Final Report

Consumer and market program for the vegetable industry

Jenny Witham
Colmar Brunton

Project Number: VG12078 + VG14060

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Tel: (02) 8295 2300
Fax: (02) 8295 2399

Content

Summary

VG12078 & VG14060 Project Harvest aimed to identify opportunities for Australia's vegetable industry through identifying trends in purchase and consumption, in perceptions of value, retail channel preferences, triggers and barriers, needs, preparation and consumption occasions. The program met these objectives via a multi-faceted approach where data was collected regularly and in a nationally representative manner.

The target audience of the project were levy payers of Hort Innovation who had access to each month's reports, an interactive data tool and face-to-face interactions with the Colmar Brunton research team. Feedback was sought and received regularly with many improvements being implemented over the course of the program.

A total of 44 monthly reports were produced by the completion of the program. Over that time, we observed the rise of Coles over Woolworths as a preferred channel for fresh; a positive but consistent level of satisfaction with fresh produce, the rise (e.g. cauliflower, beetroot) and fall (e.g. kale) of various commodities as fads swept through and no substantial change in relation to the volume of vegetables consumed – unfortunately this is still substantially lower than the recommended amount.

Colmar Brunton recommends tracking each commodity once a quarter or half-yearly in conjunction with actionable key insights. This would allow the industry to monitor the impact of any action taken as a result of the insights and recommendations, and whether this is having a positive effect on consumers and the industry, i.e. upturn in purchase and consumption frequency. The Harvest Tracker can provide the industry with 2-3 ad-hoc questions per wave that can be tailored to any additional topics that are of interest at that point in time. In addition, the industry may wish to consider an online dashboard/portal that will allow all stakeholders to access past and future data.

At an overall perspective, beyond the specifics of the Harvest Tracker; the current research has highlighted other areas where investigation appears warranted:

1) **Consumer knowledge.** There is a disconnect between recommended and actual vegetable consumption and we need to know how the industry can help effectively bridge this gap. There are also many consumer desires and needs that are currently unmet and that could be satisfied by innovation in the vegetable industry.
2) **Creating added value.** There is a lot to learn about how other FMCG categories create premium pricing and increased demand for their products. The vegetable industry could learn a lot from other food and beverage categories and how they have been able to encourage changed behaviour and specifically increased consumption through innovation and how it is delivered to market.
3) **Targeted export focus.** There is much to learn about a market prior to sending produce there in the form that is popular in Australia. Learning about consumer attitudes and behaviours relevant to the category is one line of essential investigation, preference for taste, shape, size, appearance, sale formats and price points are also essential prior to launch in order to maximise export market success.

Along with the continuation of Project Harvest, the above areas of investigation will undoubtedly assist in the health of our vegetable industry in Australia as well as the health of everyday Australians.

Keywords

Harvest; fresh; vegetables; consumer; perceptions; behaviour; purchase; consumption; cooking; trends; new product development

Introduction

It was identified that there was an increasing need in Australia's Horticulture Industry to monitor and gauge consumer perception and behaviour in relation to fresh vegetables. Colmar Brunton Research (CBR) was contracted by Horticulture Innovation Australia (previously Horticulture Australia Limited) to conduct a three year tracking study investigating consumer perceptions and behaviour in relation to fresh vegetables. The tracking study was extended in 2016 for a further 8 months, ending in February 2017.

The project commenced in June 2013, and aimed to identify opportunities for the industry through:

- Identifying trends in purchase and consumption habits;
- Identifying amount spent month-to-month and perceptions of value;
- Determining trends based on consumer segmentations of location, age, lifestage and income;
- Detecting any change in penetration and market size of the vegetable industry as a whole and of specific crops of interest (rotated on a monthly basis); and
- Detecting any change in consumer behaviour, retail channels, triggers and barriers, needs, preference of preparation and consumption occasions.

To meet these objectives Colmar Brunton designed a multifaceted research program to collect quantitative, qualitative and secondary trends information. This was used to provide the vegetable industry with:

- Monthly consumer behaviour and perceptions data (captured in an online survey with a minimum of 200 consumers across Australia, presented in a comprehensive monthly report);
- Two monthly ad-hoc questions to add further depth to topics of interest;
- An Interactive Research Tool (IRT) to easily look at the data at a granular level, specifically by month and by consumer demographic information;
- Quarterly global new product development (NPD) launch trends; and
- National annual qualitative and quantitative ad-hoc projects.

Initial feedback from the industry, including end users, was positive, and therefore the project VG12078 was extended to include the tracking of an additional 12 vegetables through the project VG14080. The project originally tracked 16 vegetables per year; through its third and fourth years of commencement, the projects combined track 28 vegetables annually, rotating every quarter. To provide depth of insights and actionable information, the project encompasses on-line tracking of seven vegetables per month; monthly trend analysis; an interactive research tool (IRT) for further analysis; and annual ad-hoc qualitative and quantitative projects.

In total, 44 waves of monthly tracking and trends have been completed and reported. The outcomes of the project aim to provide the end user and industry with actionable insights that they can apply to their own business.

The following vegetables have been tracked:

- Pumpkin
- Carrots
- Cauliflower
- Beans
- Broccoli
- Sweet corn

- Lettuce
- Green peas
- Cabbage
- Zucchini
- Celery
- Cucumber
- Asian vegetables
- Capsicums
- Brussels sprouts
- Spinach
- Silverbeet
- Parsley
- Broccolini/baby broccoli
- Kale
- Leeks
- Chilies
- Eggplant
- Spring onion
- Radish
- Parsnips
- Beetroot
- Sweet potatoes

The reports were distributed by AUSVEG through a monthly tracker email and continue to be available through the AUSVEG website (http://ausveg.com.au/intranet/vegetable-market/project-harvest.htm). Press releases were also developed by AUSVEG, primarily from the findings of the monthly tracker, and released through media channels including Retail World and Australian Food News.

Methodology

To meet the objectives of the industry, the research was designed to include monthly online surveys with a minimum of 200 specific vegetable consumers across Australia. Internet research was considered ideal for this type of project as it allows us to access large numbers of people across a number of locations, both metro and regional; includes the ability to show visual stimulus, such as commodity images, and to collect more data from category users; and is also the most efficient and cost-effective methodology.

To ensure respondents could only complete the survey once, online panelists were sent an invitation email to complete the survey. The email contained the URL link, their user ID and their unique password. When an ID and password has been used once, it cannot be used again.

Colmar Brunton specifically recommended an online survey for this project as we were able to:

- Contact a widely-dispersed and large sample;
- Quickly process completed questionnaires for timely reporting;
- Utilise a user friendly interviewing format;
- Provide full logic and flexibility in programming (ability to rotate statements etc.); and
- Include visual stimulus as required – mainly around the potato varieties – to reduce consumers' confusion and misattribution.

The online survey began with screening questions to ensure that only the target market specified were able to continue with the questionnaire. All other respondents were politely excluded, thus ensuring that we were talking to the correct demographics. Screeners also ensured the confidentiality of material in the survey.

The target market of consumers we spoke to had sufficient fresh vegetable consumption (fortnightly for general vegetable consumption and monthly for the specific commodity of interest). Additionally, fresh vegetable consumers were required to be aged over 18 years and to be the main or joint grocery buyer in their household. We ensured that there was representation across most states and territories as well as both metro and rural regions.

The questionnaire was approximately 10-15 minutes in length, with a target completion of a minimum of 200 consumers per wave/month. The topics covered included consumer demographics; general vegetable purchase and consumption habits; category health and consumer sentiment; purchase and consumption frequency; purchase location; price and value perceptions; awareness of varieties, types and formats purchased; triggers and barriers to purchase; preparation and cooking preferences; and importance of provenance. These questions were standard each month and did not change. An additional two ad-hoc questions were asked at the end of the questionnaire. The subjects of these questions were supplied by Horticulture Innovation Australia and were updated each month, exploring topics of interest to the industry. Please refer to the ad hoc questions and summaries in the Appendices.

Image 1. Methodology Flow

Some of the topics for the ad hoc questions that we have evaluated over the waves include: Shopping behaviour and cooking repertoire, country of origin and provenance, packaging formats, seasonality, retail channels and consumer spend.

To accompany the primary consumer research, secondary desk research was conducted. The Mintel Global New Product Development (NPD) database was accessed to analyse any product launched globally in the previous three months that contained the specific vegetable as an ingredient. The categories for products containing the specific vegetable included food, drink, beauty and personal care, and health and hygiene. Results were analysed by country of launch, region of launch, packaging type and claims used on pack. The database provided information of the scale and number of launches rather than the success of the product in market.

To capture indicative retail pricing of fresh vegetables, in-store and online retailers were visited once a month around the country. Colmar Brunton representatives visited Coles and Woolworths to capture the price in Sydney, Brisbane, Adelaide and Melbourne. Online prices were captured via the Coles and Woolworths online websites for all state capital cities. These were also aggregated to provide a national average price each month.

An Interactive Research Tool (IRT), an online interactive tool where monthly tracker data is updated with each completed wave, was also set up. The tool allows greater examination of the monthly tracker, with significance testing applied to the majority of data, as well as comparison of data by demographic information (gender, age, location etc.) and tracking wave (month). The IRT contains all tracker data except for monthly ad-hoc questions.

Findings and recommendations from the online survey fed into the development of the annual ad hoc study topics. These topics were generated through a combination of the Harvest reports as well input from the Hort Innovation Project Reference Group (PRG). The annual ad hoc projects allowed the industry to develop a greater understanding of the differing types of consumers within the market. A combination of qualitative and quantitative methodologies were used.

- Presentation and Packaging of Vegetables, 2013
    - 12 qualitative focus groups conducted nationally
    - Each focus group contained a minimum of 5 consumers
    - The groups ran for two hours each
- Vegetable Consumption in Restaurants, 2013
    - 20 minute online questionnaire
    - Completed by 1,025 vegetable consumers
- Fresh Vegetable Consumer Segmentation, 2014
    - 6 qualitative focus groups conducted nationally
    - Mix of face to face and online focus groups
    - 20 minute online questionnaire
    - Survey completed by 1,032 consumers
    - 12 accompanied shops with consumer segments
- Millennials Online Community, 2015
    - 6 week online community with Millennials, consumers aged 18-35
    - 254 consumers participated across the 6 week period

The report format has continually evolved over the duration of the Harvest tracker, with continuous improvement focusing on its relevancy to all stakeholders, as well as ease of understanding and interpretation of data. Feedback on the reporting style came through the PRG and directly from growers.

Project Reach

Project Harvest media stories successfully reached over 2,060,256 people, with a total of 127 stories, a total airtime of 7.6 hours and 16,596 words dedicated to its findings (AUSVEG, Project Harvest Media Hits – July 2013 – January 2016). These media stories were broadcast and printed between July 2013 and January 2016 throughout Australia, with NSW, Queensland and Victoria being the main states publishing these stories. Print format was the main form of media story; however, broadcasts were also notable. These were mainly completed within regional areas of Australia, hence regional having the most media hits by area.

Outputs

The deliverables for the project included monthly Harvest Tracker reports, an IRT, publications, articles and presentation outputs.

Report Outputs

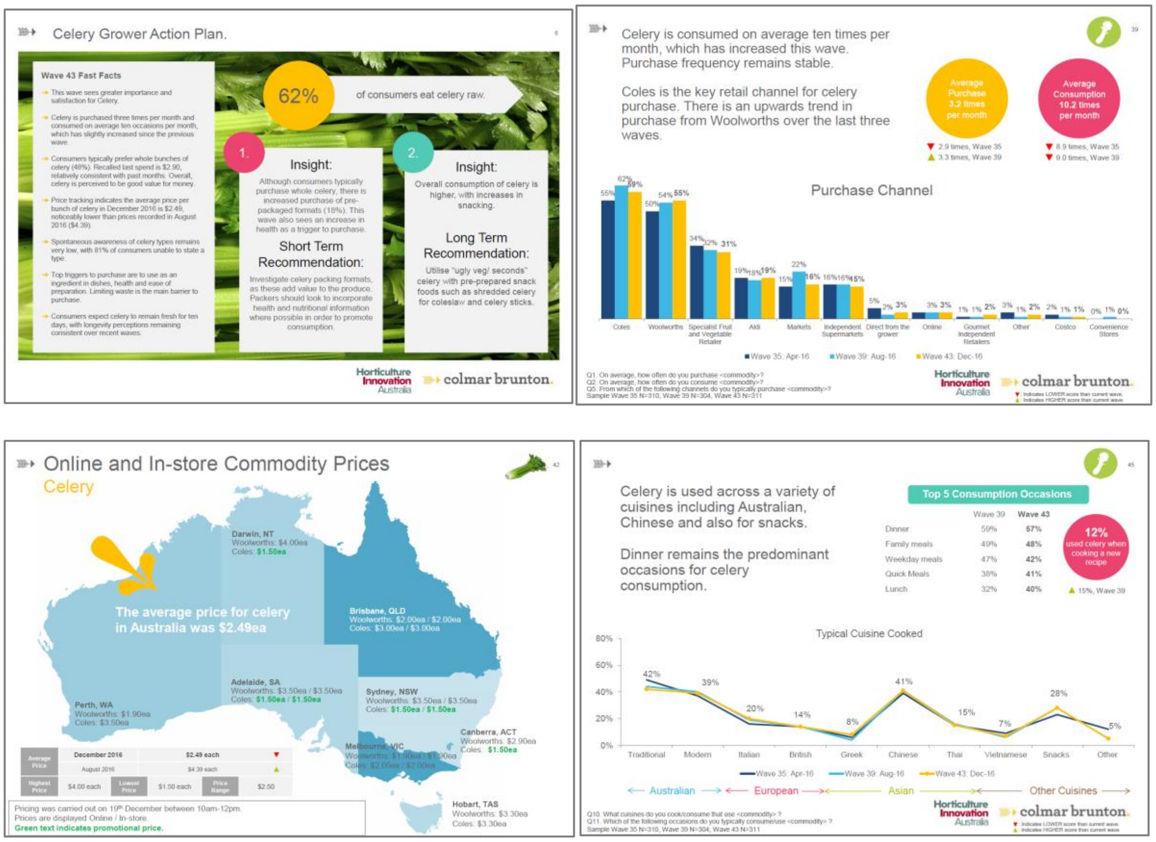
44 waves of online tracking have been successfully completed and reported to Hort Innovation and AUSVEG. Harvest Tracker reports have been delivered at the start of the month to Horticulture Innovation Australia for online publication and dissemination to relevant parties. Each report is available on the AUSVEG website. AUSVEG also distributed a monthly Harvest Tracker email with a link to the most recent report.

Each report included the following sections:

- Industry insight
- Commodity grower action plan
    - Commodity fast facts
    - Insights; short-term & long-term recommendations
- Response to ad-hoc questions (please refer to Appendices for full list of questions and summaries)
- Category health
- Purchase channels
- Average spend and price sensitivity
- Formats purchased
- Online and in-store prices
- Awareness of varieties
- Triggers and barriers to purchase
- Consumption occasions, cuisines cooked, cooking styles and accompanying vegetables
- Provenance
- Freshness expectations
- Global trends and new product developments
- General commodity news

Examples of pages from the reports are included in Figure 2.

Figure 2. Examples of Monthly Report Outputs



IRT Output

The IRT is a live and online portal where any individual can log on to review the data. All standard questions that were tracked in the project are available to review; information can also be examined by month and consumer demographics. Results are also highlighted for statistically significant differences. Through the duration of the Harvest Tracker, the use of the IRT has helped to identify some key trends including;

- Triggers to purchase
  - Texture has increased as a trigger to purchase (2015: 17% to 2016/17: 32%)
  - Specific health and nutritional benefits is becoming increasingly important (2015: 15% to 2016/17: 26%)
  - The whole family liking vegetables has increased by 7% as a trigger to purchase (2013: 26% to 2016/17: 33%)
- Barriers to purchase
  - Wastage is a key concern for consumers which contributes to why they do not purchase vegetables more often (2015: 17% to 2016/17: 27%)
- Quick Meals
  - Quick meals have increased as a consumption occasion by 11% over the duration of the tracker (First 12 Waves: 29% to Last 12 Waves: 40%)

- Provenance
    - Importance of knowing where vegetables are grown has increased (First 12 Waves: 6.4 to Last 12 Waves: 6.9)

Figure 3 shows the IRT homepage.

Figure 3. IRT Homepage

Publications and Articles

Based on the findings from the research, multiple articles have been published. Results from this research have also been used in many articles published online throughout 2014-2017 (see table 1 below). Table 2 outlines articles published from AUSVEG.

Table 1.

Date	Article/ Source
February 6th, 2017	"Aldi Australia opening new stores" <http://www.fruitnet.com/produceplus/article/171279/aldi-australia-captures-more-of-the-market>
January 31st, 2017	"Consumers giving Aldi produce the thumbs up" <http://www.northqueenslandregister.com.au/story/4434693/consumers-giving-aldi-produce-the-thumbs-up/?cs=4770>
January 25th, 2017	"Aldi continues to make strides in Aussie fresh veg market" <http://www.hydroponics.com.au/aldi-continues-to-make-strides-in-aussie-fresh-veg-market/>
January 25th, 2017	"Study: Aldi's veg as good as Woolworths', customers say" <http://www.freshplaza.com/article/169916/Study-Aldis-veg-as-good-as-Woolworths,-customers-say>
January 25th, 2017	"Aussies prefer fresh veg supermarkets" <https://insidefmcg.com.au/2017/01/25/aussies-prefer-fresh-veg-supermarkets/>
December 22nd, 2017	"Australians prefer carrot, tomato and celery juice" < http://www.freshplaza.com/article/168516/Australians-prefer-carrot,-tomato-and-celery-juice>

December 16th, 2016	"Aussie carrots helping kids keep an eye out for Santa" <http://getfarming.com.au/2016/12/16/aussie-carrots-helping-kids-keep-eye-santa/>
November 11th, 2016	"Pre-washed veggies have convenience appeal" <https://www.retailworldmagazine.com.au/pre-washed-veggies-convenience-appeal/>
August 25th, 2016	"Australians take fresh approach to vegetable shopping" <http://www.hydroponics.com.au/australians-take-fresh-approach-to-vegetable-shopping/>
August 25th, 2016	"Aussies vegetable shopping shifts" <https://insidefmcg.com.au/2016/08/25/aussies-vegetable-shopping-shifts/>
August 5th, 2016	"Vegetable industry welcomes blueprint for growth" <https://insidefmcg.com.au/2016/08/05/vegetable-industry-welcomes-blueprint-for-growth/>
August 4th, 2016	"Blueprint for growth could inspire veg industry" <http://getbroadacre.com.au/2016/08/04/blueprint-growth-inspire-veg-industry/>
July 12th, 2016	"Shoppers overestimate vegetable imports" <https://insidefmcg.com.au/2016/07/12/shoppers-overestimate-vegetable-imports/>
June 15th, 2016	"Shoppers stock up on vegetables" <https://insidefmcg.com.au/2016/06/15/shoppers-stock-up-on-vegetables/>
May 23rd, 2016	"Fresh is best for Millennial shoppers" <https://insidefmcg.com.au/2016/05/23/fresh-is-best-for-millennial-shoppers/>
March 29th, 2016	"Kapiris bros brings new tomatoes to Australian market" <http://www.freshplaza.com/article/154901/Kapiris-Bros-brings-new-tomatoes-to-Australian-market>
March 7th, 2016	"Australian consumers tastes influence cabbage market" <http://www.freshplaza.com/article/154474/Australian-consumer-tastes-influence-cabbage-market>
February 3rd, 2016	"Over-estimated vegetable consumption" <http://getfarming.com.au/2016/02/19/over-estimated-vegetable-consumption/>
February 3rd, 2016	"Consumers lacking in knowledge" <https://insidefmcg.com.au/2016/02/03/consumers-lacking-in-knowledge/>
January 22nd, 2016	"Aussie consumers value produce quality over cost – study" <http://growernews.co.nz/news_article.htm?cat=11&news_id=2995>
January 12th, 2016	"Strong demand for farmers market vegies" <http://farmersmarkets.org.au/strong-demand-for-farmers-market-vegies/>
December 28th, 2015	"Hort could lead ag's smart thinking push" <http://www.goodfruitandvegetables.com.au/story/3584277/hort-could-lead-ags-smart-thinking-push/>
October 8th, 2015	"More shopping means more veggies on plates" <https://www.retailworldmagazine.com.au/shopping-means-vegies-plates/>
October 6th, 2015	"Death of the weekly shop delivers healthy results" <https://insidefmcg.com.au/2015/10/06/more-shopping-means-more-veggies-on-aussie-plates/>

October 5th, 2015	"Australians not doing the weekly grocery shop eat more vegetables" <http://www.ausfoodnews.com.au/2015/10/05/australians-not-doing-the-weekly-grocery-shop-eat-more-vegetables.html>
September 21st, 2015	"Convenience changing how aussies shop" <https://insidefmcg.com.au/2015/09/21/convenience-changing-how-aussies-shop/>
September 21st, 2015	"Shoppers buying more 'convenient' vegetables" <http://www.ausfoodnews.com.au/2015/09/21/shoppers-buying-more-convenient-vegetables.html>
September 9th, 2015	"Product innovation to boost vegetable industry" <https://insidefmcg.com.au/2015/09/09/product-innovation-to-boost-vegetable-industry/>
September 9th, 2015	"Clarence growers should follow food trends" <https://m.dailyexaminer.com.au/news/clarence-growers-should-follow-food-trends/2768609/>
August 31st, 2015	"Health conscious consumers turning to beetroot" <http://www.ausfoodnews.com.au/2015/08/31/health-conscious-consumers-turning-to-beetroot.html>
August 26th, 2015	"Beeting the competition" <https://insidefmcg.com.au/2015/08/26/beeting-the-competition/>
August 12th, 2015	"Pumpkin patterns" <https://insidefmcg.com.au/2015/08/12/pumpkin-patterns/>
July 24th, 2015	"Australia's increasing snack habits" <https://insidefmcg.com.au/2015/07/24/australias-increasing-snack-habits/>
July 10th, 2015	"Future looks bright for vege growers" <https://www.seniorsnews.com.au/news/future-looks-bright-for-vege-growers/2701754/>
June 5th, 2015	"Consumers go back to nature" <https://insidefmcg.com.au/2015/06/05/consumers-go-back-to-nature/>
May 28th, 2015	"Aussie turn to local greengrocers" <https://insidefmcg.com.au/2015/05/28/aussie-turn-to-local-greengrocers/>
May 22nd, 2015	"Fresh produce labelling in the spotlight" <https://insidefmcg.com.au/2015/05/22/fresh-produce-labelling-in-the-spotlight/>
May 14th, 2015	"Weekly shop dead" <https://insidefmcg.com.au/2015/05/14/weekly-shop-dead/>
April 8th, 2015	"Convenience driving consumers to buy vegetables in new ways" <http://www.ausfoodnews.com.au/2015/03/10/australian-consumers-embrace-corn-research.html>
March 30th, 2015	"Aussies buying vegetables online" <https://insidefmcg.com.au/2015/03/30/aussies-buying-vegetables-online/>
March 23rd, 2015	"Spotlight on Goulburn orchards" <https://insidefmcg.com.au/2015/03/23/spotlight-on-goulburn-orchards/>
March 16th, 2015	"Sweet corn continues to be a Family Favourite" <http://resources.made-in-china.com/article/industry-view/vmzxLXuOanlc/Australian-Consumers-Embrace-Corn-Research/>
March 10th, 2015	"Australian consumers embrace corn, research" <http://www.ausfoodnews.com.au/2015/03/10/australian-consumers-embrace-corn-research.html>
Feburary 11th, 2015	"Asian vegetables making a home in Australian diets, latest market research" <http://www.ausfoodnews.com.au/2015/02/11/asian-vegetables-making-a-home-in-australian-diets-latest-market-research.html>

December 16th, 2014	"Top 12 vegetables of Christmas unveiled" <http://www.abc.net.au/news/2014-12-16/12-veg-of-xmas/5970838?pfmredir=sm>
May 12th, 2014	"Product innovation could open new doors for Australian vegetable industry, AusVeg" <http://www.ausfoodnews.com.au/2014/05/12/product-innovation-could-open-new-doors-for-australian-vegetable-industry-ausveg.html>
June 26th, 2014	"Veg consumers want info: research" <http://www.goodfruitandvegetables.com.au/story/3554008/veg-consumers-want-info-research/>

Table 2

Article Name
"Latest market research shows spike in popularity of greengrocers", 3 December 2013
"New research tracks consumers' perception of vegetables", 15 July 2013
"Top ten favourite vegetables for the festive season unveiled", 17 December 2013
"Research reveals most popular veggie BBQ hits", 6 December 2013
"R & D Industry Development Newsletter", December 2013
"R & D Industry Development Newsletter", November 2013
"R & D Industry Development Newsletter", 30 August 2013
"Aussie restaurants out of touch with diners", 17 February 2014
"Like two peas in a pod: Veggies go better together", 4 December 2014
"The twelve veg for Christmas that Aussies truly love", 15 December 2014
"Australian consumers beat path to beetroot", 26 November 2014
"What vegetables need to chill out?", 10 April 2014
"InfoVeg Radio: Special export edition launched", 9 October 2014
"Product innovation could open new doors for Australian vegetable industry", 8 May 2014
"R & D Industry Development Newsletter", June 2014
"AusVeg weekly update" 30 September 2014
"R & D Industry Development Newsletter", February 2014
"AusVeg weekly update" 2 December 2014
"AusVeg weekly update" 11 June 2014
"Health conscious consumers turning to beetroot", August 26 2015
"Veg industry could reap rewards of product innovation", September 9 2015
"All Aussies want for Christmas are carrots and spuds", 16 December 2015
"InfoVeg R&D Update", June 2015
"Shoppers picking up low-price pumpkins", August 12 2015
"Qantas flies flag for Aussie growers", January 15 2015
"Young Aussies embracing exotic tastes", March 4 2015
"Local greengrocers experiencing a revival", May 28 2015
"Snack to the future: Australia's increasing snack habits open doors for veg industry", 16 July 2015
"More shopping means more veggies on Aussie plates", 5 October 2015
"InfoVeg R&D Update", December 2015
"InfoVeg R&D Update", November 2015

“Asian vegetables making a home in Australian diets”, February 9 2015
“Vegetables good for both body and soul”, 15 May 2015
“Consumers going back to nature for healthy diets”, 5 June 2015
“Growers gain insights into international product innovations”, 22 January 2015
“Convenience is key for online vegetable shopping”, March 27 2015
“Australian consumers underestimate value of vegetables”, 24 April 2015
“The “weekly shop” is dead”, 14 May 2015
“Country of origin more important than ever for Aussie consumers”, 22 May 2015
“New research finds multi-million dollar opportunities for veg industry”, 10 July 2015
“Fresh veggie convenience trend changing way Aussies shop”, 22 September 2015
“Aussies using traditional veg in new and exciting ways”, 3 December 2015
“InfoVeg R&D Update”, August 2015
“InfoVeg R&D Update”, February 2015
“Vegetables rule the kitchen for Australian master chefs”, 8 April 2015
“Opportunity for growth with unusual veg products”, 30 November 2015
“AusVeg weekly update” 17 March 2015
“AusVeg weekly update” 27 January 2015
“AusVeg weekly update” 10 March 2015
“AusVeg weekly update” 31 March 2015
“AusVeg weekly update” 21 April 2015
“AusVeg weekly update” 14 April 2015
“AusVeg weekly update” 21 April 2015
“AusVeg weekly update” 16 June 2015
“AusVeg weekly update” 1 December 2015
“AusVeg weekly update” 9 June 2015
“AusVeg weekly update” 6 January 2015
“AusVeg weekly update” 8 December 2015
“AusVeg weekly update” 2 June 2015
“InfoVeg R&D Update”, February 2016
“Aussie shoppers could benefit from technological innovations”, 20 April 2016
“Short-term gains are key to driving shopper attitudes to vegetables”, 17 May 2016
“Shoppers stocking up on veg winter warmers”, 14 June 2016
“Shoppers off the mark about fresh veg imports”, 12 July 2016
“Veg industry calls for shift in thinking on healthy eating”, 20 July 2016
“No silent nights this Christmas as Australians rev up their juicers”, 20 December 2016
“Fresh veg the top priority for health-conscious Aussies”, 20 May 2016
“Fresh is best for Millennial shoppers”, 23 May 2016
“Blueprint for growth could inspire veg industry”, 4 August 2016
“Australians take fresh approach to vegetable shopping”, 25 August 2016
“Consumers trying new cooking styles for fresh veg”, 27 September 2016
“Pre-washed veggies cleaning up with consumers”, 27 October 2016
“Flavours of Asia to trend on Aussie plates into 2017”, 9 December 2016
“Aussie carrots helping kids keep an eye out for Santa”, 16 December 2016

“Variety is the spice of life for Australian veg consumers”, 3 February 2016
“Australian’s overestimate their vegetable consumption”, 19 February 2016
“Consumers changing their food preferences”, 29 March 2016
“Gap between knowledge and action highlighted for Australian vegetable consumption”, 8 January 2016
“AusVeg weekly update” 2 August 2016
“AusVeg weekly update” 24 May 2016
“AusVeg weekly update” 12 July 2016
“AusVeg weekly update” 29 March 2016
“AusVeg weekly update” 12 April 2016
“AusVeg weekly update” 2 November 2016
“AusVeg weekly update” 26 July 2016
“AusVeg weekly update” 8 November 2016
“AusVeg weekly update” 13 September 2016
“AusVeg weekly update” 30 August 2016
“AusVeg weekly update” 14 June 2016
“AusVeg weekly update” 19 July 2016
“AusVeg weekly update” 31 May 2016
“AusVeg weekly update” 5 April 2016
“AusVeg weekly update” 19 May 2016
“Aldi continues to make strides in Aussie fresh veg market”, 25 January 2017
“AusVeg weekly update” 24 January 2017
“AusVeg weekly update” 7 February 2017
“AusVeg weekly update” 31 January 2017
“AusVeg weekly update” 10 January 2017

Workshops & Presentations

Representatives from Colmar Brunton have presented the findings from Project Harvest at a number of roadshows, forums and conferences across the years. These include:

- March 2013, AUSVEG Grower Roadshow in rural Victoria and New South Wales
- June 2014, National Horticulture Convention
- June 2014, Trade booth, National Horticultural Convention
- October 2014, Victorian Grower Associations AGM
- June 2015, National Horticulture Convention, Consumer Alignment Presentation
- June 2016, National Horticulture Convention, Strategic Investment Committee
- November 2016, Vegetables WA Industry Summit

Across the four years, the presentations have covered a broad audience, including growers, packers and industry representatives. These presentations provided a great opportunity to receive feedback on how the reports and projects were being received and how they could be made more effective for the end users.

Outcomes

As part of the monthly Harvest Tracker report, two key insights and results were presented for each commodity with corresponding actionable short-term and long-term recommendations for the industry. These recommendations help to develop strategies with the aim of overcoming consumer barriers to purchase and consumption, thus increasing volume and sales.

Over the duration of the tracker, the main outcome themes centred around perceptions of wastage, snacking occasions, formats, cooking and recipe information, freshness, quality, and new product development. Insights and recommendations were based around the key findings/changes in the data for the vegetables per wave. The outcome of this project is that the Australian fresh vegetable industry now has access to important information on consumer perceptions and attitudes, with insights and recommendations. The long-term potential outcomes of this project are dependent on industry and individual fresh vegetable businesses implementing action plans based on these insights and recommendations.

Overall, feedback from Horticulture Innovation Australia regarding the project was positive, with a number of growers expressing their support for the research and reporting that they found it beneficial and the information very useful. Additional comments from growers expressed that the Harvest Tracker was valuable in keeping them up-to-date, which had a bearing on supply and demand of specific commodities. Growers also indicated that they have used the reports to assist them in creating some value-added, commodity-specific products that have since been discussed with retailers. Additionally, the review of the project conducted by SPP contained feedback from various stakeholders such as “the reports have changed my business to be more customer-centric focused from a production focus”, “these reports complement our own data collection”, “gives me confidence and strong basis to negotiate with my customers”, and “helps me understand why customers are asking for what they want”. There is an opportunity to reposition the current market research conducted by Colmar Brunton, based on levy payer feedback, to expand the focus more fully to the business needs of levy payers. Future continuous improvement will focus on providing timely and relevant data to consumers, more actionable insights for stakeholders at all levels of the supply chain and greater communication between stakeholders and Colmar Brunton to help apply the data.

In addition to commodity-specific insights and recommendations each wave, Industry Insights were reported from February 2015 onwards, with each article providing key analysis into current issues, trends and recommendations for the industry. Table 2 outlines a general overview and takeouts to assist in future strategic planning for the fresh vegetable industry.

Table 2.

Month	Industry Insight
Wave 21: February 2015	A sharp increase in the importance of provenance for all vegetables of interest shown. Provenance is now inextricably linked to food safety and trust, as well as feelings of fear and anger.
Wave 22: March 2015	With increased media attention around Australian diets, three specific diets have been prominent: the Paleo (Caveman) Diet, the I Quit Sugar (IQS) movement and the vegetarian diet. Furthermore, Australian consumers were moving away from diet products and towards more natural, full-fat options.
Wave 23: April 2015	While findings suggest that the consumption of vegetables is largely limited to dinner-time, there is significant growth in other occasions such as snacking, which has increased by more than 400% in frequency, penetration and monetary value over that time. This is forecasted to continue, due in part to a more

	fragmented style of daily consumption.
Wave 24: May 2015	Being labelled as a "superfood" can result in soaring sales; many vegetables have already been given this label, and it is only a matter of time before the next is discovered. While all vegetables contain health-promoting vitamins and antioxidants, it may be as simple as adding clinical evidence.
Wave 25: June 2015	Following a number of high profile food safety scares, we observed a sharp increase in the importance of knowing where our food comes from. In terms of quality, Australian produce is top-ranked (72%), showing how important country-of-origin labelling is for Australian-grown produce.
Wave 26: July 2015	Protein has been cited as a "mega-trend" and is on the verge of diversifying into a high potential opportunity. Protein-rich vegetables do exist and can contribute to the recommended daily intake of 46 grams of protein for women and 56 grams for men. Australian vegetables play a significant role in this consumer mega-trend and the industry should look to capitalise on this in communications and education in the future.
Wave 27: August 2015	Consumer sentiment tells us that the near future will be all about customising convenience and optimizing health: this has begun with services that aim to assist consumers to become confident. There is an opportunity to make your product available via dinner kits, which claim to be fresher than what is available in the supermarket and are delivered more frequently than some may shop.
Wave 28: September 2015	The increase in consumption of natural or healthy produce has coincided with the financial maturation of Millennials. Getting to know the largest generation of today, and the main grocery buyers of tomorrow, will undoubtedly be pivotal for the Australian vegetable industry's future success.
Wave 29: October 2015	Wave 29 of Project Harvest revealed that approximately one third of consumers limited their purchase of vegetables based on not wanting to waste any. Trends have indicated an era of "less" over the next 3 to 5 years, encompassing less clutter, less energy consumption and less waste. This can be actioned through Best Before dates and shorter time to shelf as examples.
Wave 30: November 2015	Children consume fewer serves of vegetables than is recommended, illustrating why there is such a concern around unhealthy diets. Research addressing these concerns indicated four priority areas of future focus: collaboration between those in and outside the horticulture industry; initiatives to engage children; continued research into new initiatives; and policy changes.
Wave 31: December 2015	Wave 31 saw an increase in Coles as a purchase channel over the majority of commodities, with a decrease for Woolworths. This is a reminder that things can change over time as consumers react to what is on offer from a retailer. Australian growers may need to be open to considering new and innovative retailers or avenues into consumers' homes to continue satisfying emerging consumer needs.
Wave 32: January 2016	2016 consumer trends for growers to look forward to include superfoods, bowl meals (such as smoothie bowls), Instagram (a growing platform ideal for capturing the vibrancy of fresh vegetables), charcoal (a new sensory dimension), a movement toward less waste, the continuation of provenance, seasonality and knowledge, natural and organic foods, raw foods, fermentation, and the marketplace (bringing consumers one step closer to desired freshness, naturalness and provenance).
Wave 33: February 2016	New trends of greater convenience, personalisation, authenticity of experience and information complement the fresh produce industry through their aim to get fresh food to consumers faster and to provide personalisation and information to the consumer.
Wave 34: March 2016	The underlying trigger across all commodities is the health benefits of vegetables; however, although health is important, a "new-age" motivation such as this must add on to (not replace) traditional priorities such as taste, convenience and price. If we can match the stated importance with the level of consumption it will be

	a win-win for the health of the country and the success of our growers.
Wave 35: April 2016	Truly delivering to consumer desires would be a game-changer for Australian growers. Wave 35 has observed a trending increase in purchase of fresh vegetables from Aldi, with evidence supporting the growing divergence in the shopping habits of Australians.
Wave 36: May 2016	Successful innovations from the wine industry may be able to translate into the horticulture industry. These innovations include, but are not limited to, opening up discrete parts of a farm for public, family-friendly days out and considering celebrity endorsements for a commodity.
Wave 37: June 2016	Previous research as part of Project Harvest suggested that 77% of consumers want vegetables to be more prominent in meals they eat out of home. This is exactly the idea starting to emerge through dietary guidelines in countries such as the Netherlands.
Wave 38: July 2016	87% of Australian consumers are active online and this number is growing year-on-year. While many use websites and apps to find grocery shopping information, only 10% actually do grocery shopping online; specific barriers include a perception of poor-quality produce. With online activity growing, it is time to think about how fresh produce can play a bigger part online.
Wave 39: August 2016	Vegetable serving size is a continued concern amongst children. Recommendations for healthy toddler development, a sound food and sensory literacy and an appreciation for food in its natural state centre around reassuring parents that food rejection is normal and that experiencing the true colour, aroma, texture and flavour of foods teach children how to eat for the future.
Wave 40: September 2016	Childhood health and adult obesity are strong concerns within the population, with anti-obesity messaging negatively affecting people. Instead of focusing on shame, a message of healthy eating should be used to positively speak to everyone and promote Australian-grown, nutrient-dense and good-for-the-whole-family vegetables.
Wave 41: October 2016	While people mainly go to the shops with healthy consumption intentions, 60% are likely to buy unhealthy food and drinks when they are on sale or promotion. The most enticing promotions are found to be those that clearly save the consumer money, such as discounted introductory prices or larger promotional packs. This information could be vital in the conversations between suppliers and retailers in terms of which strategies will best drive sales.
Wave 42: November 2016	Wave 42 sees the era of “less” remaining prominent. Delivering to these desires of consumers through solutions such as Smart Packaging and smaller or customised portions may assist in reducing and/or eliminating waste.
Wave 43: December 2016	The desperate need for a healthy diet was seen in a snapshot of Australian health, where information such as the prevalence of overweight and obesity in Australia, which has seen a steady increase over the past 30 years, was presented. These predictions highlight the importance of educational initiatives around vegetable consumption such as those seen recently between Horticulture Innovation Australia and CSIRO.
Wave 44: January 2016	Consumer sentiment will drive behavior, which must be kept in mind regardless of ones link in the agricultural chain. Factors include: - Less: less clutter, less energy use, less waste; - The desire for longevity of produce, freshness and shelf-life; - Personalised/customised portions and combinations; - Alternate uses for parts of a commodity typically discarded; and - Alternate retail channels.

The online community provided a unique perspective on the next generation of vegetable purchasers and consumers- those aged 18-35 years, the Millennial generation. The ad hoc project provided contrast to how they perceive the importance of Australian grown, wastage, sustainability and how this differs to the total population.

The continuing outcome of this project is that the Australian fresh vegetable industry has access to information on consumer perceptions and attitudes; with insights and recommendations. The long-term potential outcomes of this project are dependent on industry and individual fresh vegetable businesses taking actions based on the insights and recommendations.

Feedback from Industry Stakeholders on Project Harvest

Colmar Brunton understands that the power of projects such as this is in the ability to apply them for the use intended and to use them as a continuous resource over time. Feedback for our past project was positive with a number of growers expressing their support for the research and reporting that they found it beneficial and the information very useful. Additional comments from growers expressed that the Harvest Tracker was valuable in keeping them up-to-date, which had a bearing on supply and demand of specific commodities. Growers also indicated that they have used the reports to assist them in creating some value-added, commodity-specific products that have since been discussed with retailers.

Across the four years, the presentations have covered a broad audience, including growers, packers and industry representatives. These presentations provided a great opportunity to receive feedback on how the reports and projects were being received and how they could be made more effective for the end users.

"My view on these product reports is that they are 'Transformational' to the we operate our business. It gives me an independent source of expertise with which I can convince stake holders to change behaviour.

The strength is that anyone can read them and get the purpose of the report, which is important because it means they are written clearly and to the point.

They are one of the best levy spends we currently have."

- **Industry Stakeholder**

"The Grower Action Plan page is one of the more valuable insights from an industry extension perspective as it can help to assist growers with longer term planning for their lines.

Some more information in these pages each wave would be great. For example information around recall of varieties is less relevant and information like quantity purchased, format, price are more important.

In our experience growers utilise the following pages:
- *Purchase trends across retailers*
- *Average spend*
- *Average purchase weight*
- *Format*
- *Commodity pricing*

These pages are usually only utilised by growers who supply directly to supermarkets as it allows them to better discuss what format they should be supplying their product in. General comments are that the information provided in these reports is of a higher quality than the information that Coles & WW have."

- **Industry Stakeholder**

"I would say that Project Harvest has aided the team in identifying key customer problems for various vegetable lines, contributing a piece of the puzzle that builds a picture of key messaging for seasonal festivals. Would love to see an even wider range of lines being tested."

- **Major Australian Supermarket**

"The reports have changed my business to be more customer-centric focused from a production focus",
"These reports complement our own data collection."
"Gives me confidence and strong basis to negotiate with my customers"
"Helps me understand why customers are asking for what they want"

- **SPP Feedback**

Colmar Brunton is always determined to be involved in the industry adoption of the research findings gained from our research. The report format has continually evolved over the duration of the Harvest tracker to best meet the needs of the industry. Future continuous improvement will focus on providing timely and relevant data to consumers, more actionable insights for stakeholders at all levels of the supply chain and greater communication between stakeholders and Colmar Brunton to help apply the data. More specifically, Colmar Brunton aims to increase face-to-face interactions. As such, Colmar Brunton will actively assist in the dissemination of results, and participate where required in new industry development and communication programs that assist in facilitating industry adoption of the research outcomes.

Evaluation and discussion

The Harvest Tracker project was effective in the timely delivery of project outputs, with monthly reports delivered to schedule. The project was effective in identifying key consumer themes which are relevant to the industry, including triggers and barriers to purchase, health concerns, the perception of limited meal occasions, purchase formats, trends, provenance and purchase channels. Through the monthly reports, the industry was provided with both long-term and short-term recommendations on how to overcome these barriers.

Project Harvest has tracked evolving consumer attitudes and perceptions for three and a half years. During this time, there have been both large and small changes. At an overall level, the Harvest Tracker has seen an improvement in attitudes towards and perceptions of fresh vegetables. Within the key category health measures, there has been uplift across all key measures: importance, satisfaction, endorsement, interest, and future purchase intent. The average increase for commodity health measures has been 2-3% for all vegetables, a very promising sign. Through the tracker, commodity health measures have indicated a changing preference in vegetables. The top five vegetables that increased in importance include; celery, carrot, beetroot, sweet corn and beans. The top five vegetables that increased in satisfaction include: chillies, pumpkin, spring onion, cauliflower and cabbage. Lastly, the top five vegetables to have increased in new varieties included Brussels sprouts, beetroot, sweet corn, eggplant and cauliflower.

It is critical to understand what is driving both the triggers of and barriers to vegetable consumption so as to further grow the industry. Quality is the most important factor for consumers when purchasing vegetables, with the major underlying trigger across all commodities being the health benefits of vegetables. From 2015 to 2016, specific health and nutritional benefits have increased as a trigger to purchase from 15% to 26%. An emphasis on the specific health benefits of consuming fresh vegetables should be promoted on packaging and in-store according to the research. Appealing to health-conscious consumers is key; this will in turn increase the average serves of vegetables per day over time, a critical opportunity for the industry as well as for governments in terms of remedying Australians' insufficient vegetable consumption. While consumers believe they eat enough vegetables overall, the tracker has found that the average consumed serves of vegetables per day is 2.7 – below the recommended 5 serves per day. Young females (18-34) were most notably below this level.

Pre-packaged and convenience-based formats have increased in popularity over time. Whilst freshness expectations of pre-cut formats were directionally lower than for whole vegetables, convenience was seen as a major driver for purchasing these formats, increasing from 9% in 2015 to 17% in 2016. Wastage is another barrier to purchase that has prompted greater uptake of pre-packaged and smaller formats. Through ad-hoc questions, it was identified that over a third of consumers (37%) did not think they could reduce their current levels of wastage and that one-fifth (22%) wanted more knowledge on how to use the parts they typically discarded.

NEW PRODUCTS: The project has also tracked trends in consumption habits as well as New Product Developments (NPDs). From the new product database, launches containing specific "superfood" vegetables (such as kale and beetroot) as an ingredient have seen greater popularity over time. A greater number of juice and salad products that leverage on this "superfood" status have been launched. The commodities with the highest numbers of launches over any three month period generally include sweetpotatoes, carrots, celery, chillies and pumpkins. The large majority of new launches are typically from Asia and Europe, with popular packaging formats being flexible, trays, tubs and bottles. There is opportunity to capitalise on the global health trend, as food companies are looking to provide alternative products that meet consumers' health conscious needs. This is a key area of opportunity for growers in Australia, but also more broadly the Asia Pacific region.

MEAL OCCASIONS: Additionally, "quick meals" increased as a meal occasion for fresh vegetables by 11% from the first twelve waves (29%) to the last twelve waves tracked (40%). As consumers become more and more time-poor, quick meals and convenience-driven shopping is rapidly expanding. Further, snack occasions has increased exponentially over the past few years, creating another meal occasion outside of dinner-time for vegetables to grow in prominence. The second attitudinal barrier that the industry needs to address is the development of additional meal occasions, cooking styles and cuisines. The limited repertoire of consumption occasions and cooking styles for a number of commodities has been negatively impacting on the growth of the category, with consumers unable to overcome their routines and habits. Consumers need to be prompted and inspired to adopt alternative cooking styles and dishes to increase consumption. Another opportunity is to provide alternative meal occasions outside of dinner time. This will assist in making certain commodities more relevant throughout the day.

PROVENANCE: It was revealed that consumers are willing to spend more on Australian-grown vegetables. Provenance is highly important information to consumers, especially the knowledge that their vegetables are grown in Australia. Provenance importance increased from 6.3/10 at the start of the tracker to a total Vegetable Average of 6.6/10 by the end. The tracker measured a noticeable increase in provenance measures after the health scare around pre-packaged lettuce at the beginning of 2016. Providing prominent origin and provenance information at point of sale will encourage consumer purchase as well as strengthening confidence in their fresh vegetable purchase.

PURCHASE CHANNELS: Mainstream retailers Coles and Woolworths remain the key purchase channels of fresh vegetables, with markets and specialist vegetable retailers also common. Over the duration of the tracker, Aldi has increased in popularity and is perceived as similar to mainstream retailers in terms of value and quality, but less so in terms of range. This is likely due to the expansion of the retailer into SA and WA; however, this provides growers in these areas with greater distribution and reach than what was previously available. Consumers remain hesitant when purchasing vegetables online. Throughout the tracker, the majority of consumers did not purchase their vegetables online as they preferred to see and select their own produce, citing quality and freshness. This has remained consistent, indicating a reluctance to buy online. However, with the introduction of new global online retailers (e.g. Amazon), this retail landscape looks set to rapidly evolve – hopefully ensuring that fresher, higher quality vegetables are reaching consumers faster, which in turn will create high satisfaction in the category.

Looking into the future, Colmar Brunton has predicted through Project Harvest that consumer sentiment will ultimately drive behaviour. Key themes emerging from this include:

- Less: Less clutter, less energy use, less waste;
- The desire for longevity of produce, freshness and shelf-life;
- Personalised/customised portions and combinations;
- Alternate uses for parts of a commodity typically discarded; and
- Alternate retail channels.

Understanding what will drive consumer behavior provides the industry with knowledge of the forefront of change, allowing them to shape what is to come, rather than imitating and thus lagging behind other industries.

In terms of specific evaluation, feedback was primarily sought at face-to-face interactions with the industry, as well as at a review of the project conducted by SPP. Across the four years, a number of recommendations have been made to improve the usability of the report; for example, end users indicated that the reports could be simplified with an upfront summary slide with limited colour for printing purposes. The methodology section was moved to the back of the full report, allowing end users to more quickly and easily access relevant information. Further, individual commodity reports are distributed along with a combined report, further adding to ease of utilization of relevant information for their business and Industry Insights are placed upfront in order to set the context from an industry and consumer perspectives. Based on these recommendations, any future reports for Horticulture Innovation Australia may require a discussion over a customised reporting template suitable for end users.

Recommendations

Throughout the reports, various recommendations have been made as part of the ongoing action plan for the 28 commodities. These specific recommendations have ranged from what future crops to invest in at the grower level to levels of pre-preparation and improved packaging at the retail level. Each of the key insights should be analysed individually by industry stakeholders in terms of what businesses can do to reduce the barriers to purchasing more fresh vegetables among consumers, e.g. addition of nutritional claims and information to packaging, point-of-sale provision of recipe and cooking ideas among retailers etc. Further, each of the insights could be examined and analysed with an action plan and next steps developed at an industry level. To clearly communicate these barriers and initiatives, Colmar Brunton recommends as many face-to-face workshops as possible where these findings can be presented, with a forum for discussion.

The continuation of the tracker, including numerous improvements (frequency of reporting, streamlined question list, improved accessibility), is also recommended. Colmar Brunton will look to incorporate SPP's feedback if future research is contracted; more specifically the three recommended changes for future market and consumer research projects:

1. Present the research in a single report, aligned to levy payers' stated needs;
2. Structure each vegetable report around the key business decisions of levy payers; and
3. Optimise opportunities to increase levy payer engagement with the reports and data available.

Colmar Brunton recommends tracking each commodity once a quarter or half-yearly in conjunction with actionable key insights. This would allow the industry to monitor the impact of any action taken as a result of the insights and recommendations, and whether this is having a positive effect on consumers and the industry, i.e. upturn in purchase and consumption frequency. The Harvest Tracker can provide the industry with 2-3 ad-hoc questions per wave that can be tailored to any additional topics that are of interest at that point in time. In addition, the industry may wish to consider an online dashboard/portal that will allow all stakeholders to access past and future data.

A total of 44 monthly reports were produced by the completion of the program. Over that time, we observed the rise of Coles over Woolworths as a preferred channel for fresh; a positive but consistent level of satisfaction with fresh produce, the rise (e.g. cauliflower, beetroot) and fall (e.g. kale) of various commodities as fads swept through and no substantial change in relation to the volume of vegetables consumed – unfortunately this is still substantially lower than the recommended amount.

At an overall perspective, beyond the specifics of the Harvest Tracker; the current research has highlighted other areas where investigation appears warranted:

1) **Consumer knowledge.** There is a disconnect between recommended and actual vegetable consumption and we need to know how the industry can help effectively bridge this gap. There are also many consumer desires and needs that are currently unmet and that could be satisfied by innovation in the vegetable industry.
2) **Creating added value.** There is a lot to learn about how other FMCG categories create premium pricing and increased demand for their products. The vegetable industry could learn a lot from other food and beverage categories and how they have been able to encourage changed behaviour and specifically increased consumption through innovation and how it is delivered to market.
3) **Targeted export focus.** There is much to learn about a market prior to sending produce there in the form that is popular in Australia. Learning about consumer attitudes and behaviours relevant to the category is one line

of essential investigation, preference for taste, shape, size, appearance, sale formats and price points are also essential prior to launch in order to maximise export market success.

Along with the continuation of Project Harvest, the above areas of investigation will undoubtedly assist in the health of our vegetable industry in Australia as well as the health of everyday Australians.

Scientific refereed publications

None to report.

Intellectual property/commercialisation

No commercial IP generated.

References

1. AUSVEG, Project Harvest Media Hits – July 2013 – January 2016

Appendices

As part of the monthly Harvest Tracker report, an additional two ad-hoc questions were asked at the end of the questionnaire. The subjects of these questions were supplied by Horticulture Innovation Australia and were updated each month, exploring topics of interest to the industry. These questions were formed based on any current industry topics and issues, as well as providing flexibility to incorporate any feedback, suggestions or questions from stakeholders. Ad hoc questions helped to develop key insights which were then fed into the development of strategies, with the aim of developing a greater understanding of consumer purchase and consumption behaviour, thus increasing volume and sales.

<table>
<tr><th>Wave</th><th>Topic</th><th>Summary</th></tr>
<tr><td rowspan="2">Wave 1</td><td>Prepared vegetables

Q. In general, how relevant are pre-pared/cut/peeled vegetables to you.</td><td>Consumers indicated that pre-prepared, cut or peeled vegetables were of moderately low relevance to them (4.0/10).</td></tr>
<tr><td>Preparation Cooking knowledge

Q. To what extent do you feel as though you know enough about how to cook and prepare them?</td><td>Overall, consumers feel they are competent in cooking and preparing carrots, pumpkins, cauliflowers and beans, this was consistent across all vegetables. Greatest cooking knowledge and preparation was for carrots.</td></tr>
<tr><td rowspan="2">Wave 2</td><td>Shopping behaviour.

Q. Which of the following describe your typical vegetable purchase?</td><td>Respondents stated that they typically purchase vegetables for more than one meal with the majority of respondents stocking vegetables to cook at least a weeks' worth of meals.</td></tr>
<tr><td>Cooking repertoire.

Q. In the last 5 years, what new vegetables, if any have you added to the meals that you cook at home?</td><td>38% of respondents did not add any new vegetables to their cooking repertoire in the last 5 years. Sweet potato, followed by broccoli and Bok Choy were the most popular new additions.</td></tr>
<tr><td>Wave 3</td><td>Purchase behaviour and provenance.

Q. Thinking about the vegetables you purchase, can you please rank what level of detail you would like to know about where your vegetables are grown?

Q. Thinking about when you usually do the grocery shopping, which statement best describes you?</td><td>Australian grown was significantly more important to consumers than other areas of provenance. The majority of consumers (59%) purchased fresh produce as part of their routine, a quarter were influenced by price promotions (26%).</td></tr>
<tr><td>Wave 4</td><td>Frozen vegetables.

Q. Why do you purchase frozen vegetables?</td><td>The main reason for purchasing frozen vegetables was for the convenience of having them on hand and emergency back-up use.</td></tr>
</table>

	Ways vegetables are purchased. *Q. How do you purchase the following vegetables?*	The majority of vegetables were exclusively purchased fresh; green peas were most dominantly purchased frozen.
Wave 5	**Vegetable wastage.** *Q. Of the vegetables below, what percentage of the amount that you purchase, do you typically not use?* *Q. How could this wastage be reduced?*	Overall, vegetable wastage was relatively minimal. Over a third identified that increased freshness & shelf-life would decrease their vegetable wastage. Respondents wanted smaller portion sized available and greater information on using the whole vegetable.
Wave 6	**Vegetables for festive season.** *Q. What vegetables do you specifically purchase for the festive season (e.g. Christmas and New Year's)?* *Q. And how do you generally cook vegetables for the festive season (Christmas & New Year's)?*	Consumers' purchase more vegetables for Christmas celebrations compared to New Years. Whereas, significantly more respondents do not purchase vegetables for New Years compared to Christmas. The top 4 vegetables purchased for Christmas & New Years were; Potatoes, Carrots, Tomatoes and Lettuce. Roasting, steaming, baking, boiling & raw are the most popular cooking methods.
Wave 7	**Influence on cooking new vegetables and recipes.** *Q. When purchasing new vegetables and/or cooking new recipes, what is you main influence(s)?*	Main influences when cooking new foods were traditional sources: cookbooks, suggestions from family and friends, and online recipes/ cooking websites. 14% indicated they trialled new recipes and vegetables on their own accord.
	New cuisines in cooking repertoire (last 5 years). *Q. What cuisine(s) have you added to your cooking repertoire in the last 5 years that use fresh vegetables as a main ingredient?*	Asian cuisines, specifically Chinese and Thai were the most common addition. Chinese and Middle Eastern cuisines were more likely to be adopted by older consumers (45+), Thai, Mexican and French by younger consumers.
Wave 8	**Average consumption of vegetables.** *Q. On average, how many serves of vegetables do you consume per day?* *Q. On average, how many serves of vegetables do your children consume per day?*	Mean serving consumption was well below recommended for both adults and children; nearly half of what is recommended is being consumed (2.5 serves per day for adults and 2.4 serves per day for children).
Wave 9	**Vegetables that children rarely consume.** *Q. Please select the vegetables, if any, that your children never/rarely consume?*	Vegetables rarely consumed include; Jicama, Kohlrabi, Witlof, Triticale, Chicory and Radicchio. Many of these vegetables have distinct flavours, especially bitterness. Some are not in the adults' repertoire and are therefore less likely to be consumed as well.
	Perceived health of food types.	Of all food types, vegetables were perceived to be the healthiest; followed by fruit, nuts and pulses.

	Q. Please rate how healthy you think each of the following food types are for you.	Women perceived the top three food types to be significantly more healthier than males.
Wave 10	**Lettuce & Leaf produce intended usage.** *Q. For each of the following formats, can you please place a percentage value (%) for each of the following types of leafed products below, based on the relative amount you have purchased in the LAST 12 months.* *Q. And considering the NEXT 12 MONTHS, can you please indicate where you plan to increase or decrease (%) each of the following types of leaf products you intend to purchase.* *Q. And overall, which statement best represents your lettuce purchase behaviour over the NEXT 12 MONTHS.*	Overall, there is little change expected in the purchase behaviours of lettuce/loose leaf consumers in the next 12 months. The most common leaf format purchases are whole lettuce followed by pre-packaged bags. There was a 2% net increase expected for the purchase of head lettuce compared to other leaf pack types.
Wave 11	**Vegetable Hygiene** *Q. When preparing your vegetables, what are the top 3 vegetables you are most concerned with cleaning before cooking?*	Consumers were most concerned about cleaning lettuce, celery and Asian vegetables before use. Most of the concerning vegetables were either low growing or root vegetables.
Wave 12	**Organic vegetables.** *Q. What do organic fresh vegetables mean to you?* *Q. How important to you is having a range of organic fresh vegetables available* *where you regularly shop?*	The majority of consumers perceive that organic vegetables are not altered synthetically and genetically with pesticides, hormones or antibiotics. Approximately a third of consumers (34%) perceive organic vegetables to be better quality than non-organic vegetables.
Wave 13	**Country of origin labelling.** *Q. Does the Country of Origin of your food influence your purchasing decisions?* *Q. How important to you is the Country of Origin information* *and labelling for each of these types of foods…*	Majority of consumers state the country of origin influences their purchase, approximately 1 in 10 were unsure. Country of origin labelling was significantly more important to protein (fish and meat) than to vegetables.
	Importance of food attributes. *Q. Rank the following in order of priority*	Quality was significantly more important to consumers than other attributes. As consumers are looking for quality first, price may be used as a

	from most important to least important.	comparative, secondary measure.
Wave 14	**Vegetable storage.** *Q. Where do you typically store your vegetables after purchase?* *Q. On average, how long to do you store your vegetables before using them?*	The fridge and vegetables crisper were the main storage places for broccoli, sweet corn, lettuce and chillies. Chillies were less likely to be refrigerated and more likely to be stored on the bench or cupboard and had the longest storage period, a few days to over a fortnight. Whereas broccoli, sweet corn and lettuce were stored on average for a few days, but less than a week.
Wave 15	**In-store information.** *Q. When shopping for fresh vegetables, what information would you find most helpful?*	Three fifths of consumers (60%) indicated that they wanted information on best before dates and harvest dates in-store; this is crucial information for consumers at point of purchase and will help manage value for money expectations. Consumers' also wanted information on country of origin.
	Products consumers want in-store. *Q. What vegetable products would you like to see available where you regularly shop?*	Consumers are generally happy with what is available in-store, they do want fresh vegetables that are in season and locally grown.
Wave 16	**Purchase location.** *Q. When purchasing fresh vegetables in store, if the Australian grown vegetable was not available, what would you normally do?* *Q. In the future, where are you likely to purchase your fresh vegetables from?*	If an Australian grown vegetable was not available, nearly a third of consumers would purchase an imported variety instead (31%). A quarter of consumers would substitute for a different vegetable (24%) and one in five (19%) would visit another store to purchase Australian grown. Future purchase of vegetables is most likely going to occur through mainstream retailers, Woolworths and Coles. There is a strong intention to purchase from specialist retailers and farmers markets.
Wave 17	**Vegetables consumed regularly vs. rarely.** *Q. Which vegetables do regularly consume, at least 5 times per week?* *Q. From the list of vegetables below, please select the vegetable(s) that you never/rarely consume?*	The most frequently consumed vegetables were those commonly found in store all year round, such as carrot, potato, tomato and lettuce. However obscure vegetables such as jicama, Kohlrabi and Chicory were most likely to be rarely or never consumed.
Wave 18	**Mainstream vs. Specialist retailers.** *Q. In your experience of purchasing vegetables, what differences do you expect between mainstream retailers (e.g. Coles and Woolworths) compared*	There are mixed perceptions about vegetables purchased from mainstream retailers compared with specialist retailers. Some differences included freshness, quality and price. Markets and Local Green Grocers had the greatest perceived freshness, substantially greater than mainstream retailers (IGA

	with independent or specialist vegetable retailers? *Q. What is your perceived freshness of vegetables from the following retailers?*	and Aldi were perceived to have the least fresh produce).
Wave 19	**Online purchases.** *Q. Have you ever purchased vegetables online? Why?* *Q. On average, how often do you purchase vegetables online?* *Q. In the future are you likely to purchase vegetables online?*	The majority of consumers haven't purchased vegetables online. There are multiple barriers such as; scepticism on the freshness and quality of the vegetables. Consumers like to select their own vegetables in store so they can see and touch before buying. One in eight has purchased vegetables online, convenience being the key driver. A third purchase vegetables online as part of their regular shop, but a majority use online vegetable shopping irregularly. Future online purchase intent looks to remain relatively stable in the future.
Wave 20	**TV or Online influences.** *Q. Have you ever purchased a new vegetable after seeing it used on TV or online?* *Q. What was the vegetable you purchased?* *Q. What was the TV program/Online website that you saw the vegetable being used on?*	Usage on a TV show or online has encouraged over a quarter of consumers (28%) to purchase a new vegetable. Kale, Bok Choy and Celeriac has the greatest uptake by consumers. The key media influences on vegetable trials are cooking shows, especially My Kitchen Rules and MasterChef.
Wave 21	**Grower action plan.**	***Bean*** - Target: Eager Explorer consumers – These are people interested in the taste, colour and texture of beans. - Be more relevant by: Offer tasting and demonstrations to encourage trial/ ***Carrot*** - Target: Wholesome Habits consumers – People who eat carrots routinely, and are not looking for anything new. - Be more relevant by: Providing meal occasion ideas at the point of sale and new product formats, promote ease of cooking. ***Cauliflower*** - Target: Conscious Improver consumers – These people select veggies based on the nutritional benefit. - Be more relevant by: Be clear about health benefits, seek exposure in the media as a superfood and paleo diet choice. ***Pumpkin***

		- Target: Eager Explorer consumers - These people are interested in the taste, colour and texture of pumpkin. - Be more relevant by: Clearly differentiate multiple types of pumpkin by highlighting their taste and flavour profiles and cooking styles. Provide in store recipe cards.
Wave 22	**Grower action plan.**	***Broccoli*** - Target: Wholesome Habits consumers – These people eat broccoli routinely, and are not looking for anything new. - Be more relevant by: Investigate convenient new products that are packaged and prepared. Provide meal occasion ideas at the point of sale and new product sizes, promote ease of cooking. ***Chillies*** - Target: Eager Explorer consumers – People interested in the taste, colour and texture of chillies. - Be more relevant by: Tell them what taste chilli will bring and new ways that they can cook and use it. In-store displays promoting freshness/quality and clearly communicate spice and heat expectations. ***Lettuce*** - Target: Wholesome Habits consumers – These consumers eat lettuce routinely/as habit, and are not looking for anything new. - Be more relevant by: Value for money and convenience, provide a range of formats to reduce wastage and increase perceptions of value. Communicate how types of lettuce are different at point of sale. ***Sweet Corn*** - Target: Eager Explorer consumers - These people are interested in the taste, colour and texture of sweet corn. - Be more relevant by: Provide recipe and cuisine an idea, in-store displays that are colourful and promote freshness and quality, in=store tastings to encourage new purchases.
Wave 23	**Grower action plan.**	***Celery*** - Target: Wholesome Habits consumers – These people eat celery routinely, and are not looking for anything new. - Be more relevant by: Make the vegetable more relevant throughout the day by providing alternative meal occasions, highlight serving sizes on pack on in store, communicate peak season for freshness. ***Cucumber*** - Target: Conscious improver consumers – Whilst this is not the largest segment, they are motivated to

		purchase cucumber and are influenced by their nutritional benefits. - Be more relevant by: Differentiate multiple types and their benefits, snack formats may appeal as a healthy on-the-go option. ***Eggplant*** - Target: Eager Explorer consumers – These consumers are motivated by taste, colour and texture of eggplant. They are looking for new recipes and cooking styles. - Be more relevant by: Promote alternative types and their flavour differences, provide taste demonstrations to encourage trial. ***Zucchini*** - Target: Eager Explorer consumers - These people are interested in the taste, colour and texture of zucchini. - Be more relevant by: Attract experimentation with in-store colourful displays promoting freshness and quality, clearly communicate flavour profiles and suitable cooking ideas.
Wave 24	**Grower action plan.**	***Asian Vegetables*** - Target: Eager Explorers consumers – These consumers are motivated by taste, colour and texture of Asian vegetables. - Be more relevant by: Include simple messages for how to incorporate into cooking, educate on how to get the best out of each varietal. ***Beetroot*** - Target: Conscious improver consumers – Whilst this is not the largest segment, they are motivated to purchase beetroot and are influenced by their nutritional benefits. - Be more relevant by: Call out specific health benefits, promote the use of the whole vegetable. ***Capsicum*** - Target: Eager Explorer consumers – These consumers are motivated by taste, colour and texture of capsicum. They are looking for new recipes and cooking styles. - Be more relevant by: Attract experimentation with in-store colourful displays promoting freshness and quality, clearly communicate flavour profiles and suitable cooking ideas. ***Sweet potato*** - Target: Eager Explorer consumers - These people are interested in the taste, colour and texture of sweet potato. - Be more relevant by: They aren't afraid to try new things, provide in-store recipe cards, provide meal occasions outside of dinner.

Wave 25	**Willingness to pay more.** *Q. Thinking about your typical fresh vegetable shop, how willing would you be to pay* *MORE for Australian grown vegetables, compared to your regular vegetables?* *Q. Thinking about your typical fresh vegetable shop, how willing would you be to pay* *MORE for Organic vegetables, compared to your regular vegetables?* *Q. Thinking about your typical fresh vegetable shop, how willing would you be to pay* *MORE for Imported vegetables, compared to your regular vegetables?*	Consumers have a greater willingness to spend more on Australian grown vegetables, compared with organic and imported vegetables. In contrast, consumers are unwilling to spend more on imported vegetables (if willing, $0.50 more considered reasonable). Of those consumers who are willing to pay more for Australian grown vegetables, between $0.50 and $1.50 more than regular is considered reasonable. Organic has a moderate willingness to pay more, between $0.50 and $1.50 considered reasonable.
Wave 26	**Pre-packed vegetables.** *Q. What is the most important aspect of purchasing pre-packaged vegetables?*	Being washed and ready to eat are the most important aspects for consumers in regards to pre-packaged vegetables. Best before dates, reduced wastage and convenient packaging were also key aspects.
	Willingness to pay more. *Q. What are you willing to spend more money on, compared to your typical fresh vegetable shop?*	Shoppers are most willing to pay more for Australian grown vegetables during their typical fresh vegetable shop (53%). But less likely to pay more for pre-packaged (10%), vacuum packed (6%) and pre-prepared vegetables (5%), demonstrating loose vegetables are most preferred.
Wave 27	**Avoiding food groups.** *Q. Are you actively avoiding any of the following food groups because of dietary requirements/lifestyle choices?*	More than one in five consumers are actively avoiding fat (25%), salt (25%) and sugar (21%) in their diets. Diets that promote the consumption of vegetables (vegetarian, vegan and raw food diets) are supported by one in ten consumers.
	Vegetable consumption. *Q. You said Yes to below dietary requirements/lifestyle choices. Please select your response for each accordingly*	Over half of all consumers who are following a raw food or a low carbohydrate diet indicate that their vegetable consumption has increased by following these lifestyle choices.
Wave 28	**Pre-prepared and Packaged vegetables.** *Q. Are you interested in ready to cook / no preparation / microwave ready*	Respondents are most interested in green peas (42%), sweet corn (36%) and Asian vegetables (35%) to be pre-prepared and packaged. They are perceived

	prepacked vegetables?	as requiring more preparation to cook, and therefore convenient pre-packaged options would save the most time for these commodities.
	Nutritional Information. *Q. How important to you is having the nutritional information included on pre-packaged fresh vegetables?*	Over half of respondents (55%) stated having nutritional information on pre-packaged vegetables is important. This information particularly appeals to our Conscious Improver consumers who are driven to purchase vegetables because of the health benefits.
Wave 29	**Perceptions of retailers.** *Q. When thinking about the retailers in Australia, who do you feel provides the best value, quality and choice for fresh vegetables?*	Specialty fruit and vegetable retailers are perceived to have the best quality, value and choice for fresh vegetables. Coles and Woolworths scored similarly on all attributes, while independents and Aldi are perceived to offer the poorest choice, value and quality of fresh vegetables.
Wave 30	**Vegetable wastage.** *Q. Of the vegetables below, what percentage of the amount that you purchase, do you typically not use?* *Q. How could this wastage be reduced?*	Since 2013, there has been a directional increase in the amount of wastage of fresh vegetables. Overall, vegetable wastage still remains relatively minimal. Over a third of consumers still believe that they could not reduce their wastage (compared to Wave 5, 2013), however there was an increase in consumer perceptions that greater knowledge about the use of parts which they discard would enable them to minimise waste.
Wave 31	**Average vegetable consumption.** *Q. Do you feel that you eat enough vegetables in your everyday?* *Q. On average, how many serves of vegetables do you consume per day?*	The majority of consumers believe they definitely or sometimes eat enough vegetables each day. Overall, consumers are eating 2.7 serves of vegetables per day, a slight increase from February 2014 (2.5), but still below the recommended number of serves per day (n=5).
Wave 32	**Average vegetable consumption – Children.** *Q. Do you feel that your child/ren eat enough vegetables every day?* *Q. On average, how many serves of vegetables does your child(ren) consume per day?*	The majority of consumers believe that their children definitely or sometimes eat enough vegetables each day. Overall, parents believe their children are eating 1.8 serves of vegetables per day, which is lower than 2.4 servings of vegetables per day tracked in Wave 8.
Wave 33	**Vegetable storage.** *Q. Where do you typically store your vegetables after purchase?* *Q. On average, how long to do you store your vegetables before using them?*	Crisper section in the fridge was the main storage area for beans, carrots, cauliflower and pumpkin. Pumpkins were less likely to be refrigerated but more likely to be stored in the cupboard. Carrots and pumpkins had the longest storage period, from a few days to a fortnight.

Wave 34	**Online purchase.** *Q. Have you ever purchased vegetables online?* *Q. What are the main triggers to purchasing fresh vegetables online? (N=63)* *Q. What are the main barriers to purchasing fresh vegetables online?*	One in ten consumers (10%) has purchased vegetables online, consistent with levels in Wave 19. Those who had purchased online cited convenience and delivery (quicker, time saver). However, the large majority had never ordered vegetables online as they preferred to see, pick and choose their own fresh vegetables, and are concerned about the freshness and quality.
Wave 35	**In-store information.** *Q. When shopping for fresh vegetables, what information would you find most helpful?*	Two thirds of consumers indicated that they wanted information on country of origin (67%) and length of freshness (66%), critical at point of purchase and managing value for money expectations.
	Shopping behaviour and Cooking repertoire. *Q. Which of the following describe your typical vegetable purchase?*	Respondents typically purchase vegetables for more than one meal, majority stocking vegetables to cook at least a weeks' worth of meals, similar to wave 2. Increase seen in stocking for 2-3 meals, decrease for a whole week of meals.
Wave 36	**Australian grown.** *Q. What percentage of fresh vegetables at your local store do you think are Australian grown?*	Compared with Millennials, the average Australian consumers believe that a higher proportion of fresh vegetables available at retailers are grown in Australia (Average Australian consumers 64%, Millennials 46%). For both groups of consumers, the perceived proportion is lower that what is actually available in-store.
	Imported vegetables. *Q. Are there any vegetables you think are regularly imported?*	Over one third of consumers (37%) indicated that they believe garlic is imported into Australia, exotic vegetables are commonly assumed to be imported (such as Asian vegetables). Education and clearer labelling is required to dispel misconceptions.
Wave 37	**Frozen/ Canned/ Pre-Prepared vegetables.** *Q. How often do you buy frozen/canned/pre-prepared vegetables?* *Q. Why do you buy frozen/canned/pre-prepared vegetables instead of the fresh variety?*	The majority of consumers purchase frozen and canned/tinned vegetables at least monthly. However, almost two thirds of consumers infrequently or never purchase pre-prepared vegetables. Key reasons for purchase of frozen and tinned vegetables include convenience, shelf life and ease of storage. Pre-prepared vegetables are primarily convenience driven as they require less preparation.
Wave 38	**Purchase Priority.** *Q. Please rank the following in order of priority when shopping for fresh vegetables, from most important (1) to*	Quality is the most important attribute when shopping for fresh vegetables. Since 2014, the importance of country of origin and price has increased.

	least important (4).	
	Purchase Behaviour. *Q. Thinking about when you usually do the grocery shopping, which statement best describes you?*	Significant increases in purchase of fresh vegetables spontaneously depending on what is available in-store, as well as purchasing vegetables with specific planned recipes in mind (compared to wave 3).
Wave 39	**Vegetable cooking styles.** *Q. In the last 12 months, have you increased, no change or decreased your vegetable cooking of the following styles* *Q. You indicated you have increased your grilling of vegetables, which vegetables are you grilling with?*	There has been an increase in soups, stir frying, steaming, eating vegetables raw and roasting as cooking styles over the last twelve months. Grilling has slightly increased with a net gain of 2%. Capsicum, eggplant, zucchini and pumpkin were all popular grilled vegetables.
Wave 40	**Vegetable claims.** *Q. When purchasing fresh vegetables, which of the following claims are/would be important to see on pack or at the point of purchase?* *Q. What impact would the following claims have on your decision to purchase fresh vegetables?*	When purchasing fresh vegetables, 'Australian grown' is the most important claim to see on pack (81%), whilst also having the greatest impact on the decision to purchase (8.5/10). 'Fresher for longer' (42%) and 'washed and cleaned ready for use' (41%) were also important claims for consumers, whilst 'synthetic chemical and pesticide free' had the second largest impact on purchasing decision (7.6/10).
Wave 41	**Cuisines cooked.** *Q. Which of the following cuisines do you regularly cook?* *Q. Which of the following cuisines do you plan on cooking more in the next 12 months?* *Q. Specifically, which Asian cuisines do you plan on cooking more in the next 12 months?* *Q. Specifically, which European cuisines do you plan on cooking more in the next 12 months?* *Q. Specifically, which South American cuisines do you plan on cooking more in the next 12 months?*	Nine in ten consumers currently cook Australian cuisines; however, there appears to be strong future intent to move away from traditional cooking styles into dishes and flavours that were once deemed niche and exotic. Future growth is expected to lie in Asian (56% to 62%) and Middle Eastern (11% to 17%) cuisines.
Wave 42	**Juices.** *Q. How often do you consume the following types of juices?* *Q. You said that you consume juices with*	Less than half of consumers drink juices containing vegetables, with greater consumption frequency for fruit juices. Those that do drink vegetable juices consume them on average one to two times per month. Carrots are the most popular juicing

	fresh vegetables, which vegetables do you prefer to use?	vegetable.
Wave 43	**Purchase location.** *Q. When thinking about the retailers in Australia, who do you feel provides the best **value** for fresh vegetables?* *Q. When thinking about the retailers in Australia, who do you feel provides the best **quality** for fresh vegetables?* *Q. When thinking about the retailers in Australia, who do you feel provides the best **choice** for fresh vegetables?*	Speciality retailers are perceived to provide the best value, quality and choice when it comes to fresh vegetables, with Coles rated second.
Wave 44	**Fresh expectations.** *Q. How many days would you expect each of the following vegetable formats to stay fresh for, once you have purchased it?*	Overall, whole vegetables are perceived to remain fresher for 50-100% longer when compared to pre-cut or pre-packaged vegetables.