and fact sheets, podcasts, a webinar and word of mouth.

The long-term regional strategic planning, development of sub-projects, strengthening of existing industry networks and outputs delivered during Phase 2 have set a solid foundation for the successful delivery of Phase 3 and achievement of the end-of-project outcomes.

Monitoring and evaluation

The project team continued to monitor and evaluate activities of this project against the dedicated M&E Plan to ensure progress towards the desired outcomes in accordance with the program logic.

The sub-project briefs were designed to allow flexibility in the approach of the project to accommodate evolving grower needs. Therefore, the M&E and annual work plans were adapted as the project progressed to best meet the needs of the Victorian vegetable industry on an ongoing basis.

Key Evaluation Questions (KEQs) were developed to guide the plan in conjunction with the program logic, and findings against each KEQ is discussed below.

Refer to Appendix 4 for detailed progress against the M&E Plan.

Overall project performance

VegNET Victoria Phase 2 made considerable progress towards both intermediate and end-of-project outcomes. This was particularly significant given around 50% of the 18-month project delivery timeframe occurred during Victorian COVID-19 lockdowns and restrictions.

The analysis of achievements against the intermediate outcomes shows the strongest advances in increased awareness and engagement with regionally relevant R&D, followed by increased reach and knowledge of vegetable levy R&D outputs, then effective partnerships and linkages established across industry.

The most difficult outcome to measure was indicative impact related to effective and efficient partnerships and linkages established across industry. This is because the results of building these linkages may not come to fruition immediately and will be further developed in Phase 3.

Findings against Key Evaluation Questions

Effectiveness

1. To what extent has the project achieved its expected outcomes?

This project made significant progress towards both its intermediate and end-of-project outcomes.

Refer to the 'Outcomes' section of this report for further information.

Relevance

2. How relevant was the project to the needs of levy paying vegetable growers?

Agricultural extension services are an important and effective way to share levy R&D information and resources to vegetable growers and others in the supply chain and promote adoption of best management practices.

The 5-year Regional Extension Strategy was based on a detailed needs analysis undertaken in Phase 1 of the project. This ensured the key issues and needs of Victorian vegetable growers were addressed in Phase 2.

As the COVID-19 pandemic affected traditional extension delivery across the country, this project continuously adjusted its delivery approach to best adapt to restrictions and remain relevant to growers. This included transitioning planned face-to-face events to a virtual format and using a variety of communication channels to engage with levy paying vegetable growers.

Refer to the 'Outputs' section of this report for further information.

Process appropriateness

3. How well have levy paying vegetable growers been engaged in the project?

One-on-one farm visits and meetings were undertaken with 380 growers and industry stakeholders, which represents approximately 70% of total hectares grown in the northern, south-eastern, and western regions of Victoria⁵. This includes 155 grower engagements.

⁵ Australian Bureau of Agricultural and Resource Economics and Sciences (2019) Australian vegetable-growing farms: An economic survey, 2017-18 and 2018-

While face-to-face engagement with levy paying vegetable growers was significantly hindered throughout Phase 2, the project team was able to conduct site visits in between COVID-19 restrictions and engage with growers remotely during lockdown. This included phone calls, video conferencing and sharing R&D updates and links to resources through online communication channels such as e-newsletters and social media. Extension resources were also developed in a variety of written, visual, and audio formats to increase accessibility and engagement.

A focus on innovative extension methods could help to re-engage growers following the scheduled easing of COVID-19 restrictions during Phase 3.

4. To what extent were engagement processes appropriate to the target audience/s of the project?

A key focus of VegNET Victoria Phase 2 was one-to-one grower and industry stakeholder engagement as well as improved linkages between growers and researchers as part of the project's co-innovation model. This was guided by a strategic and targeted Stakeholder Engagement Plan.

As learnings from VegNET Victoria Phase 1 highlighted that a 'go-to' connection was important for grower connection, the project team was reduced from three members to two (RDO and Project Leader).

Throughout Phase 2, multiple engagement processes were used to provide information to vegetable growers and industry members and reflected preferred stakeholder engagement methods as outlined in the Stakeholder Engagement Plan. There was no over-reliance on one approach to combat engagement fatigue and increase reach and effectiveness of R&D information.

For instance, after being unable to attend Hort Connections 2021 in Brisbane, the project team delivered a dedicated e-newsletter on highlights from the conference which was tailored to Victorian growers.

"Being able to get as much work done as you have during the sustained lockdowns because the pandemic is a huge amount of effort – extension is tough at the moment, the connection and information being provided to industry is excellent, you should be congratulated." – REAG member.

Efficiency

5. What efforts did the project make to improve efficiency?

The 5-year Regional Extension Strategy was needs-based and therefore allowed the RDO to prioritise the majority of their time to the most important issues, while still remaining responsive to evolving grower needs. A greater focus on one-to-one grower and industry stakeholder engagement improved 'front of house' implementation and minimised 'back of house' planning where possible.

As the number of site visits was significantly reduced during Phase 2 due to COVID-19 restrictions, this allowed the project team to redirect effort to enhancing grower engagement and developing additional extension resources than originally planned. Thus, over delivering in some areas for the same level of funding.

VegNET Victoria also increased efficiencies by leveraging industry partnerships with projects delivering similar outputs such as the EnviroVeg program and peri-urban surveillance program. This included conducting joint site visits as well as plans to co-host events of importance to the industry. In addition, further collaboration, and funding opportunities through the DAWE's Future Drought Fund NRM Drought Resilience Program were explored with industry partners throughout Phase 2.

Recommendations

The recommendations below are based on the lessons learnt from VegNET Victoria Phase 1 and Phase 2, feedback from industry and other key stakeholders, and an understanding of R&D needs of the Victorian vegetable industry in continuing to implement the 5-year Regional Extension Strategy.

- 1. Ensure a successful Victorian RDO handover at the commencement of Phase 3 delivery from RMCG to AUSVEG. It is crucial that the RDO handover process is seamless and well-managed, building on the strong foundation of delivery and trusted relationships that RMCG has established with growers and industry stakeholders over the past five years, including the REAG. It will be essential to maintain the progress made in strategic planning and sub-projects during Phase 2 to ensure minimal disruption to growers. Both RMCG and AUSVEG will work closely throughout the remainder of 2021 to achieve an effective handover.
- 2. Continue sponsorship and promotion of the AUSVEG VIC R&D Adoption and Industry Impact Award in partnership with VegNET Gippsland. This award successfully highlights the role of R&D in advancing the profitability and production of the Victorian vegetable industry and encourages levy payers to adopt best management practices alongside their peers. There is also an opportunity to scale-up the award with delivery partners in other states and the RMCG team is willing to share experiences and criteria to facilitate this expansion for the benefit of national extension.
- 3. Continue to 'do the basics well'. Provide the opportunity for knowledge exchange and events and extension material, complemented by multiple forms of industry communication channels (e.g., utilising existing industry communication platforms like e-newsletters, timely responses to biosecurity incursions, using 'storytelling' techniques and case studies to encourage practice change).
- 4. Continue to adapt the extension model to meet the ever-changing needs and emerging issues of the vegetable industry. This will extend to innovative engagement methods that consider both face-to-face and remote approaches, particularly as the industry adjusts to a COVID-safe world:
 - Increase focus on face-to-face networking and connection when it is permitted
 - Ensure there is connectivity and sharing of lessons across regions growers and other industry members haven't had the chance to travel and engage as normal and projects like VegNET can play an important role here
 - Ensure continued linkages with other projects.
- 5. Strategically address the needs of the Victorian vegetable industry while being responsive to emerging issues:
 - Continuing issues and consolidation on the following topics: Pest management; Disease
 management (e.g., white blister issues); Weed management with no new herbicides coming to the
 market; Losing chemistry to control insects, diseases, and weeds; New pest incursions (not knowing
 what is coming next, being prepared and minimising impact when they do occur)
 - Emerging issues and topics to increase focus on in Phase 3: Waste management (e.g. avoid product loss through better pest and disease management, removing non-harvested crop to prevent harbouring); Biosecurity (e.g. exotic pest incursions and potential production impacts); Labour efficiency (e.g. harvest aids, innovations on the ground with emerging technology); Nutrition management potential restrictions on use and amount of fertilisers applied based on what is happening overseas (e.g. Europe), and the subsequent impacts for crop rotation; Mental health issues are becoming huge getting out face-to-face
- 6. Explore more formal partnerships with project deliverers to further promote collaboration and industry cohesion (e.g., event hosting, sponsorship, co-delivery, catering).

Refereed scientific publications

None to report.

Intellectual property, commercialisation, and confidentiality

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

Acknowledgements

The RMCG team would like to acknowledge the Victorian growers, advisors, researchers, and industry stakeholders who contributed their valuable time and expertise to the VegNET Victoria project since 2016. Your continued support has established a strong foundation for future industry development and extension of vegetable R&D in Victoria.

In particular, the project team would like to acknowledge and thank its past and current REAG members for their time, input, and expertise to ensure the continued success of VegNET Victoria during Phase 2. They include:

- Nathan Free, Wattle Organics Farm (grower northern)
- Rick Butler, Butler Market Gardens (grower south-eastern)
- Paul Gazzola, Gazzola Farms (grower south-eastern)
- Nathan Bischa, Harvest Moon Marketing (grower western)
- Stephen Moore, E.E. Muir, and Sons (technical advisor western)
- Stuart Grigg, SQ Ag-Hort Consulting (technical advisor western and south-eastern)
- Jason Hingston and Bronwyn Walsh (Hort Innovation project managers).

We acknowledge the Traditional Owners of the Country that we work on throughout Victoria and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging and the Elders of other Aboriginal and Torres Strait Islander communities. Moreover, we express gratitude for the knowledge and insight that Traditional Owner and other Aboriginal and Torres Strait Islander people contribute to our shared work.

Appendices

- Appendix 1: 5-year Regional Extension Strategy
- Appendix 2: 5-year Sub-Project Briefs (x3)
- Appendix 3: Annual Regional Extension Work Plan and progress
- Appendix 4: Monitoring and Evaluation Plan and progress
- Appendix 5: Stakeholder Engagement Plan
- Appendix 6: One-on-one farm visits and meeting register
- Appendix 7: Extension material 4 case studies, 2 fact sheets and 1 poster
- Appendix 8: Regional Extension Advisory Group meeting minutes (x4)