Hort Innovation

Final Report

VegNET - Tasmania

Project leader:

Donna Lucas

Delivery partner:

RMCG

Project code:

VG15046

Project:

VegNET - Tasmania VG15046

Disclaimer:

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Content

Summary

VegNET Tasmania was a three-year project that provided capacity building, extension and communication services for the Tasmanian vegetable industry. The project was one of 10 regionally-delivered projects for the vegetable industry.

The objectives of the project were to:

- Deliver regional capacity building services to the vegetable industry in Tasmania.
- Increase knowledge of vegetable R&D and facilitate the adoption of R&D by vegetable businesses in Tasmania.
- Increase the reach of the vegetable R&D program by engaging stakeholders in the vegetable value chain and developing trusted networks at a regional level.
- Provide linkages to national vegetable industry communications services (delivered by AUSVEG through VG15027, 'Vegetable industry communications')
- Provide linkages to the national vegetable training initiative VG15028.

Key achievements over the past three years included:

- The project Industry Development Officer (IDO) became a central point of contact for the vegetable industry. Even though our IDO changed throughout the project, it did not affect delivery due to good project management.
- Strengthening of the vegetable industry network, through direct engagement with growers as well as collaboration with researchers, advisors and supply chain participants. This included collaboration and coordination with related projects, industry bodies, researchers, processors and others in the supply chain.
- Delivery of a range of activities including workshops, seminars, farm walks, coordination of training in collaboration with the VegPRO project (VG15028) and on-farm visits.
- Development of a range of resources and materials e.g. case studies and fact sheets, that will continue to be available on the project webpage.
- Development of the VegNET brand.

The main project outcomes were:

- A strengthened Tasmanian vegetable industry network.
- Increased reach and knowledge of vegetable R&D.
- Tasmanian vegetable businesses, supported by their advisors, adopting and trialling practices and innovations through the application of R&D.

Findings from project monitoring and evaluation were that:

- Awareness of the VegNET brand is increasing and gaining momentum.
- Using multiple methods of engagement was effective for engaging with a range of stakeholders and segments.
- Timing of events / activities is important for getting participation.
- Collaboration is crucial for engagement and strengthening industry networks.
- Agronomists and field officers are key influencers. Therefore, they should be involved in delivery of activities as appropriate.
- The original project plan focused on business and market topics, however a majority of activities were production focused.

Recommendations are:

1. **Continue the VegNET program into Phase 2**, building on the existing project and network momentum.
2. **Conduct a more deliberate needs analysis** and design a program that considers the *outcomes* that levy payers and other stakeholders need, rather than just focusing on topics.
3. **Identify key issues to focus on - based on industry needs - and do them well**, rather than trying to cover too many topics or too many events.
4. **Identify key data collection needs for M&E –** they should be achievable and attributable indicators rather than aspirational i.e. measuring economic impact.
5. **Deliver follow-up support after events**, where appropriate to achieve lasting change. This follow up support needs to be built into the project plan and budget.
6. **Establish the R&D Prioritisation day as an annual event**. People valued the opportunity to have their say. This also provided a good opportunity to provide feedback to Hort Innovation on R&D needs and gaps.
7. **Seek strategic guidance from a local advisory group** e.g. TFGA Vegetable Council or TAPG. This would ensure that the project is targeted and meeting the needs of levy payers.

Keywords

Capacity building, vegetable, extension, regional, network, Tasmania, adoption, RD&E, industry development.

Introduction

Overview

Project purpose

This project provided regional capacity building services for the vegetable industry in Tasmania. The key objectives of the project were to:

- Deliver regional capacity building services to the vegetable industry in Tasmania.
- Increase knowledge of vegetable R&D and facilitate the adoption of R&D by vegetable businesses in Tasmania.
- Increase the reach of the vegetable R&D program by engaging stakeholders in the vegetable value chain and developing trusted networks at a regional level.
- Provide linkages to national vegetable industry communications services (delivered by AUSVEG through VG15027, 'Vegetable industry communications')
- Provide linkages to the national vegetable training initiative VG15028.

Project rationale

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

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

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

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

- Increased end user satisfaction of each R&D project provider
- Increased percentage of levy funded projects that have vegetable business end user participation.

Hort Innovation sought to fund regional capacity building services to broker R&D information and facilitate the development of the vegetable industry at the regional level. This was to include strong linkages to national vegetable communications projects.

This project (VG15046) resulted from Hort Innovation seeking proposals from suitably experienced service providers to deliver regional capacity building projects for the Australian vegetable industry. With a strong regional focus, ten projects were contracted to deliver these services. Hort Innovation identified the need for coordination and facilitation of linkages between these projects to ensure they maximise the potential opportunities such a program presents to industry.

The Tasmanian project

This project contributed to the achievement of the

- Vegetable Industry Strategic Investment Plan (SIP) 2012 – 2017 objective:
  - Increasing industry knowledge of R&D investments and providing a supporting environment to regional capacity building projects, which aim to increase knowledge, engagement and adoption of the vegetable R&D program; and the
- Vegetable Industry Strategic Investment Plan (SIP) 2017 – 2021 objective:
  - 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.

Priorities for the Tasmanian vegetable industry

The priority R&D-related topics identified by the project team at project commencement were as listed in *Figure 1*.

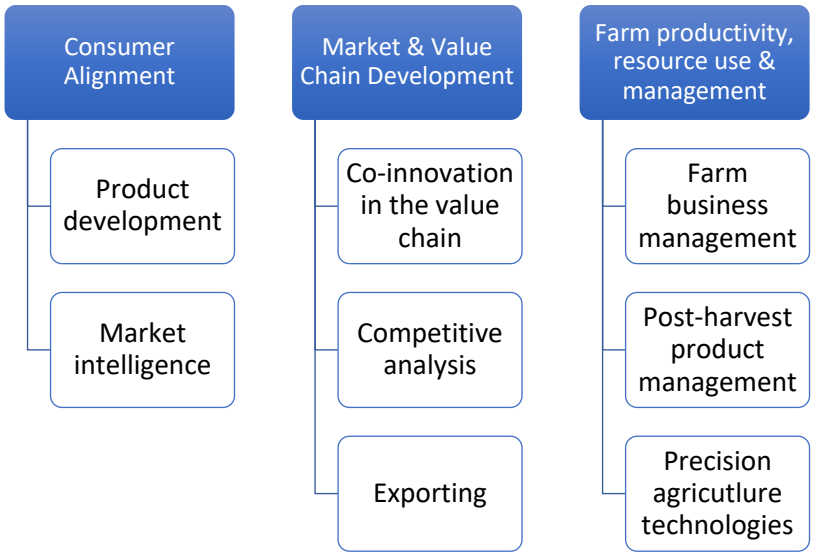


Figure 1: Priority topics identified at project commencement (and their alignment with each of the three strategic priorities for the Australian vegetable industry).

Other priorities were identified throughout project delivery including biosecurity, pest and disease management and specific training topics e.g. chemical handling training.

Methodology

General approach

The general approach encompassed the following four delivery areas:

1. Extension and knowledge transfer:

- Delivery of extension events e.g. field walks, presentations at industry events
- Analysis of industry information
- Understanding issues and needs based on conversations
- Workshops
- Facilitation of discussion groups and linking with existing groups
- Case studies
- Webinars
- Linking with existing demonstration sites (e.g. Soil Wealth and ICP projects as well as Tasmanian projects e.g. precision agriculture, innovation and sub-soil manuring projects)

2. Communications:

- Communication and engagement with vegetable businesses and industry stakeholders
- Project brand: Veg Biz: a Tas Farming Futures project was the brand at the start of the project. This was then changed to VegNET as part of the consistent branding across all 10 regionally delivered projects.
- Contact database; growers, packers, processors, advisors and researchers
- E-newsletter
- Case studies and short videos on social media
- Website (pages on Tas Farming Futures website: http://www.tasfarmingfutures.com.au)
- Social media: Facebook and Twitter
- Articles in industry magazines e.g. TFGA 'Farming Tasmania' magazine, Tasmanian Country, Vegetables Australia.

3. Industry Coordination:

- AUSVEG (linking with InfoVeg, R&D podcasts, Vegetables Australia magazine, Vegenotes, Weekly Update, website, social media)
- Tasmanian Farmers and Graziers Association (TFGA) Vegetable Council liaison (linking with website, newsletter, social media, TFGA Farming Tasmania Magazine)
- Linkage with National Vegetable Education and Training Initiative (VG15028)
- Tasmanian Agricultural Productivity Group (TAPG) liaison
- Tasmanian Fruit and Vegetable Export Facilitator liaison (hosted by Tasmanian Irrigation)

4. Program design and management:

- Development of annual work plans
- Design of extension activities targeting information needs of the target audience
- Identifying gaps in/from the vegetable R&D program
- Feedback to Hort Innovation on RD&E gaps
- Project evaluation and reporting

Project Plan

A detailed project plan was developed at project commencement which included:

- Monitoring and Evaluation (M&E) Plan (including Program Logic)
- Risk Management Plan
- Communications and Engagement Plan
- Year one work plan.

Annual work plans were developed at the start of year two and year three (Appendix 1).

Monitoring and Evaluation Plan

Evaluation of the overall VegNET program was conducted through a national project, delivered by Coutts J&R.

In addition to the national program evaluation, a project M&E Plan was developed.

The program logic developed at project commencement is shown in *Figure 2*. This formed the framework for the Project Plan and the M&E Plan.

This included the hierarchy and connections between:

- Broader goals
- Long-term outcomes
- Project outcomes
- Activities
- Foundational activities

The specific activities listed in the program logic at project commencement were varied throughout the project e.g. no bus tours were conducted but additional workshops were delivered instead.

The M&E Plan is provided in Appendix 2.

<table>
<tr><td>Broader goal</td><td colspan="8">Sustainable development in the vegetable industry; businesses are more robust and resilient.
(e.g. businesses, markets, environmental management)</td></tr>
<tr><td colspan="9"></td></tr>
<tr><td>Long-term outcomes</td><td colspan="8">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. (Vegetable Industry SIP Outcome)</td></tr>
<tr><td colspan="9"></td></tr>
<tr><td>Project outcomes</td><td colspan="3">By 2019, 40 Tasmanian vegetable businesses, supported by advisors, adopting, trialling or intending to adopt practices; and/or implement changes in their businesses; as a result of the project</td><td></td><td colspan="4">By 2019, Tasmanian vegetable industry networks are strengthened/maintained</td></tr>
<tr><td colspan="9"></td></tr>
<tr><td rowspan="2">Project activities and outputs</td><td colspan="3">Foundational activities</td><td colspan="5">Delivery</td></tr>
<tr><td>Project management</td><td>Needs assessment</td><td>Governance</td><td>Related project linkage</td><td>One-on-one</td><td>Groups</td><td>Develop tools</td><td>Comms & engagement</td></tr>
<tr><td></td><td>▪ Project logic
▪ M&E Plan
▪ Communications Plan
▪ Yearly work plans
▪ Six monthly milestone reports
▪ Final report</td><td>▪ Industry Engagement meetings
▪ Development of project materials
▪ Priority topic / activity plan</td><td>▪ National Program Reference Group meetings
▪ Updates to Hort Innovation
▪ Mid-term review
▪ Staffing and resources</td><td>▪ Provide feedback to VegPRO project
▪ Link with SW-ICP events
▪ Link with other related projects</td><td>▪ One-on-one support</td><td>▪ Support existing discussions groups
▪ Presentations and info booths at industry events
▪ 1 field walk /yr
▪ 1 webinar / yr
▪ 1 bus tour / yr
▪ Deliver training that is not covered by VegPRO</td><td>▪ Develop BizCheck tool</td><td>▪ TFF website
▪ Project newsletter
▪ Industry newsletter articles
▪ Social media
▪ 3 technical notes /yr
▪ 3 simplified R&D reports /yr
▪ Case studies
▪ Industry networking meetings
▪ Contribution to national comms.</td></tr>
<tr><td colspan="9"></td></tr>
<tr><td>Context</td><td colspan="8">Changes in external environment (e.g. climate, prices, policies)</td></tr>
</table>

Figure 2: Program Logic

Risk Management Plan

There were a number of risks requiring management for project outcomes to be achieved. The risks identified ranged across technical, biophysical, extension, partnerships and internal. The likelihood and consequence of these risks were analysed using a risk matrix. The risks identified were:

- Partnership not developed with advisors and/or existing discussion groups
- Unable to identify good practices and/or tools to address industry needs
- Unable to identify and involve key experts in vegetable production and identified needs
- Growers and advisors not willing and/or able to participate
- Loss of key personnel
- Limited stakeholder 'buy-in'
- Project management risks (budget, time, quality, scope).

Communications and Engagement Plan

The key stakeholder groups for this project included:

- Vegetable businesses (growers and/or packers)
- Advisors, agribusiness service providers and extension providers
- Related projects
- NRM groups
- Industry associations
- Researchers
- State Government Departments
- Supply chain participants

These groups were analysed further including identification of individual people and businesses to engage with and industry segments e.g. based on business scale, location and production systems.

Project Management

The Project Manager and IDO met weekly to confirm tasks, progress, opportunities and issues. Other meetings were conducted with the project team on an as needs basis. Smartsheet (online software) was used as a project management tool.

National Coordination

Two team members attended each of the annual national VegNET face-to-face meetings as well as the quarterly webinar meetings. National meetings were useful for sharing successes and lessons and coordinating resource development.

Outputs

Outputs and extension materials

Project outputs and extension materials included:

- Workshops / discussion meetings:
  - 2 x Postharvest management workshops in September 2016 (45 people)
  - Cover crop / biofumigant field day in October 2016 (15 people)
  - Irrigation workshop in October 2016 (16 people)
  - Facilitation of workshop with Precision Ag panel (Forthside Vegetable Research Facility Open Day) (this included coordination of speakers and inviting VG15059 researchers to attend)
  - Cover Crop Farm walk (Feb 2017)
  - TPP Update and Biosecurity information session, October 2017
  - Hort Code Information session, October 2017
  - SARP Workshop, February 2018
  - Spray Technology Workshop, April 2017
  - R&D Prioritisation Workshop, April 2018
  - Workshop session facilitated at TFGA event
  - 3 x VegPRO Chemical Handling Courses
  - Support for 2 x Open Days at Forthside Vegetable Research Facility 2016 and 2017, including arranging guest speakers from Hort Innovation funded projects.
  - 2018 Open day at Forthside Vegetable Research Facility, joint event in conjunction with the Tasmanian Institute of Agriculture (TIA) including linkage to AUSVEG Communications project (podcasts and articles)
  - VegPRO training event (VegInnovations)
  - VegPRO 1 x 2-day training course (Negotiations & Influencing)
  - VegPRO training event (Pest Identification) (20 November 2018)
  - 3 x VegPRO training events (irrigation management) (24, 25, 27 October 2018)
  - Farm walk, 'Strelley', Richmond (in conjunction with VG15010)
  - Women in Vegetables lunch meeting and guest speaker on value-adding, Deloraine
  - Soil disease discussion meeting, Richmond (in conjunction with VG15010)
  - Pea Season Debrief meeting (February 2019)
  - 2 x Weed workshops (March 2019)
  - Chemical Spray Technology workshop (April 2019)
- Flyers for activities and events:
  - 5 VegNET event flyers
    - 2 Spray Technology Workshops (2017 and 2019)
    - Vegetable Export Readiness Workshop (flyer developed by Tasmanian Fruit & Vegetable Export Facilitator)
    - Women in Vegetable Businesses Lunch meeting

    - Weeds event (2019)
    - Farmers Friday, Pea Season Debrief meeting - in conjunction with Soil First Tasmania discussion group (February 2019)
  - 3 VegPRO Training event flyers [flyers were prepared by the VegPRO project]
  - 1 SARP workshop flyer, developed in conjunction with AUSVEG
  - 5 VegPRO Training event flyers [flyers were prepared by the VegPRO project]
  - 1 study tour EOI flyer ('Women in Vegetable Businesses' tour to Victoria)
  - 1 VegBizCheck overview flyer
- Videos:
  - Strip Till video, in conjunction with Soil Wealth and ICP project
  - Short videos posted via social media
- Webinars:
  - Precision agriculture technology in vegetable production systems in collaboration with QDAF, TAPG and VegNET Victoria, August 2017 (42 participants)
- Fact sheets:
  - Spinach crown mite
  - Summary of TIA subsoil manuring project
  - Herbicide Resistance Fact Sheet
  - Strip Tillage Fact Sheet
  - Precision Agriculture, Tasmanian RD&E Project Fact sheet
  - Summary of VG13081 Mechanisation project
  - Strip Till, in conjunction with Soil Wealth and ICP
- Electronic newsletters:
  - 26 electronic newsletter campaigns
- Magazine articles:
  - New Resources Available for Vegetable Growers" (June 2017)
  - "Veggie growers discussed options for managing soilborne diseases" (in print, Oct 2017)
  - "Take time to invest in yourself" article in TFGA Farming Tasmania magazine (Dec 2017)
  - "Preparing for tomorrow - vegetable businesses focus on value-adding and exporting" (article provided to TFGA for inclusion in the next Farming Tasmania magazine)
  - 2 Articles for 'Vegetables Australia' magazine
- Newspaper articles:
  - "Update covers vegie risks" article published in Tasmanian Country Newspaper re TPP update
  - "Vegetable industry TPP and biosecurity update at Forthside" article in The Advocate (20/09/2017)
  - "VegNET hosts a Devonport information session for vegetable growers" published in The Advocate (13/09/2017)
  - "Tasmanian potato growers preparing for the worst" article published in Weekly Times (25/10/2017)
  - "VegNET Tasmania is holding a spray application workshop at Forthside", The Advocate (Feb 2018)
  - 'Experts share tips for adding value to crops' The Weekly Times and The Tasmanian Country, June

2018

- 'Innovating and adding value for vegetables' The Advocate, May 2018
- 'Innovating and adding value for vegetables' The Examiner, May 2018
- 'Little bug poses a huge risk' The Tasmanian Country, 12 Oct 2018
- Advertisements in Tas Country newspaper

- Radio interviews:
  - Cover crop farm walk
  - Interviews with three presenters from TPP Info Session, October 2017
  - Interview with Paul Kristiansen, UNE, for Weeds Discussion Events
- Other media coverage included but was not limited to:
  - TFGA FastNews newsletter (September 2017 x2, May, 2018, February 2019)
  - Ag Institute Australia (AIA) newsletter (July 2017, October, 2017)
  - AUSVEG Weekly Update (August 2017, September 2017 x 2, November 2017, March 2018,
  - AUSVEG Front Line Biosecurity Bulletin (September 2017)
  - Biosecurity Tasmania, Biosecurity Advisory (September 2017)
  - Tasmanian Institute of Agriculture (TIA) Industry News (October 2017, November 2018)
- Website:
  - Maintenance of VegNET page on Tas Farming Futures website http://www.tasfarmingfutures.com.au/national-vegetable-extension-network-about
- Social media:
  - Twitter: @VegNET_Tas, 352 followers (Example Twitter analytics are provided in Appendix 3)
  - Facebook: https://www.facebook.com/VegNET.Tas/
- Displays at industry events:
  - Trade show stand, Tas Precision Ag Expo, 2017
  - Trade show stand at Forthside Vegetable Research Facilitation Open Day, November
  - Vegetable and potato forum, July 2017
  - Carrot and onion forum, July 2017
  - Tas Precision Ag Expo, April 2018
  - Potato Forum, Scottsdale, Aug 2018
  - Ag Institute Australia (AIA) drone technology event, Oct 2018
  - Forthside Open Day, Forthside, Oct 2018
  - Tas Precision Ag Expo, April 2019
- Targeted event invitations:
  - R&D Prioritisation Meeting
  - Soilborne disease discussion with Dr Len Tesoreiro
  - Farm walk at 'Strelley', Richmond
- Presentations:
  - TFGA Vegetable Council meeting (12 people) 2016

  - Vegetable and Potato Forum, July 2017
  - Hort Connections, May 2017
  - APEN Conference, Sept 2017
  - TFGA Vegetable Council meeting 2019
  - Penguin High School careers presentation 2018
  - Organising presentations for the TIA Forthside Vegetable Research Facility Open days:
    - 2017 Tim Neale to talk about big data and how relevant information can be used by vegetable growers (link to video)
    - 2018 Darryl Smith, WA grower to present on biosecurity incursion management for a grower's perspective (link to video)
    - 2018 Kevin Clayton Greene to talk about biosecurity vigilance for Tasmania
    - 2018 Mark Kable to talk about integrated management of soil health (link to video)
- Meeting summaries / case studies / reports:
  - Report summarising the RD&E workshop held in April 2018
  - Summary of meeting written and provided to TFGA
  - Summary of pea season debrief (March 2019)
  - Summary of VegPRO Pest ID training (January 2019)
  - Summary of Biofumigation Field Day
  - Case Study - Matt Young
  - Case Study - Yuri Wolfert
- General project materials:
  - Review of current R&D available to determine what is relevant to Tasmanian growers and stakeholders, and planning on how the information can be disseminated efficiently
  - Postcard
  - Project Officer Business cards
  - Revised templates incorporating new VegNET name and logo
  - Pull up banner
  - VegNET Vest for IDO
- Engagement meetings:
  - Individual meetings with Tasmanian Farmers and Graziers Association (TFGA), Tasmanian Institute of Agriculture (TIA), Simplot, key growers and agronomists to ascertain industry needs.
  - 79, one-on-one farm visits (examples of topics discussed are provided in Appendix 4).

Figure 3: 2018 Forthside Open Day (image from TIA Facebook page)

Figure 4: 2018 2018 Forthside Open Day (image RMCG)

Figure 5: Farm walk in conjunction with VG15010 at Houston's Farm (image RMCG)

Attendance at industry events

The project team attended events to engage with stakeholders, including but not limited to:

- Soil First Discussion Group Farm walk (2016)
- TFGA Annual Conference (7/7/2016)
- Vegetable industry SIP consultation meeting in Hobart (28/10/2016), and following the meeting offered suggestions for growers to contact in Tasmania
- Tomato Potato Psyllid (TPP) Information session (21/04/2017)
- Austrade webinars re exports and Free Trade Agreements (2017)
- TFGA Dinner (7/7/2017)
- Roberts Carrot & Onion Forum (19/7/2017)
- Simplot / Roberts Vegetable & Potato Forum (27/7/2017)
- Serve-Ag Agronomist Meeting (01/08/2017)
- LIST Map Training (10/08/2017)
- The Yield App Launch (9/10/2017)
- Seed vs Steel Farmers Friday, field day hosted by Soil First (15/12/2017)
- TFGA Inspire event (22/03/2018)
- TAPG Precision Ag Expo (2017, 2018 and 2019)
- Soil First field day (13/04/2018)
- Soil First Field Day (01/06/18)

- Steam weeding field day (30/05/18)
- Simplot Annual Awards Dinner (07/2018)
- Roberts Potato Forum (10/08/18) including display
- Export Readiness Training Workshop (22/08/18)
- Erosion Control Machinery Breakfast (03/10/18)
- AIA Drones event (4/10/18) including display
- South Pacific Seeds, spray technology workshop (24/09/18)
- Inspire 2019, TFGA Women in Agriculture Event (13/03/2019)

Working with related RD&E projects

The project became a conduit for related projects including referral to growers and advisors and arranging meetings and events. These included:

- Facilitation of workshop with Precision Ag panel (Forthside Vegetable Research Facility Open Day) (this included coordination of speakers and inviting VG15059 researchers to attend)
- Adoption of precision agriculture project (VG16009) linkage to demo sites and information posted via VegNET Tasmania social media
- CSIRO creating value from vegetable waste and broccoli loss survey (VG15076) promotion of survey
- Sampling and R&D concept design for spinach mite and lettuce aphid biotypes in conjunction with Stuart Grigg Ag-Hort Consulting and cesar
- UNE strategic weed management project (VG15070) coordination of UNE guest speakers for Forthside Open Day, farm walk, two weeds workshops. VG15070 used data from a Tasmanian trial site for their communications.
- VegNET Victoria projects, coordination of events and resource development
- Agrichemical Pest Management Needs and Priorities (VG16060) coordination of Tasmanian workshop, coordination of farm and agronomist visits
- SARDI brassica sampling for Club Root and carrot sampling for Pythium (VG15009) sampling and coordination of farm sites and providing introductions to local agronomists
- Soil Wealth and Integrated Crop Protection (VG16078), events (e.g. Spray Technology workshop) and resource development (e.g. Strip Till video)
- Soil borne disease management project (VG15010), coordination of events (farm walks) and communications of resources; support for coordinating the Soilborne Disease Masterclass in Tasmania in August 2017.
- Optimising cover cropping project (VG16068)
- VegPRO contribution to training workshops delivery, feedback on training needs, and promotion of resources e.g. OHS resources and VegInductions (VG15028)
- VG15066 meeting with Hoong Pung, Peracto and Serve-Ag re the carrot Streptomyces (scab and crown rot) project and extension of findings.
- VG13083 Post-harvest project – coordinating two workshops in Tasmania.
- MT16016 TPP Surveillance Program (TIA/Utas) Working with Raylea Rowbottom to extend information on the surveillance program to growers and identification of sites. This includes the joint TPP Update and Biosecurity event held in October.
- VG13053 Develop vegetable industry occupational health and safety resources. Working with Luke Rolley to recruit producers and contribute to the VegWHS content and extension of resources.
- VG15003 Robotics project. Coordinated linkage to TAPG Precision Ag Expo April 2018, planting of demo crop using strip tillage and PIPPA PPT presentation

- HARPS Roadshow. Communications re potential for workshop in Tasmania - decided not worthwhile as Tasmania as packers & processors are well organised and
- AUSVEG Callum Fletcher, Biosecurity workshops - discussion about potential train the trainer

Outcomes

Intended outcomes

The **broader goal** of the VegNET Network was:

- Sustainable development in the vegetable industry; businesses are more robust and resilient. (e.g. businesses, markets, environmental management)

The intended **long-term outcomes** of the VegNET Network were:

- 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. [updated in 2017 to reflect the new SIP outcomes]

The intended **end of project (immediate) outcomes** were (refer to Program Logic):

1. Tasmanian vegetable industry networks are strengthened/maintained
2. 40 Tasmanian vegetable businesses, supported by advisors, adopting, trialling or intending to adopt practices; and/or implement changes in their businesses; as a result of the project

Evidence of achievement of outcomes

Evaluation of the broader goal (potential long-term impact) and the long-term outcomes were not the within the scope of this project.

Evidence of achievement of 'in scope' project outcomes is provided below.

1. Industry strengthening

Evidence of industry strengthening:

Project team observations and feedback from stakeholders provide evidence of industry networks being strengthened which provides a legacy from the project and can be built upon; for example:

- IDO joining the TAPG Precision Ag Expo organising committee (more than 200 attendees each year)
- Collaborating with TIA to deliver the Forthside Vegetable Research Farm Open Day each year
- Regular interactions with grower groups e.g. supporting the Soil First group and facilitating a Simplot pea season debrief in 2019.
- Growers regularly contacting the IDO about information and access to resources
- Attendance at events, engagement with social media, newsletter, website, webinar views, farm visits, events attended, projects engaged with
- Increased social media followers and interactions
- Invitations to present at meetings
- Regular meetings with key stakeholders including TAPG, Tasmanian Fruit & Vegetable Export Facilitator, TIA, NRM Facilitators, DPIPWE, Simplot, TIA, researchers, seed companies, agronomy companies.
- Through engaging with TFGA, TAPG, TIA and displays at their events, organising speakers for events.
- Invitations to work together on events e.g. biosecurity workshop
- Positive feedback received on the project newsletter (stakeholders finding it useful to hear about resources and events).
- Positive outcomes from promoting industry events other than those of VegNet, increasing participant numbers.

Stakeholder feedback for the mid-term review and end of project survey also provided further evidence that the project had supported industry networks. Stakeholders felt that without the project they would be more isolated, and opportunities would be missed:

> *"It was generally agreed by stakeholders that without the project there would be a lack of change or improvement, that growers would become more isolated and opportunities would be missed."* (Coutts, 2018)

> *"I'm concerned to hear that funding beyond April for this project is uncertain."* (Grower, end of project survey, 2019)

> *"Our project has therefore saved significantly in time and funds in being able to tap in to local networks developed by VegNET, and other Hort innovation-funded research must be in the same position. Researchers always gain greatly from the enthusiasm and networks brought to their projects by local IDOs. Thank you!"* (Researcher, end of project survey, 2019)

One survey response suggested that the awareness and participation was starting to gain momentum:

> *"I believe momentum is just starting to build for us in terms of our awareness and participation in VegNet. I think more work needs to be done on direct communication between IDO's & Growers but that is a two-way process." (Grower, end of project survey)*

A recommendation from the mid-term review was to provide more opportunities for stakeholders to provide feedback/ideas via the activities they attended. This was taken on board and any ideas/feedback received were then discussed with the project team e.g. pest or disease issues and whether resources were already available via other projects.

The importance of regional engagement:

A Vegetable Industry R&D Prioritisation day supported by TFGA was designed and facilitated on 13 April 2018. 32 people attended out of 81 invited (including growers, advisors, researchers, seed companies, packers, processors, government policy officers). The event would have been even larger if promoted broadly rather than 'invite only'.

The purpose of the RD&E workshop was to identify strategic industry needs. The intent was not to develop specific projects. However, any researcher or stakeholder can use the findings to develop targeted project concepts. In addition, the outcomes will provide Hort Innovation with feedback on RD&E needs of the Tasmanian industry.

The good 'turn-out' and feedback from participants demonstrates the importance of regional engagement. The driver for the event was feedback from Tasmanian growers and researchers that there was a need for R&D that addressed local needs. They wanted to have their say because the felt that the industry SIP does not capture regional needs, especially as attendance at these meeting is typically low, and a national 'compromise' has to be presented in the SIP. We received feedback from research providers that they are concerned about losing intellectual property if project ideas were submitted via the Hort Innovation concept form.

A summary report was provided to participants, Hort Innovation and other individuals who requested a copy e.g. the Tasmanian Fruit and Vegetable Export Facilitator and stakeholders who were unable to attend. A copy of the report is provided in Appendix 5.

Regional priorities differ to national priorities:

An export readiness workshop was planned twice in conjunction with the Tasmanian Fruit and Vegetable Export Facilitator. Despite our efforts via direct emails and phone calls, the event was cancelled due to only 3 registrations. Most of the growers we talked to, said that export was not for them. They focus on supplying processors, supplying packers or supplying the domestic market. This confirmed that exporting is not a priority for a majority of Tasmanian vegetable growers at this point in time. The majority of vegetable exports from Tasmania are organized by packers e.g. Harvest Moon, Premium Fresh or Field Fresh. These companies have been exporting for many years and are not interested in a 'beginners' workshop. This situation highlights that although the national priorities include export, regional priorities differ.

Addressing identified needs

The project delivered a larger proportion of activities that focused on production topics rather than the market or business topics identified at the start of the project. This was due to opportunities to link with other Hort Innovation funded projects to deliver activities and events e.g. a workshop for Strategic Agrichemical Review Process (SARPs) or HARPS workshops. Also, it was challenging to engage with growers on market and business-related topics even though markets were nominated as one of the major challenges for their businesses in the end

of project survey. As discussed above, our analysis in year one suggested that only a small number of growers in Tasmania were 'export ready' or interested in becoming 'export ready'.

***The project has successfully interacted with stakeholders and the project team is trusted**:*

> *"Several stakeholders mentioned the trust that the project and regional project officers have built up between themselves and growers and that stakeholders know the people involved and trust they really know what they are doing."* (Coutts, 2018)

The project was valued by stakeholders, with 74% of respondents (end of project survey) stating that the project was important or very important for keeping them informed about R&D and all except one, reporting that they would like to see the project continue beyond 2019. One reason for the request to continue the project is because it takes several months for a new extension project to get up and running as far as active engagement is concerned. More time passes before most growers are aware of the project. Therefore, VegNet Tas has only recently started in the view of some growers. They are now ready to engage more intensively.

2. Knowledge and capacity gains; and practice change

Evidence of capacity gains and practice change:

Evaluation feedback from events and the end of project survey provide examples of knowledge and capacity gains and practice change. However, it is difficult to attribute these changes to this project alone. Often the project was working together with other projects and organisations (e.g. at events).

Examples of changes provided via the mid-term review (Coutts, 2018) and the end of project survey included:

- Soil moisture sensors on the way. Workshop helped [us] to understand the sensors. (Grower)
- Using information from the postharvest workshops to decide on which cooling systems to install (Grower)
- Planning to try cover / Biofumigation crops for the first time (Grower)
- Used a consultant to utilise recent satellite data to develop farm mapping showing drainage profile to guide a laser grader to put in appropriate drainage. (Grower)
- Changed irrigation delivery system, Introduced irrigation scheduling system. (Grower)
- Refined agronomy strategy for soil borne disease control, Refined IPM practices, Modified break crop strategy, Became demo site for 'Soil Wealth' project. (Grower)
- Used VegNET networks in surveillance for the tomato and potato network: as to who to contact, where to go, results and upcoming events (Researcher)
- Improved workshop participation: Experienced a change in participation, based on VegNET promotion of the workshop (TIA): more industry partners and growers and government marketing aspect for the potato industry.
- TPP Workshops: Inspired our business to be part of the state monitory group. If we hadn't attended that workshop our state might not achieve a TPP free state. We would have sat back and done nothing but by attending those workshops we made major changes in monitoring for TPP and monitoring how using insecticide would change the populations of insects (Service Provider)
- Event Coordination: Helped with some of the events we have had with the industry. They were very well received, and the feedback indicates the farmers have really taken on what they have suggested (NRM Facilitator)
- Improved crop practices: Tried crop rotation and as a result of work going on around us VegNET may not be the sole ones but we picked that up as something they have been involved with (Grower).
- Water use efficiencies: Irrigation and water use efficiencies (Field Officer)
- Especially the ChemCert - really useful as it brought everyone up to speed and learnt new skills. (Agronomist)
- Better knowledge on crop disease, changing advice based on that (Agronomist)

- Learnt a lot about production, one minor use permit was approved as a result (Agronomist)
- TPP - Put a biosecurity sign at front gate, more visually stringent on people coming onto the property. (Grower)

Project reach:

It is difficult to estimate the number of hectares grown and number of commercial vegetable businesses, and advisors, engaged or reached in the project. Compiling data from event attendance lists can result in double counting as several people may attend from the same business and they also attend more than one event. However, we estimate that at least 100 growers / farm workers from 80 vegetable growing businesses plus 80 non-growers (agronomists, researchers, service providers) have been ***actively*** engaged through the project i.e. not just receiving the newsletter, but though attending events, one-on-one meetings and using RD&E outputs / resources.

In 2016-17 there were 279 vegetable growing businesses in Tasmania (ABARES, 2019). However, this includes potatoes, onions and tomatoes which are not vegetable levy crops. Assuming there are 200 vegetable levy paying businesses in Tasmania. We have actively engaged with at least 40% of levy paying businesses. However, we know that we engaged with all of the large-scale businesses, therefore the project will have reached growers representing a **majority of the hectares grown** in Tasmania.

61% (14 out of 23) of respondents in the end of project survey, reported that they had made changes to their work practices or the advice they provided or had adopted new technologies in the past three years. Therefore, we expect that at least 40 growers have made changes as a direct result of this, or related projects we engaged with.

The extent of practice changes and the impact (e.g. economic impact) that changes will have on the businesses is problematic to assess and attribute from the data we could collect as part of an extension project.

The newsletter circulation list is 409 people (including 187 growers) with an average open rate of 37.5% and an average click rate of 7.7%.

Materials and outputs will continue to be available via the project webpage (link to webpage) beyond the life of the project.

Monitoring and evaluation

Table 1 provides the project log frame from the M&E Plan (evaluation level, project details and performance measures) and achievement against the performance measures.

A summary report of the end of project survey is provided in Appendix 6.

Table 1: Achievement against project M&E performance measures

Evaluation level	Project details	Performance measures	Achievement
Broader goals	**Potential Long-Term Impact** • Sustainable development in the vegetable industry; businesses are more robust and resilient (e.g. businesses, markets, environmental management)	**[Not the responsibility of the funded project]**	**[Not in scope of this project]**
Long-term outcomes	**Horticulture Innovation Objectives (SIP Outcomes)** • 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. [updated in 2017 to reflect the new SIP outcomes]	• Extent to which vegetable businesses are aware and supportive of R&D investments and the trend over time. • Extent to which vegetable businesses are engaged in capacity building activities and who access information and outputs.	**[Not in scope of this project]**
Immediate (project) outcomes	**Industry strengthening** ▪ Effective linkages are established between Hort Innovation – this project – and target audience (vegetable businesses and industry stakeholders who provide advice to vegetable businesses) ▪ Participants engaged in project activities have strong(er) relationships both upstream and downstream in the supply chain.	**Industry strengthening** ▪ Extent to which networks have been strengthened – in terms of stakeholder groups, roles and numbers – and/or if they were already strong.	**Progress made** Substantial progress was made based on our observations and ad-hoc feedback, but it is difficult to measure. Industry networks can still be further strengthened in the future but a substantial first step has been made.

Evaluation level	Project details	Performance measures	Achievement
	Knowledge and capacity gains ▪ 67% of all commercial vegetable businesses in Tasmania will be aware of the program and events and main messages being promoted; by 2018 ▪ By 2019, 40 Tasmanian vegetable businesses, supported by advisors, adopting, trialling or intending to adopt practices; and/or implement changes in their businesses; as a result of the project. ▪ Other specific KASA outcomes to be determined, depending on project activities, topics and baselines.	**Knowledge and capacity gains** ▪ Extent to which vegetable businesses in Tasmania are *aware* of the project, current and recent relevant vegetable R&D, innovation and technology and main messages – compared to target ▪ Number of participants (and number of vegetable businesses represented) who have participated in capacity building activities and indicate a gain in their knowledge and ability to ID and address issues and opportunities; and the extent of change	**Progress made** **Reach of the project** has progressively increased. The mid-term review and end of project survey targeted vegetable businesses who had participated in the project. Therefore, it is difficult to say the proportion of vegetable businesses that are ***aware*** of VegNET. Growers and advisors are interested in the R&D review summary booklet prepared by the VegNET Coordinator. They say that it has been difficult to find a listing with summaries of levy funded projects. Our observations are that awareness can still be improved. Growers sometimes focus on the delivery/discussion topic rather than which project it is. They often do not attribute lessons learned and practice change to specific projects. Capacity building and changes in knowledge and skills can not necessarily be attributed to this project, as activities were often in conjunction with other projects.
	Practice change ▪ To be determined, depending on project activities, topics and baselines.	**Practice change** ▪ Examples of businesses that have adopted one or more changes as a result of the project; or are considering adoption; or decided on non-adoption. This may be by topic specific.	**Progress made** End of project survey identified 61% had made changes in their practices or the advice they provided. 48% were planning further changes.

Evaluation level	Project details	Performance measures	Achievement
	Indicative Impact • To be determined, depending on project activities, topics and baselines (i.e. number of Tasmanian businesses and impact of the project on their business including people)	**Indicative impact** ▪ Evidence of the impact of any changes that businesses have made (including social, economic, environmental impacts); or estimates of impact of intended changes. ▪ Evidence of barriers to change and/or legitimate reasons for non-adoption of R&D outcomes.	**Progress made** Assuming that the changes and practices implemented will have an impact on the businesses.
Outputs	**Extension materials** Vegetable-business friendly R&D information and project results ▪ 3 technical notes ▪ 3 simplified R&D reports on specific vegetables ▪ Events calendar (Tas Farming Futures website; and existing Tasmanian calendars TFGA and Farmpoint)	**Extension materials** ▪ Number and topics of extension materials, details of circulation/ requests, perceived user-friendliness and usefulness to vegetable businesses and their advisors	**Completed** The type of extension materials varied throughout the project. Refer to list in Outputs sections.
	Project reports ▪ Annual Operating Plans ▪ MER Plan ▪ Updates to Hort Innovation ▪ 6 monthly milestone status reports ▪ Mid-term project review report • Final report	**Project reports** ▪ Extent to which planned reports are completed in relation to needs and timing and are at required detail and quality	**Completed**

Evaluation level	Project details	Performance measures	Achievement
Influencing activities	**Communication** ▪ Tasmanian contributions to national communications funded by HIA ▪ e-Newsletter (3 per year) ▪ 4 industry articles per year in relevant Tasmanian newspapers, magazines and newsletters (e.g. Farming Tasmania Magazine) ▪ Social media Twitter feed (using Tas Farming Futures Twitter: @TasFarmFutures). Establish new Facebook account. ▪ Webpage and resources on the Tas Farming Futures website	**Communication** ▪ Extent of distribution of newsletter and articles, awareness and value perceived by vegetable businesses and their consultants ▪ Twitter interaction and value perceived by vegetable businesses	**Completed**
	Industry engagement ▪ 6-monthly update meetings with consultants and service organisation representatives	**Industry engagement** ▪ Number, type and topics of meetings, participation by advisors (agronomists, service providers), value perceived, and use made of information	**Completed** Timing of meetings varied depending on needs and the meeting schedules of the organisations / businesses.

Evaluation level	Project details	Performance measures	Achievement
	Extension (number and type of activities to be confirmed) Suggested activities / events are: ▪ 1 major event/yr ▪ 1 field day/yr ▪ 1 webinar per year ▪ 1 bus tour/yr ▪ Assistance and participation in vegetable industry events – Attendance at Trade Shows e.g. TFGA Conference or TAPG expo ▪ Targeted one-on-one visits with vegetable businesses • Participate in relevant industry and regional networking meetings	**Extension** ▪ Number, type and topics of events, participation by vegetable businesses – by audience and crop & hectares (if growers) – value perceived, and use made of the information ▪ Number and topics of one-on-one visits and extent to which these assisted uptakes of R&D, access to information and facilitated change	**Completed** Type of events varied depending on feedback and demand; and were reviewed for each annual work plan. Three events were cancelled due to limited interest e.g. study tour to Victoria. 79 targeted on-on-one farm visits were conducted over the three years.
Foundational activities	**Development** • Provide feedback to Hort Innovation on R&D gaps and needs	**Development** ▪ Extent and usefulness of feedback to Hort Innovation and extent of action taken	**Progress made** A summary of the outcomes from the VegNET Tasmania R&D workshop was provided to Hort Innovation. Concepts were entered into the Hort Innovation system or directly to Hort Innovation staff e.g. pest problem, need for minor use permit. This can be improved in phase 2 with a more deliberate approach to providing feedback on R&D gaps.

Evaluation level	Project details	Performance measures	Achievement
	Governance ▪ Link with Coordinating project ▪ Regular feedback from Tasmanian vegetable businesses and advisors / key stakeholder groups ▪ Staffing: Donna Lucas (Project Leader), Doris Blaesing (Technical/ Facilitation Support) and Ashley Evans (2016-17) / Emma Egan (2017-18) / Theresa Chapman (2018-19)(Project Extension Officer). ▪ Organisation support staff ▪ Specialists as required (e.g. for training events) • Program Reference Group meetings	**Governance** ▪ Type and extent of linking with the coordinating project ▪ Engagement, role and time input from staff ▪ Type and adequacy of organisational support provided ▪ Participation in Program Reference Group meetings	**Completed**
Context (e.g. climate/ weather events, market prices, availability of contracts)		What changes occurred in the external environment (climate, prices, policies etc.) that may have affected/explained project outcomes and performance?	The 2018/19 growing season was particularly busy for some Tasmanian growers due to the impact of mainland conditions on markets (and demand) as well as dry conditions in southern Tasmania. This meant that some growers had less time for participation in VegNET activities.

The M&E Plan was based on a template provided by Coutts J&R and approved by Hort Innovation. While the M&E Plan did not include the key evaluation questions (KEQs) from the Hort innovation evaluation framework, the project team reviewed these KEQs. The combined responses are provided in Appendix 7.

Conclusions from monitoring and evaluation

- **Awareness of the VegNET brand is increasing and gaining momentum.** Having a nominated Industry Development Officer (IDO) provides a 'go-to' person for people to contact. Attending industry forums and delivering presentations at meetings was an effective way to engage with stakeholders and raise awareness of the project brand. VegNET specific social media accounts were established in 2017 and we found that these were an important channel to increase industry awareness of the VegNET project, especially with younger growers.
- **Using multiple methods of engagement was effective for engaging with a range of stakeholders** and segments. Some growers do not attend events and therefore farm visits are more effective for engaging with them. Others prefer group meetings and events.
- **Timing of events / activities is important for getting participation**. Generally, winter is the best time to conduct events because growers are too busy during the growing season, which for a majority of vegetable growers is spring through to early autumn. Timing can be topic specific e.g. a workshop on insect trapping should be conducted just before the trapping season. Also, short (2-hour) events in mid to late afternoon seem to work well because growers and staff can complete their work for the day and then attend the event. The social aspect of events is important for many.
- **Collaboration is crucial for engagement and strengthening industry networks.** This includes collaboration and coordination with related projects, industry bodies, researchers, processors and others in the supply chain.
- **Agronomists and field officers are key influencers**. Therefore, they should be involved in delivery of activities as appropriate. Targeted communications and activities for and with key influencers should also be included in project plans.
- **The original project plan focused on business and market topics, however a majority of activities were production focused.** This shift in focus was due to several factors. 1. Production topics e.g. crop protection, nutrition, irrigation and soil management remain a priority for growers, especially in an environment where most crops are grown under contract; 2. Engagement on business topics is more challenging and requires more effort i.e. one-on-one meetings; trust and longer-term relationships are a prerequisite; 3. The project coordinated a large number of activities with related projects (that were production focused), which were useful for growers, and this coordination required more resources than anticipated at the start of the project; 4. Although exporting is a national industry priority, only a small number of Tasmanian growers are 'export ready' or interested in 'exporting'; specialised packer/export business are organising exports from Tasmania; 5. Recruiting participants e.g. for a marketing study tour, takes time unless you have an established group that is interested in and capable of developing their own markets (own marketing requires knowledge and capital infrastructure for cooling, packing, storing, shipping etc.; small to medium sized Tasmanian vegetable growing businesses do not have the inclination, need, time and or funds to invest in this).

Recommendations

The recommendations listed below were developed by the project team based on the project evaluation. They incorporate feedback from industry stakeholders, the mid-term review by Coutts J&R, project team reflections and lessons learnt.

1. **Continue the VegNET program into Phase 2**, building on the existing project and network momentum.
2. **Conduct a more deliberate needs analysis** and design a program that considers the *outcomes* that levy payers and other stakeholders need, rather than just focusing on topics.
3. **Identify key issues to focus on - based on industry needs - and do them well**, rather than trying to cover too many topics or too many events.
4. **Identify key data collection needs for M&E –** they should be achievable and attributable indicators rather than aspirational i.e. measuring economic impact.
5. **Deliver follow-up support after events**, where appropriate to achieve lasting change. This follow up support needs to be built into the project plan and budget.
6. **Establish the R&D Prioritisation day as an annual event**. People valued the opportunity to have their say. This also provided a good opportunity to provide feedback to Hort Innovation on R&D needs and gaps.
7. **Seek strategic guidance from a local advisory group** e.g. TFGA Vegetable Council or TAPG. This would ensure that the project is targeted and meeting the needs of levy payers.

Refereed scientific publications

No refereed scientific publications to report.

References

ABARES (2019) Australian vegetable-growing farms: an economic survey, 2016-17 and 2017-18 http://www.agriculture.gov.au/abares/research-topics/surveys/farm-survey-data

Coutts J&R (2018) Mid-term Review: National Vegetable Extension Network (VegNET)

Intellectual property, commercialisation and confidentiality

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

Acknowledgements

The project team acknowledges the vegetable growers, agronomists, advisors, processor representatives, researchers and industry body representatives, who contributed their valuable time and resources to the VegNET Tasmania project. These stakeholders contributed to the successful delivery of VG15046.

Appendices

- Appendix 1: Annual Workplans ó/ hbCL59b¢L ! [ú
- Appendix 2: Monitoring and Evaluation (M&E) Plan ó/ hbCL59b¢L ! [ú
- Appendix 3: Example Twitter analytics (February 2019 and March 2019)
- Appendix 4: One-on-one farm visits
- Appendix 5: Report from Tasmanian Vegetable Industry Research, Development & Extension Prioritisation Workshop, April 2018
- Appendix 6: VegNET Tasmania, End of Project Evaluation Survey - Summary Report ó/ hbCL59b¢L ! [ú
- Appendix 7: Key Evaluation Questions - project team reflections ó/ hbCL59b¢L ! [ú

Appendix 3: Example Twitter analytics (February 2019 and March 2019)

Feb 2019 · 28 days

TWEET HIGHLIGHTS

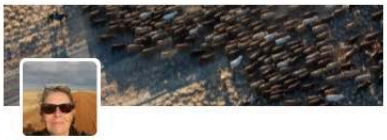
Top Tweet earned 1,864 impressions

Every now and then I get to show **@data_farming** to a grower that hasn't yet come across it. What a treat! Love your work **@TimNeale1** !

3 7

View Tweet activity | View all Tweet activity

Top Follower followed by 7,543 people



Fiona Lake
@FionaLakeAus FOLLOWS YOU

Ag/rural specialist professional photographer, book publisher, licenced **#drone** pilot, workshops, **#farmtours**. Take work seriously but not myself https://t.co/TFiTDEVt02

View profile | View followers dashboard

Top mention earned 263 engagements

Craig Soward
@TasCowboy · Feb 13

Strip tilled broccoli being inter row weeded, Cressy, Tasmania. **@VegNET_Tas @Slyagri @SoilFirstTas #striptill #broccoli #sly #stripcat #simplotfarming #joecookag #SustainableAgriculture** pic.twitter.com/tB1vR5m4bg

2 1 14

View Tweet

Top media Tweet earned 589 impressions

Farmers' Friday is back **@SoilFirstTas**! We're talking about the 2018/19 pea season. What went well, what went wrong, is it worth considering no-till? What are other growers doing about slugs? Let's talk. Tomorrow, 1pm Beswick Sheds, Sisters Creek. **#peas @SimplotCompany** pic.twitter.com/L0IQX7MWyz

2

View Tweet activity | View all Tweet activity

FEB 2019 SUMMARY

Tweet impressions
12.3K

Profile visits
5

New followers
13

Mar 2019 · 31 days

TWEET HIGHLIGHTS

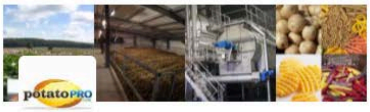
Top Tweet earned 1,043 impressions

Spray efficiency, get on board!
pic.twitter.com/mIRLIT2u6n

6 5

View Tweet activity View all Tweet activity

Top Follower followed by 9,515 people



PotatoPro
@PotatoPro FOLLOWS YOU

https://t.co/05Mwl66UKG is the #1 information source for the Potato Industry. Get a free subscription & check out our unique global potato industry directory!

View profile View followers dashboard

Top mention earned 1 engagements

Lisette Mill
@basalttobay · Mar 28

@AUSVEG @VegNET_Tas @HortCon_ I did a womans double take on second from the left picture.....😁😁😁

View Tweet

Top media Tweet earned 1,041 impressions

Attention Southern Tas Growers! Get involved with the future direction of @Hort_Au

Check out "Hort Innovation 2019 Strategy Consultation Workshops - Grove TAS" eventbrite.com.au/e/hort-innovat… @Eventbrite pic.twitter.com/wY3gL5rudy

4 2

View Tweet activity View all Tweet activity

MAR 2019 SUMMARY

Tweets	Tweet impressions
11	8,396
Profile visits	**Mentions**
36	1
New followers	
19	

Appendix 4: One on one farm visits

Through one-on-one visits we were able to extend specific information to individual farm businesses and increase awareness of the VegNET and other Hort Innovation projects. The main topics of interest raised by growers included, but was not limited to:

- disease, with a specific focus on Pythium (carrots, peas)
- precision agriculture (PA) including controlled traffic farming (CTF) and variable rate irrigation (VRI)
- minor use permits
- Winter crane fly, soilborne diseases, nematodes
- Pythium in the hydroponic system, mostly in coriander
- Salinity, water damage, the difficulty with drainage, cover crops, biofumigation, subsoil manuring, crust.
- Swede paddock: potato regrowth
- Onion paddocks: drill/operator error - seed too deep, wind damage, erosion control, water application, weeds.
- Carrot crop, a developing resistant ryegrass situation. Ryegrass in wheat crop a contributing factor.
- Irrigation, resistant rye grass, cover cropping (timing), leaf disease, management
- compost, weed control, organics, packaging, soil health, markets.
- peas, no-till, grain project, landcare, wildlife services, cover crops, precision ag, tillage, stubble management.
- peas, no-till, soil first project
- took soil cores for UniSA project, talked paddock history. Gave feedback on compaction
- biological soil amendments, soil types, rotations
- Hillslope erosion control trial, VegNET to follow progress.
- Sowing cover crop plots for demo display at Precision Ag expo with Serve-Ag and TIA
- Land plane demonstration - drainage, soil health, compaction, waterlogging, precision ag.
- Organic weed management, cultivation methods, soil biology, integrated weed management
- Corn and celeriac, direct marketing, insect control, alternative vegetable crops, pollination
- Soil type, expansion, soil moisture monitoring, agri-tech, vegetables vs livestock.
- Wetland restoration, soil protection, erosion.
- Brussels sprouts, variety trials, soil care, tillage, cover crops, rotations, industry.
- Spray application, extension, agricultural research
- Cover crops, fallow, erosion, tama rye grass, compaction.

Appendix: 5: Report from Tasmanian Vegetable Industry Research, Development & Extension Prioritisation Workshop, April 2018

RMCG

National Vegetable Extension Network
TASMANIA

Tasmanian Vegetable Industry Research, Development & Extension Prioritisation Workshop, April 2018

Introduction and background

VegNet Tasmania held a Research, Development and Extension (RD&E) prioritisation workshop for the Tasmanian vegetable industry on the 13th of April 2018 at Port Sorell (North West Tasmania). Attendees included vegetable producers, advisors/agronomists, field officers, seed company representatives and researchers. The workshop provided an opportunity to discuss industry priorities and RD&E needs.

The workshop was in response to feedback from growers and researchers that they wanted to provide input into R&D planning to address regional (Tasmanian) needs. In the past, research advisory committees met annually to determine R&D needs for the Tasmanian vegetable industry, considering predominant production systems where vegetables are grown in rotation with other, non-vegetable levy crops. However, these meetings have not been held for years.

Summary

The priorities (listed in Results section of this report) strongly reflect environmental, production technology and market aspects, from traceability, to food safety and consumer perceptions.

Based on discussion at the workshop, there is a need to increase our understanding of markets (**market intelligence**) for Tasmanian products, including potential new crops and their suitability from paddock to plate. Resources, including water and soil (and people) was also a common theme, with priorities focussed on soil health, irrigation schemes and crop requirements.

A common theme was the development of **quality assurance and feedback systems** that are standardised and provide opportunities for the consumer to trace the products' provenance.

Increasing industry understanding of pests and diseases and their management was also identified as a priority, with discussions on further developing **Integrated Pest and Disease Management** (IPM) principles, through understanding pest and disease risk profiles, increasing pesticide access and development of softer chemistry.

When it came to technology, there was discussion of **integration of technologies**, including the development of validated cross-platforms to support decision making and the use of big data. It was reiterated that the benefit in economic, social and environmental terms, as well as the opportunity for producers to interact with technology through **demonstration sites** was of importance.

Training was also discussed, and it was suggested that a **masterclass focussed on vegetable production**, would be of value.

Objectives

The objectives of the workshop were to:

- Facilitate a structured forum for the industry to discuss its future
- Establishing RD&E needs to address future issues and opportunities for the Tasmanian vegetable industry (forward planning for the industry, not what is happening now)
- Provide a mechanism to identify RD&E priorities and communicate them to industry bodies, RD&E providers and funding bodies, including Hort Innovation
- Document the identified needs, for researchers and industry to develop relevant projects, noting that some needs may already have been addressed via recently commenced projects.

Methodology

INVITATIONS / PARTICIPANTS

VegNET Tasmania and TFGA sent invitations to 82 people including growers, packers, processors, seed companies, researchers, industry groups, state government officers, NRM bodies and advisers/agronomists. The invitation list included broad representation from across the industry. Although the VegNET project focusses on levy vegetable crops, the workshop encompassed all vegetable industries including potatoes, onions and vegetable seed. These were included because they are important crops in Tasmania and are usually grown in rotation with vegetable levy crops, thus having an impact on these crops e.g. via weeds, soil borne diseases, soil conditions.

Table 1 shows the representation at the workshop by role.

Table 1: Representation at the workshop, by role.

ROLE	NUMBER OF PARTICIPANTS	PERCENTAGE (%)
Farmer	3	10%
Agronomist	7	23%
Processing	4	13.3%
Independent Consultant	2	6.7%
Researcher	8	26.7%
Seed Industry (including seed researchers)	5	16.7%
State Government	1	3.3%
TOTAL	**30**	**100%**

The VegNet team predetermined six groups for the workshop. The aim was to create diverse groups with a mix of representation.

OVERVIEW OF PROCESS

The following diagram illustrates the process used during the workshop. It was designed to allow each person to formulate her/his thoughts, discuss it with the group, and then prioritise as a group and individually. It challenged participants to think of the 'big picture' first, consider pre- and post-farm gate aspects, and envisage the future production situations (scenarios) the RD&E should contribute to or influence.

The idea was to prevent participants to propose 'pet projects' that apply to current scenarios, which would not be relevant anymore by the time a RD&E program was completed i.e. in three to six years' time.

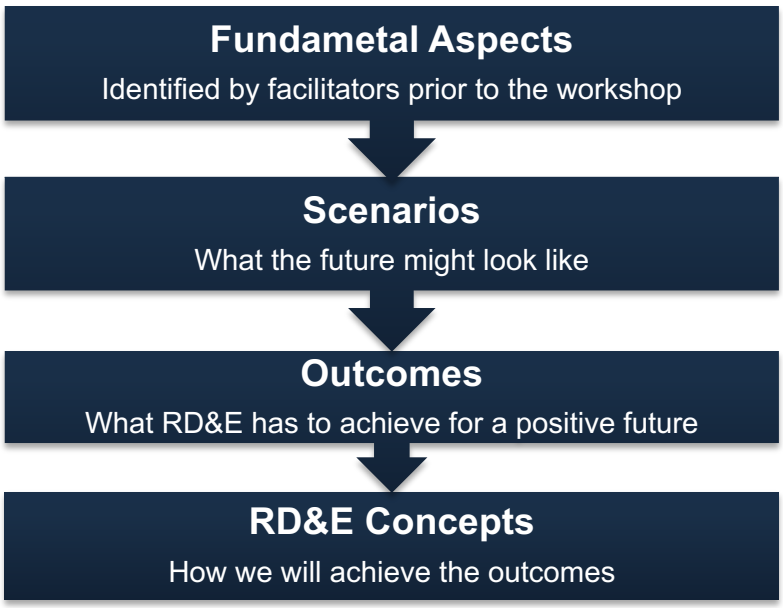


Figure 1: Workshop process

A detailed version of this process is attached in Appendix 2. Each step in the process is briefly described below.

FUNDAMENTAL ASPECTS

The VegNET team identified six aspects that are fundamental to all production operations and interact with each other. These were selected to ensure that all aspects of the industry were considered. One aspect was assigned to each group. Aspects were:

1. Production inputs and actions
2. Markets
3. People
4. Environment
5. Business
6. Genetic Material/Varieties

FUTURE SCENARIOS

Each participant brainstormed (individually) scenarios for their allocated aspect or topic. These included for example:

- "*A shift to more seed production rather than increased vegetable production*" (Genetic Material/Varieties group)
- "*Doubling of area under covered cropping*" (Markets group).

Scenarios were shared and discussed within each group. Each group then selected their 'top three' based on relevance and importance.

OUTCOMES

Each participant then brainstormed (individually) desired outcomes that related to the top three scenarios for their group. For example, for the future scenario '*increased regulation*', a desired outcome might be '*a nationally uniform QA system*'.

These outcomes were discussed within groups and participants recorded their level of agreement for each outcome using 'Dotmocracy' sheets (See example in Appendix 1). Each group selected their 'top three' outcomes.

RD&E CONCEPTS

Each participant brainstormed (individually) their RD&E concepts (ideas) i.e. RD&E programs, projects or activities that would achieve the desired 'top three' outcomes.

Each group then selected their top three RD&E ideas i.e. three ideas per group, six groups, generating 18 priority RD&E concepts in total.

VOTING ON RD&E CONCEPTS

The 18 RD&E concepts were posted on walls around the room.

Each participant voted using sticky dots, on their top five concepts i.e. a maximum of one dot per concept.

Results

DATA COLLECTED

Appendix 3 lists all data collected. Thus, it includes all RD&E concepts generated including those that were not nominated for the final voting step.

RD&E PRIORITIES

The RD&E concepts that participants prioritised during the final voting step are listed in Table 2 from highest to lowest number of votes. The table also includes the outcomes and scenarios underpinning these RD&E concepts as well as the fundamental aspect that was the starting point (colour-coded).

Table 2: Prioritised RD&E concepts, listed from highest to lowest number of votes.

NO. OF VOTES	RD&E CONCEPT	TO ACHIEVED THE FOLLOWING DESIRED OUTCOME	FUTURE SCENARIO	FUNDAMENTAL ASPECT
18	Linking the consumer back to the paddock to provide a social and environmental licence for our products, guaranteeing export markets.	▪ Understanding barriers to export to guarantee markets in 10yrs time ▪ A framework to deliver information to consumers to maximise sales and information flow through the chain	Data and information access across whole market (supply chain)	**Production**
16	Social licence: Build trust in communities that both farming and food are' clean and safe'. Use technology to trace providence and safety, backed by big data.	▪ Social licence required ▪ Better communication of research to farmers and broader community	Social licence required	**Business**
10	Consumer research to gain understanding of what breeding techniques are acceptable, use these results to inform/develop next steps.	Establishing acceptance in the market place, of new breeding technology that will deliver affordable, healthy food	Managing breeding technology public perception	**Genetic Material and Varieties**

NO. OF VOTES	RD&E CONCEPT	TO ACHIEVED THE FOLLOWING DESIRED OUTCOME	FUTURE SCENARIO	FUNDAMENTAL ASPECT
10	Develop ways to measure soil health, including monitoring and assessment tools. Develop management practices to address soil health issues including compaction, erosion, structure. This may include research on cultivation. Also understand the benefit ($) and long-term sustainability of these practices.	▪ More sustainable practices ▪ Reduced soil compaction ▪ Improved management practices to reduce inoculum of soilborne diseases ▪ Better use of cover crops and green manuring ▪ To have enhanced soil structure and health with good agricultural practices	Soil structure, health and sustainability improved	**Environment**
10	▪ Review existing irrigation schemes and identify supply gaps for future development ▪ Understand specific crop requirements under certain circumstances ▪ Integrate technology for better use of water on farm	▪ Better water utilisation and understanding of crop requirements ▪ Timeliness of irrigation and soil water holding capacity ▪ When to irrigate crops for max efficiency ▪ To ensure that we continue to develop various water supplies and distribution systems in and environmentally friendly manner	Water is a valuable, shared resource	**Environment**
10	Big data: Create validated cross platform data integration and decision support systems.	▪ Larger, efficient farms ▪ Farming smarter (use of Big data)	Restricted availability of resources and freight options	**Business**
10	Development of a national QA system which is constantly ground-truthed with a feedback loop to improve the system. Possibly block chained.	Nationalised standard QA system, backed by a chemical database	Increased regulation	**People**
9	Investigate current best practice nationally and internationally. Identify the areas with room for improvement and trial/adopt new practices and innovations.	▪ Understanding what products will be demanded by the market ▪ Determining which crops might be suitable for covered cropping, the risks and production factors involved (including post-harvest management)	Doubling of area under covered cropping	**Markets**

NO. OF VOTES	RD&E CONCEPT	TO ACHIEVED THE FOLLOWING DESIRED OUTCOME	FUTURE SCENARIO	FUNDAMENTAL ASPECT
9	▪ Development of integrated pest management programs to reduce pesticide application (including independent comparisons of pesticides to compare efficacy) ▪ Development of products with reduced residual	▪ More targeted use of pesticides to reduce chemical use e.g. use fungicides throughout season using disease forecasting systems ▪ To have internationally recognised environmental friendly production systems ▪ Better global image providing better market access, increased value, reduced cost and resource allocation ▪ Increased pesticide options (registrations)	Improved environmental practices	**Environment**
8	Develop a model of major pests and diseases in each key vegetable production area that estimates damage on a seasonal basis.	Hardier varieties that cope with minimal external pest and disease control (and other inputs)	Shift to lower input farming	**Genetic Material and Varieties**
8	Integration of sensing and automation into farming systems.	▪ Integrated, autonomous systems in existing farm infrastructure and personnel ▪ Integrated systems of data capture and use ▪ Robotics use to reduce input costs and do repetitive and menial tasks ▪ Reduced costs, better product, consumer appreciation of technology and improved products	Intelligent mechanisms used	**Production**
6	Farming systems RD&E focussed on cover crops, tillage and traffic for keeping soil and inputs on farm.	▪ Improved soil resilience to cope with changes in climate and production practices ▪ Guaranteed access to productive land, regulation of land use for farming practices ▪ Better biosecurity, understand threats and have management plans for incursions ▪ Understand the capacity for inputs within paddocks and across the season to inform variable rate technology ▪ Understanding of how rotation impacts pathogens and crop infection or damage.	Environmental sustainability and productivity	**Production**

NO. OF VOTES	RD&E CONCEPT	TO ACHIEVED THE FOLLOWING DESIRED OUTCOME	FUTURE SCENARIO	FUNDAMENTAL ASPECT
4	Demonstration sites with automation equipment, including analysis of equipment benefits (economic, environmental, social).	▪ Have ways to entice people into agriculture ▪ Increased automation for harvesting/planting	Less expensive labour, lower labour costs	**People**
4	Develop extension programs for landowners and production companies that outline the importance of weed and volunteer plant control based on on-farm programs already in place.	Managing isolations and wild plants grown on roadsides and public areas that may impact genetic purity of seed crops	Shift to more seed production rather than vegetable production	**Genetic Material and Varieties**
3	Develop project or program to gain **market** intelligence, assess for production suitability (i.e. what do they want, can we grow it, when and how do they want it).	Increased access to China for identified Tasmanian produce	Increased Chinese tourism. Direct passenger and freight from Tasmania to China. A more discerning market that is demanding more information about how products are produced	**Markets**
1	Veg Masterclass (Similar to Hort Innovation funded Masterclass).	▪ Increased number of vegetable specific job ready graduates from training providers, particularly NW coast, backed by experienced learning opportunities with work experience ▪ Development of a vegetable industry focussed Bachelor degree in N-NW coast with a heavy focus on practical experience	Training, skills and accreditation increased	**People**
0	Understand factors that most influence productivity and quality of high demand crops.	Increased access to China for identified Tasmanian produce.	Increased Chinese tourism. Direct passenger and freight from Tasmania to China. A more discerning market that is demanding more information about how products are perceived	**Markets**

NO. OF VOTES	RD&E CONCEPT	TO ACHIEVED THE FOLLOWING DESIRED OUTCOME	FUTURE SCENARIO	FUNDAMENTAL ASPECT
0	▪ Research business models/structures to maximise employment, social capital and prosperity ▪ Research into attracting and managing large investment from big businesses including strategy, legislation, local contracts and value capture	▪ Larger contracts, economic scale driven ▪ Increase in lease contracts, farmer provides land ▪ Overseas investment increase ▪ Right to farm challenges overcome ▪ Intelligent systems ▪ Larger farms ▪ Fertiliser legislation ▪ Less pesticides available	Big business (Value capture) in Tasmania	**Business**

While some ideas received low or nil votes, they are not necessarily unimportant to participants, because:

- Some concepts, ideas were similar to others. As such, there may have been variations in the way that participants allocated their votes for/across these ideas.
- Some ideas were single ideas while others were multiple ideas. Again, there may be variations in how people approached their voting for multiple ideas e.g. if they strongly agreed with one but not others in the list.
- Some scenarios and outcomes may be of higher priority than others. The methodology allowed for the 'top three' from each round to be put forward. It may be possible that there are other RD&E ideas that are important but did not make it to the voting. Refer to Appendix 3.
- The background of participants, e.g. profession, experience, capacity and attitudes, naturally influences choices.

Evaluation

The following is based on feedback received from participants at the workshop as well as observations by the facilitators.

What worked well?

- Participants valued the opportunity to provide feedback on regional industry RD&E needs.
- VegNET Tasmania provides a useful structure to enable this type of workshop to be conducted.
- The individual brainstorming combined with group work was effective for allowing everyone to have their say.
- Starting with the end in mind; working back from scenarios and outcomes to concepts/ideas, was a good way of getting attendees to think differently about industry needs and to think about preparing for future opportunities and challenges.
- Some participants found it challenging that they were allocated a fundamental aspect that was not in their normal field of work, however, the 'big picture' challenge made them think outside the box and allowed them to develop new, different points of view; the resulting ideas were valuable; some participants may try to look at issues differently in the future or adopt some of the techniques used.

What could be done differently next time?

- Prepare participants prior to the workshop for the challenge of taking a holistic, forward looking view.
- Provide each group with a facilitator; e.g. persons who facilitate are especially briefed and prepared to do this.

Next steps

Next steps are:

- Circulate this summary to:
  - all invitees and participants
  - vegetable industry peak bodies (TFGA, AUSVEG)
  - Hort Innovation
- Publish this summary on the VegNET website and newsletter.

Recommendations

- Facilitate a similar workshop in April 2019 and consider making it an annual event.
- Review workshop methodologies.

Appendix 1: Example Dotmocracy Worksheet

Step 1: List 1 2022 Operating Environment aspect/scenario below:

Right to Farm :

What RD&E Outcome is vital for Veg. Industry to deal with the situation?

better communication of Research to farmers & the broader community.

Step 2a: How much do you agree? *Colour in one dot below & sign on the right:*

Strong Agreement	Agreement	Neutral	Disagreement	Strong Disagreement	Confusion, not sure
●●○○○○○○○○	●●○○○○○○○○	○○○○○○○○○○	○○○○○○○○○○	○○○○○○○○○○	○○○○○○○○○○

Strengths & Chances of Success
(comment to explain level of agreement - optional)

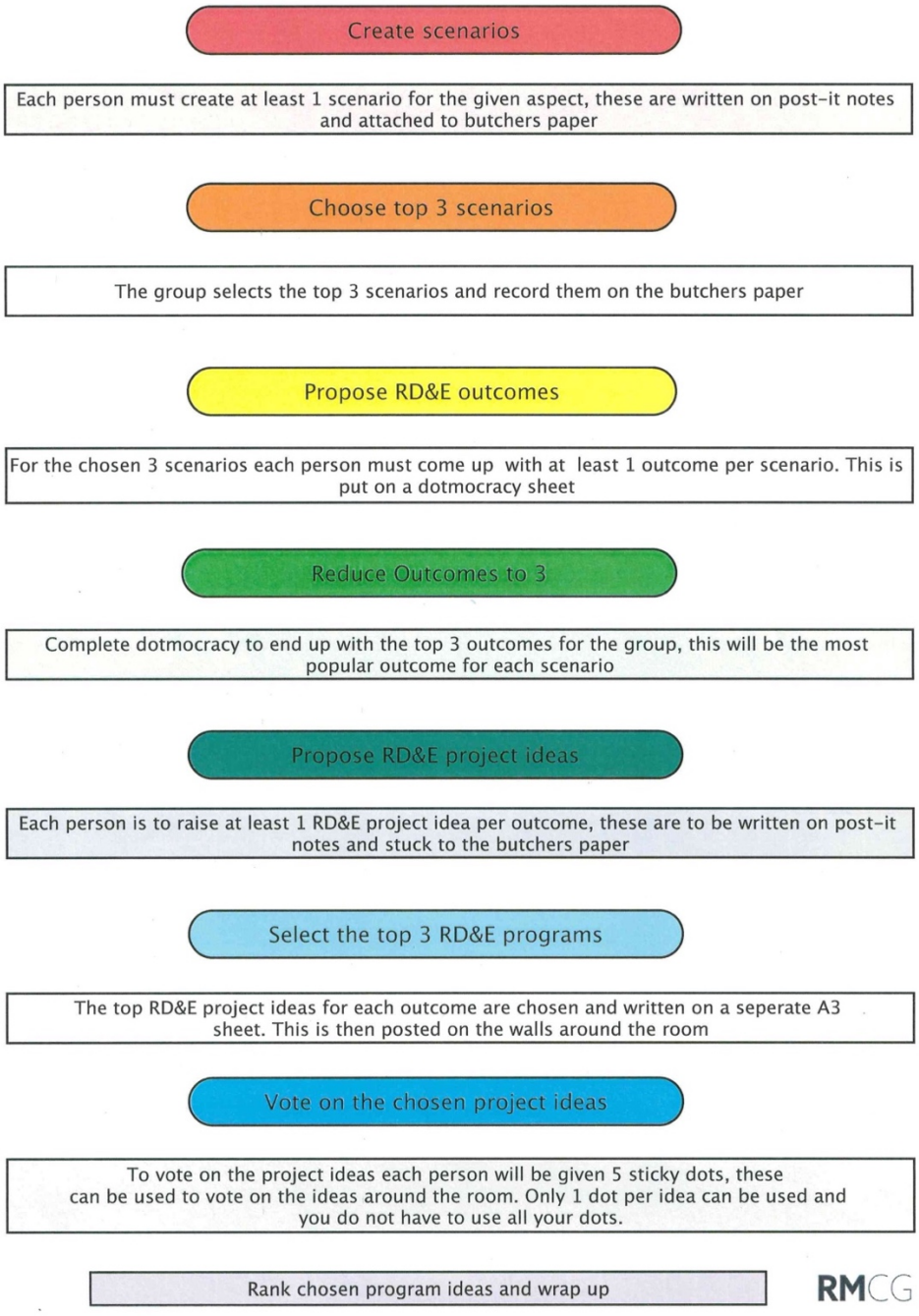
1. Better media + social platforms are available than in the past
2.
3.
4. Much easier to produce multi-media now
5.
6.
7.
8.
9.
10.

Concerns & Chances of Failure
(comment to explain level of agreement - optional)

1. Need to understand how growers want to access inform
2.
3.
4. Funding / Resources
5.
6.
7.
8.
9.
10.

Group Name_____

Appendix 2: Process for groups



Appendix 3: Data collected

Table 3 lists all of the data collected i.e. scenarios, outcomes and RD&E ideas generated by each group including the number of votes for each RD&E idea.

Table 3: Scenarios, outcomes and RD&E concepts, by group/topic

FUNDAMENTAL ASPECT	FUTURE SCENARIO	DESIRED OUTCOMES[#]	RD&E CONCEPT	NUMBER OF VOTES
Genetic Material and Varieties	1. Shift to lower input farming	Hardier varieties that cope with minimal external pest and disease control	Develop a model of major pests and diseases in each key vegetable market that estimates damage on a seasonal basis	8
			Tasmanian breeding program to identify top diseases for most commercially valuable vegetables - introduce resistant genes/breed plants resistant to diseases	n/a
			Screening of existing/available varieties response under low input production to provide a base line for future improved genetics	n/a
			Variety performance testing crop specific for disease tolerance	n/a
			Survey of potential new disease and pest incursions	n/a
	2. Shift to more seed production rather than vegetable production	Managing isolations and wild plants grown on roadsides and public areas that may impact genetic purity of seed crops	Develop extension programs for landowners and production companies that outline the importance of weed and volunteer plant control based on on-farm programs already in place.	4
	3. Managing breeding technology public perception	Establishing acceptance in the market place, of new breeding technology that will deliver affordable, healthy food	Survey of consumers to gain understanding of what breeding techniques are acceptable, use these results to inform/develop next steps	10

FUNDAMENTAL ASPECT	FUTURE SCENARIO	DESIRED OUTCOMES#	RD&E CONCEPT	NUMBER OF VOTES
			Public Education on benefits to farmers and consumers of new technologies	n/a
			Taskforce to manage roadside weeds and educate public on importance of genetic purity	n/a
			Develop on-farm biosecurity through implementation strategy, extend to utility and public authorities	n/a
			Extension program to councils and landowners about roadside weeds and their control	n/a
			Determine community understanding of plant breeding and role in horticulture, inform a comms and subsequent program	n/a
			Extension program that outlines importance of breeding to all facets of the industry	n/a
Markets	1. Increased Chinese tourism. Direct passenger and freight from Tas to China. A more discerning market that is demanding more information about how products are perceived	Increased access to China for identified Tasmanian produce.	Understand factors that most influence productivity and quality of high demand crops	0
			Develop project or program to gain market intelligence, assess for production suitability (i.e. what do they want, can we grow it, when and how do they want it)	3
	2. Doubling of area under covered cropping	▪ Understanding what products will be demanded by the market. ▪ Determining which crops might be suitable for covered cropping, the risks and production factors involved (inc. post-harvest management)	Investigate current best practice nationally and internationally. Identify the areas with room for improvement and trial/adopt new practices and innovations.	9
	3. With a warming climate pest incursion risks increase and potentially impact market access	[No outcomes in the top three]	[No RD&E Ideas Noted]	

FUNDAMENTAL ASPECT	FUTURE SCENARIO	DESIRED OUTCOMES#	RD&E CONCEPT	NUMBER OF VOTES
Production	1. Data and information access across whole market (supply chain)	▪ Understanding barriers to export to guarantee markets in 10yrs time. ▪ Describe a framework to deliver information to consumers to maximise sakes and information flow through the chain.	Linking the consumer back to the paddock to provide a social and environmental licence for our products, guaranteeing export markets.	18
			Market R&D Group	n/a
			Develop market access to various countries	n/a
			Prove that Australia demonstrates international best practice	n/a
	2. Environmental sustainability and productivity	▪ Improved soil resilience to cope with changes in climate and production practices ▪ Guaranteed access to productive land, regulation of land use for farming practices ▪ Better biosecurity, understand threats and have management plans for incursions ▪ Understand the capacity for inputs within paddocks and across the	Farming systems RD&E focussed on cover crops, tillage and traffic for keeping soil and inputs on farm	6
			Develop a suite of cover crops that have impacts on different pathogens	n/a
			Keeping soil on our farms, improving organic matter contents and stability	n/a

FUNDAMENTAL ASPECT	FUTURE SCENARIO	DESIRED OUTCOMES#	RD&E CONCEPT	NUMBER OF VOTES
		season to inform variable rate technology ▪ Understanding of how rotation impacts pathogens and crop infection or damage.	Understanding and managing soils to improve infiltration	n/a
	3. Intelligent mechanism	▪ Integrate autonomous systems in existing farm infrastructure and personnel ▪ Integrated systems of data ▪ Robotics to reduce input costs and do repetitive and menial tasks ▪ Reduced costs, better product, consumer appreciation of technology and improved products.	Integration of sensing and automation into farming systems	8
			Autonomous vehicle development including sensor inputs, evidence and safety	n/a
			Robotic weed control including mechanical and herbicide applications	n/a
			Developing mini robotic above ground machines for crop management	n/a
Environment	1. Soil structure, health and sustainability	▪ More sustainable practices ▪ Reduced soil compaction ▪ Improved management practices to reduce inoculum of soilborne diseases ▪ Better use of cover crops and green manuring ▪ To have enhanced soil structure and health with good agricultural practices	Develop ways to measure soil health, including monitoring and assessment tools. Develop management practices to address soil health issues inc. compaction, erosion, structure. This may include research on cultivation. Also understand the benefit ($) and long-term sustainability of these practices.	10
			Soil health research, reducing compaction, educating industry on systems. Develop model (demonstration) farm to do so.	n/a
			Develop credible monitoring and assessment tools/systems to be able to score and manage our soils better.	n/a
			Pre-plant soil tests on soil health and identify practices to enhance soil health.	n/a

FUNDAMENTAL ASPECT	FUTURE SCENARIO	DESIRED OUTCOMES#	RD&E CONCEPT	NUMBER OF VOTES
			Quantify ($) soil health benefits for each crop	n/a
			Testing of practices to improve soil health and sustainability of production (cultivation, crop rotations, fallow practices, cover crops, nutrient inputs, management of soil borne disease	n/a
	2. Water	▪ Better water utilisation and understanding of crop requirements ▪ Timeliness of irrigation and soil water holding capacity ▪ When to irrigate crops for max efficiency ▪ To ensure that we continue to develop various water supplies and distribution systems in and environmentally friendly manner.	▪ Review existing irrigation schemes and identify supply gaps for future development ▪ Understand specific crop requirements under certain circumstances ▪ Integrate technology for better use of water on farm	10
			Continue to provide opportunities for groups to collaborate in developing regional irrigation systems and accessing better practices	n/a
	3. Improved environmental practices	▪ More targeted use of pesticides to reduce chemical use e.g. Use fungicides throughout season using disease forecasting systems ▪ To have internationally recognised environmental friendly production systems ▪ Better global image providing better market access, increased value, reduced cost and resource allocation	▪ Development of integrated pest management programs to reduce pesticide application (inc. independent comparisons of pesticides to compare efficacy). ▪ Increased pesticide options (registrations) ▪ Development of products with reduced residual.	9
			Understand key pest gaps (needs analysis) and undertake research to understand environmental influences to develop pest forecasting tools. Extend tools to agronomists.	n/a

FUNDAMENTAL ASPECT	FUTURE SCENARIO	DESIRED OUTCOMES#	RD&E CONCEPT	NUMBER OF VOTES
			Need projects to develop and implement better environmental practices backed up by science so that it can be justified	n/a
Business	1. Big business (Value capture)	▪ Larger contracts, economic scale driven ▪ Increase in lease contracts, farmer provides land ▪ Overseas investment increase ▪ Right to farm challenges ▪ Intelligent systems ▪ Larger farms ▪ Fertiliser legislation ▪ Less pesticides available	▪ Research business models/structures to maximise employment, social capital and prosperity ▪ Research into attracting and managing large investment from big businesses inc. strategy, legislation, local contracts and value capture.	0
	2. Farming smarter (Big data)	▪ Larger farms ▪ Restricted freight options ▪ Availability	Big data: Create validated cross platform data integration and decision support systems	10
			Training and support on big data	n/a
			RD&E focussed on machine learning	n/a
	3. Social licence	▪ Social licence required ▪ Better communication of research to farmers and broader community	Social licence: Build trust in communities that both farming and food is clean and safe through community education. Develop new QA scheme using technology to trace providence and safety, backed by big data.	16

FUNDAMENTAL ASPECT	FUTURE SCENARIO	DESIRED OUTCOMES#	RD&E CONCEPT	NUMBER OF VOTES
			Manage and minimise waste	n/a
People	1. Training, skills and accreditation increase	▪ Increased number of vegetable specific job ready graduates from training providers, particularly NW coast, backed by experienced learning opportunities with work experience. ▪ Development of a vegetable industry focussed Bachelor degree in N-NW coast with a heavy focus on practical experience	Veg Masterclass (Similar to Hort Innovation funded Masterclass)	1
			Fit for purpose work experience hours for Bachelor degrees via regulation.	n/a
			Research flexible and effective delivery	n/a
			Agronomy mentor program	n/a
			Industry-specific workshops and units	n/a
			North West coast UTAS based vegetable focussed Bachelor degree	n/a
	2. Less expensive labour	▪ Ways to entice people into agriculture ▪ Increased automation for harvesting/planting	Demonstration sites with automation equipment, including analysis of equipment benefits (economic, environmental, social)	4
			Education on programming/coding	n/a
			Effective automation	n/a
	3. Increased regulation	Nationalised standard QA system	Development of a national QA system which is constantly ground-truthed with a feedback loop to improve the system. Backed by a chemical database. Possibly blockchained.	10

Where more than one outcome is listed, they are not necessarily listed in order of priority.

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