

Enhancing Market Attitudes Towards IPM and Sustainable Vegetable Production Practices

Jenny Ekman
Applied Horticultural Research Pty Ltd

Project Number: VG12084

VG12084

This report is published by Horticulture Australia Ltd to pass on information concerning horticultural research and development undertaken for the vegetables industry.

The research contained in this report was funded by Horticulture Australia Ltd with the financial support of the vegetables industry.

All expressions of opinion are not to be regarded as expressing the opinion of Horticulture Australia Ltd or any authority of the Australian Government.

The Company and the Australian Government accept no responsibility for any of the opinions or the accuracy of the information contained in this report and readers should rely upon their own enquiries in making decisions concerning their own interests.

ISBN 0 7341 3361 8

Published and distributed by:
Horticulture Australia Ltd
Level 7
179 Elizabeth Street
Sydney NSW 2000
Telephone: (02) 8295 2300
Fax: (02) 8295 2399

© Copyright 2014



Horticulture Australia



Enhancing Market Attitudes Towards IPM and Sustainable Vegetable Production Practices

Final Report

VG12O84



Horticulture Australia
Project Number: VG12084

May 2014

Project Leader: Jenny Ekman
Applied Horticultural Research
Suite 352, Biomedical Bldg
1 Central Ave
Eveleigh NSW 2015

Key Personnel:

Jenny Ekman – AHR
Gordon Rogers – AHR
Sharron Olivier – AHR

Funding, Objectives and Disclaimer

This project has been funded by HAL using levy funds from the Australian vegetable industry and matched funds from the Australian Government.

This project had two broad objectives. The first was to examine the attitudes of consumers to insect contamination in vegetables. The second was to determine whether there is likely to be a specific, value added market for vegetables grown using integrated pest management under a sustainability or 'ecolabel'. The project involved a bench-top study of these issues and literature review, focus groups with consumers, a national survey and finally the production of a series of short, consumer focused videos which explain the use of beneficial insects in growing vegetable crops.

Any recommendations contained in this publication do not necessarily represent current HAL Limited policy. No person should act on the basis of the contents of this publication, whether as to matters of fact or opinion or other content, without first obtaining specific, independent professional advice in respect of the matters set out in this publication.



Contents

1. Media Summary	4
2. Technical Summary	5
2.1. Desktop study.....	5
2.2. Focus groups.....	5
2.3. Online survey.....	5
2.4. Video production	6
3. Executive Summary	7
3.1. An Ecolabel?	7
3.2. Insects in vegetables.....	8
3.3. Using video to communicate with consumers	8
4. Recommendations	10
5. Desktop Literature Review	12
5.1. Introduction	12
5.2. Ecolabels	12
5.2.1. What is an Ecolabel?	12
5.2.2. General Purpose Ecolabels	13
5.2.3. Fresh Produce Ecolabels	13
5.2.4. Fresh Produce Environmental Assurance Programs	14
5.3. Consumers and Environmental Labeling	15
5.3.1. The alternative food system	15
5.3.2. Barriers to choosing an Ecolabel.....	17
5.3.3. Willingness to Pay	18
5.3.4. Prospects for an Australian Ecolabel	19
6. Market attitudes to IPM – a series of focus groups	21
6.1. Aim.....	21
6.2. Method	21
6.2.1. Participants	21
6.2.2. Session outline.....	22
6.3. Results.....	24
6.3.1. Where do they shop and why?	24
6.3.2. Fresh produce purchases – what matters and what doesn’t.....	26
6.3.3. Labelling	27
6.3.4. Organics	28
6.3.5. Washing produce	28
6.3.6. Paying for things you can’t see	29
6.3.7. What about vegetable farmers?	30
6.3.8. Where do vegetables come from?.....	30
6.3.9. Are farmers good custodians of the environment?	31
6.3.10. Integrated Pest Management and sustainability.....	31
6.3.11. Finding a bug	33
6.4. Discussion.....	35
6.4.1. Where and why people shop	35
6.4.2. What matters about fresh vegetables?	35

6.4.3.	Vegetable farmers	36
6.4.4.	Willingness to pay	36
6.4.5.	Finding a bug.....	37
6.4.6.	Conclusions	37
7.	Market attitudes to IPM – An online survey	39
7.1.	Aim.....	39
7.2.	Method	39
7.2.1.	The panel	39
7.2.2.	The questions.....	40
7.2.3.	Confirming the data	41
7.3.	Results and Discussion	42
7.3.1.	What matters most and what is a turnoff when buying fruit and vegetables...	42
7.3.2.	Organics	43
7.3.3.	Interest in environmental sustainability	44
7.3.4.	Insects on vegetables.....	45
7.3.5.	Integrated Pest Management	46
7.3.6.	Eggs.....	48
7.3.7.	Preparing, cooking and eating vegetables	48
8.	Informing consumers – a test case.....	52
8.1.	Producing the videos.	52
8.2.	Consumer access	55
8.3.	Impact and Uptake	55
9.	Appendix 1	58

1. Media Summary

Four activities have been conducted;

- A desktop study of sustainability labels and 'eco' farming schemes.
- A series of 8 focus groups, segmented by age and income, in Sydney and Melbourne
- A national online survey of over 1,000 main grocery buyers on attitudes to farming, the environment, and insect contamination in food.
- Production of three videos aimed at consumers, promoted using QR codes linked to a website optimized for mobile phones.

Research overseas and in Australia has consistently indicated that consumers care about environmental issues and are willing to pay more for sustainably grown produce. However, intention often fails to translate into action. One barrier is that consumers generally put little thought into vegetable purchases other than price and quality. A surprising number are barely aware of country of origin labeling, with little brand recognition. An overwhelming majority of focus group participants had little idea how or where vegetables are grown.

Disconnection from the growing process increases consumer sensitivity to insect contamination in fresh vegetables. Consumers are less tolerant of finding an insect if vegetables were purchased from a supermarket, especially if it is a packaged item. The resulting complaints are considered a major issue by the retailers and can result in significant costs to growers if product is rejected or recalled.

Explaining the use of beneficial insects to control pests was not only new to most focus group participants, but clearly interested them. This also helped engage them in understanding sustainable production of vegetables. It was therefore decided to produce three short (~30 second) videos explaining this technique to consumers in an entertaining manner. A potential additional benefit of the videos was to increase tolerance of insects generally – *“that just shows it's been grown naturally”*.

The videos feature three vegetable growers, each talking about a different beneficial insect. They are available on a dedicated website optimized for mobile phone access – 'betterveg.com.au' and linked with QR codes placed on products from each farm. So far the videos have had a very positive reaction. Over 1,900 hits have been recorded on the dedicated website, with more than half directly on the Gazzola Farm video, possibly due to the enthusiasm of that company in using the stickers and promoting the video.

2. Technical Summary

Four activities have been conducted;

- A desktop study of sustainability labels and 'eco' farming schemes, as well as consumer acceptance of such schemes.
- A series of 8 focus groups, segmented by age and income, in Sydney and Melbourne
- A National online survey of over 1,000 main grocery buyers on attitudes to farming, the environment, and insect contamination in food.
- A series of three videos have been produced, aimed at consumers and accessible using QR codes and a dedicated website optimized for mobile phones.

2.1. Desktop study

Products with proven environmental performance can be identified to consumers using an ecolabel. Ecolabels specifically developed for agriculture and which include elements of IPM include Good Natured, Red Tractor, Healthy Grown and LEAF. There are also a number of environmental assurance schemes which can be used for business to business purposes. In Australia these include Freshcare Environmental and Enviroveg.

Consumers often express care for the environment and a desire to make ecological choices. Many studies have shown that consumers are willing to pay for environmental attributes. However, this does not always translate into changes in behavior during shopping. Barriers include price, not noticing an ecolabel, not understanding an ecolabel, not believing in the credibility of labeling or simply lacking motivation.

2.2. Focus groups

An overwhelming number of participants had never thought about where vegetables come from, how they are grown, or what a vegetable farm would be like. While many thought that farmers generally must look after the environment it was clear that this was not an issue they had thought much about.

After an explanation of IPM, focus group participants participated in an 'auction' of IPM and non-IPM products. Nearly all participants bid for IPM products, with the average bid approaching \$1. While this suggests a strong premium for an eco labeled product it seems likely that the competitive nature of the process, as well as the associated social status in front of the rest of the group, exaggerated the apparent level of interest.

The groups discussed how they would feel if they found an insect on fresh vegetables. Most were quite tolerant, especially if they understood they were beneficial insects, introduced to control pests. Tolerance decreased if products were packaged or processed (ready to eat) or the insect was soft bodied, like a caterpillar or snail.

2.3. Online survey

More than 1,000 main grocery buyers, selected so as to represent the Australian population in terms of age, location and gender completed the survey. Quality was the most important factor when choosing fruit or vegetables. Pesticides and insects were less important. However, finding a grub or bug was a significant turnoff for many. Questions on organic farming revealed that even consumers who often purchased organic products had little understanding of the growing process. Despite this, more than half of consumers surveyed

thought supermarkets should favour environmentally responsible suppliers even if it increased prices, while over 40% were willing to pay more for products certified environmentally sustainable.

Questions relating to finding insects on fresh produce revealed a high level of tolerance for insects on loose products such as lettuce and herbs. However, similarly to the focus groups, far fewer respondents would still eat a packaged product if they found an insect in it.

After an explanation of IPM, respondents were asked to nominate how much extra they would be willing to pay for an eco-labeled product. More than half were willing to pay up to \$1 more, many were neutral and a few were negative. Willingness to pay more for an eco label was positively associated with vegetable liking, vegetable consumption, gardening interest and income. There was also a very strong relationship with the type of eggs purchased; those who were negative about IPM were more likely to buy cage eggs, while those most positive about IPM almost universally said they purchased free range.

While these results appear to offer strong support for an eco label it appears likely that, even in the anonymous environment of an online survey, respondents still overstate their ethical purchases. Free range and cage eggs currently represent 28% and 59% of retail purchases respectively. However, 51% of survey respondents said they mainly purchased free range eggs, while 34% said they mainly purchased 'the cheapest ones' (usually cage eggs). This suggests a 20-25% error factor.

2.4. Video production

Three videos were produced to explain the use of beneficial insects to control pests on vegetables. A potential additional benefit of the videos was to increase tolerance of insects generally – *“that just shows it’s been grown naturally”*. The videos feature three vegetable growers, each talking about a different beneficial insect. The videos are short (30 seconds), attention grabbing and easily accessible by scanning a QR code on packaging.

The videos are available on a dedicated website optimized for mobile phone access – ‘betterveg.com.au’ and linked with QR codes placed on products from each farm. So far the videos have had a very positive reaction. Over 1,900 hits have been recorded on the dedicated website, with more than half directly on the Gazzola Farm video. This is possibly due to the enthusiasm of that company in using the stickers and promoting the video.

3. Executive Summary

This project had two primary aims;

1. To investigate whether there was a potential market for an IPM – ‘eco’ – labeled product, and whether such a branding could attract a small premium
2. To find ways to increase consumer tolerance of minor insect contamination in fresh vegetables by explaining the role of predatory insects in controlling pests.

3.1. An Ecolabel?

While the results from the focus groups seemed to clearly indicate there is indeed a potential market for such a brand, the results are complex and other factors need to be taken into account. Points for and against are summarized as follows;

FOR

- Once IPM was explained, there was strong support shown for the concept in both the focus groups and online survey.
- While many consumers aspirationally would like to buy organic, they find it too expensive. An ecolabel could provide a more affordable, but still ethically sound, alternative.
- An ecolabel could attract a premium price in the market. In the focus groups, bids of up to \$4 were made to exchange standard products for those grown using IPM. In the online survey, half of all respondents indicated they could be willing to pay a small premium (mostly up to \$1) for such products, suggesting they valued this attribute. Previous research also suggests a small premium for an ecolabelled product.
- Farmers Markets could provide a ready outlet for such a label – in this environment consumers are more willing to spend time learning about new products and connecting with where their food comes from.
- A clear target market can be identified from the survey data. They are not only slightly more affluent than average, but also consume more vegetables.
- An ecolabel could be used by the industry as a whole to increase consumer awareness of vegetable production and farming

AGAINST

- Consumers in both the focus groups and online research are likely to have significantly overstated their intentions to support an ecolabel. For example, stated free range egg purchases were at least 20% higher than actual sales data. In the focus groups nearly every person claimed to buy free range.
 - Retailers are increasingly moving to their own generic branding, including special offers and features. They are also tending to reduce the number of choices for specific categories. Any eco brand would need the support of at least one major retailer to succeed in the wider marketplace.
 - Despite good intentions, most consumers do not read labels in supermarkets. There is low recognition of origin, brands or even varieties. Vegetables are regarded as commodity items, and little thought generally goes into their purchase.
 - Explaining IPM is difficult; even organic is fairly poorly understood. Most consumers have no clear concept of how vegetables are grown.
 - To be credible, an ecolabel needs to involve 3rd party certification. IPM and sustainable practices are hard to define in rigid terms. Also, growers are likely to resist yet another audit + paperwork
-

3.2. Insects in vegetables

There genuinely appears to be good tolerance of small bugs, in low numbers, on loose vegetables.

Factors that reduce tolerance of insects are;

- The product is bought from a supermarket (not a market or independent retailer)
- The product is in a sealed package
- The product is in some way already washed or processed
- The purchaser themselves has had little or no contact with vegetable production, farming generally, or even growing vegetables and herbs at home for their own use.

A number of participants in the focus groups commented that they thought the supermarket had raised expectations to the point where they are now unrealistic. Supermarkets are seen as hygienic above all, while the presence of bugs is associated with dirtiness. It is therefore a surprise if they do find something. Many participants commented that they didn't like surprises, but if they somehow knew there might be a bug then that would be OK.

There is little doubt that the number of complaints to the major retailers about contamination in fresh produce (often by insects) has increased in recent years. It seems likely this is not reflecting a real increase in the frequency of contamination but rather in both the ability and inclination to complain; mobile phones, tablets and computers have made it a work of moments to tap out a complaint and send it to the retailer, one's Facebook friends and indeed the entire world.

Moreover, as more products move into plastic packaging, expectations of hygiene and cleanliness have increased.

In some ways the vegetable supply chain has made a rod for its own back – by delivering high quality, clean, fresh, inexpensive vegetables 99.99% of the time, the 0.01% with something amiss now stands out as something surprising, extraordinary and unacceptable.

3.3. Using video to communicate with consumers

The three short videos produced have so far had an extremely favourable response. They aim to create a connection between the consumer and the farmer, provide re-assurance that the product has been produced in a way which is sustainable and kind to the environment (without making vague or hard to substantiate claims) and – perhaps – increase consumer tolerance of finding the occasional small insect in fresh produce. This last issue is an important one for the whole supply chain, complaints about insects being a major issue for the retailers, and a significant cost for farmers if product is rejected or recalled.

A good number of “hits” (>1,900) have been recorded on the website using QR code stickers on products. Most relate to the Gazzola page, probably due to the enthusiastic use and promotion of the materials by that company. Most hits were during the late morning to early afternoon. This suggests consumers shopping during the day – who perhaps are less rushed – are the ones mainly scanning the code.

It seems likely that the response could be further improved by combining with in-store promotional materials. This would draw more attention to the link and encourage consumers to view the videos. In addition, perhaps rather than simply having the QR code, packaging should include a website address – not all consumers are necessarily familiar with QR codes, or even have the “app” on their phone to do this. Including a website address would ensure the information and video links are widely available.

Having made the videos, it would be useful to examine how effective they are at changing consumer behavior – something that was not included in the current project. Consumers could be asked their opinions on issues relating to sustainability and insect contamination before and again after viewing the materials, either by online survey or face-to-face focus group. This could give much greater information about the effectiveness of the method, and the value in making more such videos.

4. Recommendations

- **Develop an industry wide plan to deal with the issue of insect contamination in vegetables**
 - Insect contamination is a major and continuing issue for all members of the supply chain, not just those growing with IPM. The best solution should use existing industry expertise and develop a united policy.
 - A workshop should be held to focus on this issue and develop an industry wide strategy. The workshop should include all members of the vegetable supply chain– retailers, wholesalers, processors, growers and supply chain businesses.
- **Quantify levels of insect contamination in IPM and conventionally grown vegetables before and after harvest**
 - One of the primary drivers for this project was the issue of insect contamination in fresh produce. There was a perception that this is more likely to occur in IPM grown product than conventionally grown vegetables because they have not been sprayed with chemicals and beneficial insects have been introduced into the crop.
 - Some growers don't practice IPM because they are concerned about insect contamination in the harvested product. However, conventional product may be just as likely to contain insects as vegetables grown with IPM, especially if resistance is an issue.
 - A new project is needed to examine the effects of pre and postharvest handling methods on insect contamination. This could build on an existing HAL / VC funded project (VG12108 – Improving the management of insect contaminants in processed leafy vegetables) for the benefit of the whole industry.
- **Investigate the potential for setting up an Australian branch of LEAF (Linking Environment and Farming) or similar scheme**
 - Linking with an existing group could help leverage resources and experience as well as enable use of existing information / production guidelines rather than starting from scratch. It would create alliances with compatible agricultural industries and potentially provide a point of interest at independent retailers, markets and farmers markets.
 - People who have visited farms are more interested in different ways of farming. They also better understand the issue of insects in produce. Farm visits and Open Days could be an effective strategy to defuse the issue of contamination in vegetables.
- **Investigate ways the vegetable industry could increase involvement in schools**
 - This could include input into programs such as growing vegetable gardens, offering farm tours as part of excursions or, for high schools, including vegetable production as a significant part of agriculture courses.

- These activities would raise the profile of the vegetable industry among the general public. They would also improve understanding of vegetable production methods, and increase tolerance of insects in vegetables into the future.
- *It is noted that a new project funded by HAL is examining this issue.*
- **Use the videos which have already been produced to study the consumer response to the issues of sustainability and insects on vegetables**
 - A survey could be developed to assess consumer attitudes to these issues before and after viewing the videos produced in this project. They could also question consumers about the best way of presenting this information and encouraging views.
 - This would indicate whether production of such short, consumer targeted videos are an effective method of communication used alone, or need to be combined with other activities or promotions.

5. Desktop Literature Review

5.1. Introduction

Despite advances in Integrated Pest Management (IPM) farming methods and promotion of sustainable practices many vegetable growers have remained reluctant to adopt IPM. One reason is that reliance on IPM increases the likelihood that live insects will remain on harvested products. The "zero tolerance" of retail stores in regard to live insects can lead to product being rejected at the market.

Previous research, conducted as part of project VG07076 (McDougall *et al.*, 2012), found that 78% of consumers would be interested in purchasing an IPM-grown product (once IPM was explained), while over half suggested they were willing to pay a premium of up to 10% for such a product. IPM grown products have been successfully marketed in Europe and the USA. Australian consumers are also increasingly interested in ethical farming practices (such as free range eggs and sow stall free pork), and willing to change what they buy accordingly. The result is that retailers are starting to require environmental credentials, as well as food safety, as a condition of supply.

This section of the report examines previous research on consumers, IPM and sustainable vegetable marketing. It also provides examples of commercial practices in Australia and overseas.

5.2. Ecolabels

5.2.1. What is an Ecolabel?

An eco label is defined by the Global Ecolabelling Network (GEN) as a label that identifies overall, proven environmental performance of a product or service within a specific category - such as fresh produce.

They differ from "green" credentials in that they are awarded by an independent, third-party auditor against clear and transparent criteria. In this, they more closely resemble food safety certification schemes than aspirational or self audited "greenwashing" claims. This independence gives such schemes credibility in the eyes of consumers. Meeting the audit criteria allows use of a label, which can help achieve marketing objectives.

The International Organisation for Standardisation (ISO) defines three types of voluntary labeling according to environmental performance;

- TYPE I Multi-criteria based, third party audited program that authorizes the use of an environmental label indicating relative environmental performance (ie an eco label)
- TYPE II Environmental self-declaration claims
- TYPE III Programs providing quantifiable environmental data which meet pre-set parameters set by a third party and independently verified

Ecolabels effectively provide consumers with information that is not otherwise evident, effectively ‘defetishizing’ the commodity¹. For consumers to have confidence in ecolabel claims, they need to be certain of their truth and enforcement. For this reason, most successful ecolabels involve third party certification, using an independent organization which has no financial interest in the outcome². Ecolabels have now been developed for a huge range of products, including forestry, wine, fisheries, consumer goods, energy and tourism as well as food products.

5.2.2. General Purpose Ecolabels

Global Ecolabelling Network (GEN) is a non-profit association of Type-1 eco-labelling organisations as defined by ISO standard 14024. While voluntary, all of the schemes include independent third party auditing for verification. The GEN currently includes 27 members in 24 countries including GECA in Australia. However, all of these organizations are focused on manufactured items rather than fresh produce.

Good Environmental Choice Australia (GECA) is an independent, not-for-profit organization. Their mission is to increase the sustainability of consumption by providing an independently audited multi-sector green certification program. They do not currently include any food products within their registered categories. Instead, they tend to cover a wide range of durables such as flooring, building materials as well as cleaning products, electricals, plastics and stationary.

5.2.3. Fresh Produce Ecolabels

Good Natured (goodnaturedfruit.co.uk) originated with one farm in Scotland, but now includes five farms across the UK as well as a bananas sourced from organic farms in the Dominican Republic. The major claim is “pesticide free”, with a focus on using IPM techniques to control pests and diseases. In addition to using predatory insects, the farms grow in greenhouses and select resistant varieties.



Red Tractor Farm Assurance Fresh Produce Scheme

(redtractor.org.uk) is a large and integrated product assurance scheme in the UK that includes field crops, chickens, pigs, beef and lamb production as well as fresh fruit and vegetables. In addition to implementing IPM, farms must meet criteria relating to soil health and environment, food safety, biosecurity and worker health and safety. They are independently audited against the code by one of four Certification organisations. It was introduced to improve public confidence and increase demand for products grown in Britain.



Linking Environment and Farming (LEAF) (leafuk.org) is a UK based non-profit organization which promotes environmentally sustainable food production. It aims to bring together farmers, consumers and food businesses to build trust, create opportunities and increase sustainability. This includes adoption of Integrated Farm Management (IFM) principles. Key activities include the formation of LEAF Demonstration Farms and Innovation Centres and Open Farm Sunday. In 2013 this event involved 365 farms across Britain which hosted over 200,000 visitors. Farms can be certified against the LEAF ‘Marque’, initially by self-assessment followed by an external audit.



¹ Allen, P., Kovach, M. 2000. The Capitalist Composition of Organic: The Potential of Markets in Fulfilling the Promise of Organic Agriculture. *Agriculture and Human Values* 17:221–32.

Healthy Grown (healthygrown.com) program was developed by a group of Wisconsin potato farmers during the mid-nineties. Growers not only implement IPM but also have to improve biodiversity and restore native eco-systems on unfarmed parcels of land. Practices found to be economically viable as well as ecologically sound are certified against a code developed by the University of Wisconsin-Madison. Growers, packers and shippers work together with conservation organisations such as the World Wildlife Fund and Defenders of Wildlife and are audited against the code by a third party organization.

The **IPM Institute of North America** (ipminstitute.org) was formed in 1998 to create recognition and rewards in the marketplace for growers practicing IPM. Based on the New York State IPM Program, growers follow a set of IPM elements developed by Cornell University. Growers document their practices, which are then evaluated by independent third parties. This allows them to use an IPM label with the text; "through IPM, growers use less pesticide over time by taking other steps to reduce pest damage. Your purchase supports the efforts of growers who truly care about the environment".



Osaka Eco Agricultural Products is a Government run organization. Registered farmers use only half the pesticides and fertilisers used by average farms within the area. Government specialists administer the system and inspect each farm, licensing the growers to use an ecolabel in the market.

5.2.4. Fresh Produce Environmental Assurance Programs

Freshcare Environmental (freshcare.com.au) is based on Freshcare, the leading Australian food safety certification scheme for fresh produce. First released in 2006, the Freshcare Environmental code was designed to help growers achieve environmental objectives consistent with those sought through the ISO14001 environmental management process, but more suited to use on-farm. For efficiency, it can be audited in combination with the Food Safety Code. It includes elements on water, land and soil management, chemical use, fertilizer and soil additives, biodiversity and waste, air and energy management. It is not intended as a marketing tool, but rather to help growers find efficiencies, promote their environmental credentials and meet retailer requirements. Freshcare Environmental Viticulture and Freshcare Environmental Winery are part of the EntWine program, which adds carbon footprinting (wineries only).



Enviroveg (enviroveg.com) is the Australian vegetable industries own environmental program. Free to all levy paying vegetable growers, it currently provides guidelines and self assessment tools to help farms manage their production with care for the environment. It is now planned to also develop a third party auditable system – *Enviroveg platinum* – which will meet retailer requirements for environmental assurance.

Global GAP (globalgap.org) is, arguably, the program that started the trend to environmental assurance programs generally. Initially developed in Europe as "EurepGAP" in 1999, the program incorporates social justice, food safety, energy use and biosecurity along with environmental requirements. It is now a worldwide program that works with more than 140 independent certification bodies and is regarded by some as setting the benchmark in such programs.

The **ISO14001** standard is an environmental management framework for a system focused on environmental aspects of various types of businesses. It aims to help companies

continually improve their environmental performance at all levels of the business, while also complying with all legal requirements. It can be applied to any type of business, including manufacturing, service businesses, processing and primary production. Realistically, the record keeping requirements of ISO14001 are best suited to large, manufacturing based businesses; while some Australian farms have attempted to implement ISO14001, they have generally found it too expensive and cumbersome to be practical.

Nature's Choice is a scheme developed by Tesco supermarket in the UK. Suppliers need to minimize their impacts on the environment by reduced use of pesticides and fertilisers, management of soil health and irrigation and retention of areas on farm for wildlife and conservation. Nature's Choice is promoted as an important component in Tesco's corporate responsibility, which aims to minimize all impacts on the environment.



5.3. Consumers and Environmental Labeling

There is a considerable volume of work in the published scientific literature relating to consumer beliefs about food, the apparently increasing demand for different product attributes and their responses to different labeling schemes such as carbon footprinting, fair trade, organic, locally grown and sustainability ecolabels. While much relates to the USA and Europe, and there are key differences between both of these and the Australian market, it might be expected that some at least of the same changes are now occurring in Australia.

5.3.1. The alternative food system

According to Howard and Allen², consumer interest in alternatives to the conventional food system is growing rapidly, evidenced by a 70% increase in the number of Farmers Markets in the US within the past decade. Organic, Rainforest Alliance and Fair Trade certified foods are now found in mainstream food outlets, such as McDonalds, Coles and Starbucks. While these types of products currently represent a small percentage of the total market (3.5% in the US), their growth has been rapid.

For example, in 2007 UK supermarket Tesco introduced carbon footprinting information at point of sale on a range of their generic products. While Tesco has since stepped back from carbon footprinting due to the complex and costly calculations required for each product, they still require suppliers to comply with "Nature's Choice" as described above. Other UK supermarkets display whether a product has been transported by air, and market generic brands with fair trade and sustainability claims incorporated.



In Australia, previous studies have found that 62% of the population has concerns about the environment. However, it seems possible that most consumers are more aware about broader issues such as industrial pollution and wildlife conservation than the impacts of food production and distribution or their own food preferences³. This observation is supported by a previous study of consumer attitudes to IPM, which found that;

² Howard, P.H., Allen, P. 2010. Beyond organic and fair trade? An analysis of ecolabel preferences in the united States. *Royal Sociology*. 75:244-269.

³ Lea, E. Worsley, A. 2008. Australian consumers food related beliefs and behaviours. *Appetite*. 50:207-214.

80% of consumers agreed that “protecting the environment is very important to me”, and over 75% thought that supermarkets should favour environmentally responsible suppliers. However, one third did not know whether most fruit or vegetables were grown in an environmentally sustainable way (remainder split almost equally between agreeing and disagreeing), 35% were neutral on whether farmers were responsible with pesticides and 45% did not know whether or not pesticide use was controlled by the Government (and 14% thought it wasn't)⁴.

While consumers often express a desire to make ecological choices, or behave in ways that reduce their environmental impacts, there is often a disconnect between intention and action – known as the ‘hypothetical bias’. Moreover, the actions taken are not necessarily the best ones to achieve an environmental goal. For example, consumers tend to overestimate the environmental impacts of packaging materials⁵. In addition to avoiding excessive packaging, buying local is seen as having the greatest environmental benefit, while buying organic and eating less meat were seen as less beneficial⁶. Most consumers are happy to compost food scraps, but they are less willing to reduce meat consumption or buy organic products³.

The motivations of consumers purchasing sustainably produced foods include hedonistic (eg taste), ethical (eg animal welfare) and environmental (eg food miles, reduced pesticides) reasons⁷. The stereotypical image of an ethical consumer is middle aged, educated and relatively affluent. However, this view is only partially supported by a wide range of previous studies⁸.

For example, a study comparing English and French subscribers to local, organic fruit and vegetable box schemes found that the English were mainly motivated by reducing food miles whereas the French were more interested in taste and quality⁹. Similarly, motivations of consumers purchasing organic produce include that they are fresher than conventional products and better sources of nutrition as well as reducing the risk of pesticides or being friendly to the environment¹⁵.

⁴ McDougall, S. et al. 2012. The delivery of IPM for the lettuce industry – an extension to VG05044. HAL Final Report VG07076.

⁵ Tobler, C., Visschers, V.H.M., Siegrist, M. 2011. Organic tomatoes versus canned beans: How do consumers assess the environmental friendliness of vegetables? *Environment and Behavior*, 43: 591–611.

⁶ Tobler, C., Visschers, V.H.M., Siegrist, M. 2011. Eating green. Consumers willingness to adopt ecological food consumption behaviors. *Appetite* 57:674–682.

⁷ Onyango, B.M., Hallman, W.K., Bellows, A.C. 2007. Purchasing Organic food in US food systems. A study of attitudes and practices. *British Food Journal*, 109:399–411.

⁸ Hughner, R. et al. 2007. Who are organic food consumers? A compilation and review of why people purchase organic food. *Journal of Consumer Behaviour* 6:94–110.

⁹ Brown, E. Dury, S. Holdsworth, M. 2009. Motivations of consumers that use local, organic fruit and vegetable box schemes in central England and Southern France. *Appetite* 53:183–188.

5.3.2. Barriers to choosing an Ecolabel

In a discussion about sustainability in the food sector, Grunert¹⁰ suggests that, given a set of products carrying ecolabels and a population of consumers with a positive attitude to sustainability, six possible barriers to purchase remain;

1. **Consumers simply don't notice the label.**

Many consumers are time pressured while shopping, and simply buy from habit. A study of the time consumers spent choosing grocery items found that consumers spent the most time (43 seconds) choosing ready meals and the least time (31 seconds) choosing snackfoods. However, this concealed great variation, with 40% of shoppers choosing in less than 15 seconds. Moreover, less than 10% of purchasers looked at anything but the front of the pack, and only 60-70% looked at the pack at all¹¹.

2. **Consumers see the label but don't care enough to try to find out what it means**

Known as 'peripheral processing', consumers may notice a label but lack the motivation to understand it. This can still lead to attitude changes and even purchases – such as a dog lover purchasing 'RSPCA Approved' simply because it has a paw print on it.

3. **Consumers see the label but misunderstand it**

An example of this is the purchase of organic food because consumers believe it is healthier, even though this is not necessarily true. As 'health' is a credence characteristic (like sustainability), consumers may continue to purchase on health grounds even if told that this is not true. However, if the expectation is something that can be disproved – such as fresher or tastier – then they may be disappointed and the label can have a negative impact.

4. **Eco-information is traded off against other criteria**

This can include price, flavor, quality or personal preferences. Price is clearly the most important factor. A range of studies have found that although most consumers are happy to purchase an eco label if priced the same as conventional, this willingness declines rapidly as price increases. Willingness to pay is discussed in more detail below.

5. **Lack of credibility and/or awareness**

Sustainability is largely a question of credible communication. While ecolabelling aims to empower consumers to make a sustainable choice, if the consumer does not recognize the label it will not be credible. For example, a study of consumers who said they would prefer to buy organic found that those who recognized the Danish organic label were more than twice as likely to translate this intention into an actual purchase¹².

6. **Lack of motivation at time of choice**

Many people have a positive, but not very strong, attitude to sustainability.

¹⁰ Grunert, K.G. 2011. Sustainability in the food sector: A consumer behavior perspective. *International Journal of Food System Dynamics*. 2:207-218.

¹¹ Grunert, K.G. et al. 2010. Use and understanding of nutrition information on food labels in six European countries. *Journal of Public Health*. 18:261-277.

¹² Thøgersen, J. 2002. Promoting green consumer behavior with eco-labels. In T. Dietz & P. Stern (Eds). *New Tools for Environmental Protection: Education, Information and Voluntary Measures*. Washington DC National Academy Press.

Consumer research can effectively ‘activate’ dormant ideas and attitudes. However, these may be forgotten when actually shopping and fail to influence behaviour.

5.3.3. Willingness to Pay

Traditional studies of consumer willingness to pay more for food with environmental attributes have relied on hypothetical survey questions. Now, increasingly, this issue is being studied using auction systems, where people ‘bid’ to exchange one product for another, or by real life choice experiments where consumers indicate their preference for one option and price over another (eg organic tomatoes for \$5/kg vs conventional for \$4/kg), and are then held to one of these purchase options.

Quality and price are almost always the most important factors in how much consumers are willing to pay for fresh produce. It has been shown that the values elicited by hypothetical and experimental studies depend a great deal on the methods that were used¹³. For example, while elimination of insecticide use increased willingness to pay for apples by about 50%, cosmetic damage decreased willingness to pay by 63%¹⁴.

The issue of ‘hypothetical bias’, that is, overstatement of willingness to pay for products with ethical or environmental credentials, is an ongoing issue. One study attempted to estimate this factor by comparing the results of hypothetical and non-hypothetical choice experiments on organic and local tomatoes. It was found consumers overestimated the amount they were willing to pay by around 9%¹⁵. However, this seems likely to be an underestimate. Consumers making scrutinized decisions in an experimental situation, even one involving real purchases, may behave quite differently to their normal shopping habits.

There is also good evidence that consumer behavior varies by location; consumers shopping at farmers markets and local produce outlets are more likely to purchase organic or locally grown products, as well as more likely to be willing to pay a premium for such products^{16,17}.

A recent large study¹⁸ reported on willingness to pay for IPM grown apples in four European countries (Portugal, France, Greece and the Netherlands). The researchers compared three different IPM labels against organic and conventionally grown products. In summary, the results were;

- Organic apples received the highest premiums, averaging 50.5% above conventional
- IPM apples gained a significant premium, averaging 24.5% over conventional

¹³ Michaud, C., Llerena, D., Joly, I. 2013. Willingness to pay for environmental attributes of non-food agricultural products: a real choice experiment. *European Review of Agricultural Economics*. 40:313-329.

¹⁴ Roosen, J. et al. 1998. Consumers valuation of insecticide use restrictions: an application to apples. *Journal of Agricultural and Resource Economics*. 2:367-384.

¹⁵ Yue, C. Tong, C. 2009. Organic or local? Investigating consumer preference for fresh produce using a choice experiment with real economic incentives. *HortScience*, 44:366-371.

¹⁶ Onzaka, Y., Nurse, G., McFadden, D.T. 2010. Defining sustainable food market segments: do motivations and values vary by shopping locale? *American Journal of Agricultural Economics*, 93: 583-589.

¹⁷ Keeling-Bond, J., Rose, J.M., Bond, C. 2009. What influences consumer choice of fresh produce purchase location. *Journal of Agricultural and Applied Economics*, 41:61-74.

¹⁸ Bazoche, P. et al. 2013. Willingness to pay for pesticide reduction in the EU: nothing but organic? *European Review of Agricultural Economics* 1-23.

- In all countries the Retailer IPM label was less valued than the other IPM ecolabels
- Willingness to pay for organic increased 24% when consumers were given information about pesticides, but decreased by 15% after they tasted the fruit.
- Willingness to pay for IPM products did not change when participants were fully informed of what the label meant or after they tasted the fruit
- The estimated premiums for IPM products were similar or above commercial premiums, suggesting these products could find ready markets.

Similar results were reported by Rousseau and Vranken¹⁹, who found that providing information increased the premium for organic apples from 33 to 57c/kg. The increase was most pronounced among consumers who were previously unfamiliar with aspects of organic farming. However, expectations are higher for organic products; if these are not met, then organic can become a negative attribute²⁰.

In the case of an IPM ecolabel, premiums are likely to be modest at best. Expectations of quality and flavor are therefore likely to be met or even exceeded. Keeping the price premium small (<20%), promoting the label to create familiarity and providing simple and trustworthy information are likely to be key factors in the success of any Australian ecolabel.

5.3.4. Prospects for an Australian Ecolabel

The interpretation of “What is IPM” varies considerably among its proponents. Some would consider on-farm implementation of Freshcare Environmental to effectively mean that the property has adopted an IPM / sustainability program. However other proponents of IPM may consider this system inadequate as pesticide use is still permitted after consideration of the alternatives. While both versions of IPM allow use of chemicals, questions remain as to the circumstances under which chemical use can be justified and the choice of chemical used. When it is difficult for the vegetable industry itself to clearly define what is meant by IPM, it is going to be even harder to explain this to consumers.

Coles recently announced its “Nurture” program. This will require all suppliers to adopt an auditable environmental accreditation – it is not yet a condition of supply, although it has been flagged that this will happen. The main scheme that can currently meet this requirement is Freshcare Environmental, although there are plans for Enviroveg to also develop a third party auditable system for vegetable growers (Enviroveg platinum). Programs such as Eurepgap and ISO14001 will also be acceptable, but these are harder to implement on farm.

Coles has so far not promoted its “Nurture” program to their customers. They have effectively been using the program as ‘insurance’. The Nurture program is designed to demonstrate that Coles has exercised due diligence, ensuring that its products are as environmentally friendly as possible. As third parties audit the system, Coles itself cannot be held responsible if anything goes wrong.

However, there are plans to change this in the future as more growers are accredited to an environmental assurance system

¹⁹ Rousseau, S. Vranken, L. 2013. Green market expansion by reducing information asymmetries: Evidence for labeled organic food products. *Food Policy*, 40:31-43.

²⁰ Laureati, M. et al. 2013. Sustainability and organic production: how information influences consumer’s expectation and preference for yogurt. *Food Quality and Preference*, 30:1-8.

The comment from one focus group participant (described in more detail in Section 6.3.2);

“When I’m in the supermarket I’m not thinking about where it was grown or how, I’m thinking what I’m going to make for dinner”

.... seems likely to have encapsulated what many were thinking. A disappointing number of participants were barely aware of Country of Origin labeling, while most struggled to think of any labels / brands associated with vegetables.

An ecolabel could find a niche market at farmers markets and independent retailers, where consumers have the time and interest to think about their purchases. However, in general it seems likely that, without an extensive public education and advertising campaign as well as support from major retailers, an ecolabel will struggle to find a major place in the Australian market.

6. Market attitudes to IPM – a series of focus groups

6.1. Aim

To investigate consumer knowledge and attitudes to farming generally, their willingness to pay for sustainably produced vegetables and their feelings about insect contamination in fresh produce.

6.2. Method

6.2.1. Participants

A series of 8 focus groups were conducted, four in Sydney and four in Melbourne. Recruiting parameters were;

- Female main shoppers over 35, interested in gardening OR food/cooking, middle to upper income
- Main shoppers (male or female) under 35, middle to upper income
- Female main shoppers over 35, interested in gardening OR food/cooking, lower to middle income
- Main shoppers (male or female) under 35, lower to middle income

Each group included up to 8 participants and lasted approximately 1.5 hours.

Table 1 - Times, locations and demographics of focus groups

Date	Location	Time	Demographic
Wednesday 7 th August	City Group Rooms Level 18, 122 Arthur St., North Sydney	6:00pm	Females >35 years, middle to upper income
		8:00pm	M/F <35 years, middle to upper income
Thursday 8 th August	City Group Rooms Level 4, 85 George Street, Parramatta Sydney	6:00pm	M/F <35 years, lower to middle income
		8:00pm	Females >35 years, lower to middle income
Wednesday 14 th August	Viewpoint Centre 40-44 St Kilda Rd, St Kilda, Melbourne	6:00pm	M/F <35 years, middle to upper income
		8:00pm	M/F <35 years, lower to middle income
Thursday 15 th August		10:00am	Females >35 years, lower to middle income
		12:00am	Females >35 years, middle to upper income

6.2.2. Session outline

Each place was set with a small packet of lollies, a pair of baby cos lettuce or celery, a leek, and a sealed bag of packaged rocket, labeled as shown below. Each place also has a pen, \$5 in change in a small envelope and a small pile of colour coded bidding slips with spaces for name, item and bid.



Figure 1 - Setup used for focus groups the samples of conventionally grown product, lollies for practice, bidding slips and envelope with \$5 in change. Close-ups also shown of the labels used for conventional (L) and IPM grown (R) rocket

Facilitator to have other lollies, IPM grown leeks, IPM grown lettuce or celery and IPM grown rocket labeled as shown in Figure 1. All sessions were video taped for later assessment. Care was taken to ensure that all participants were able to have their say.

Sessions approximately followed this line of questioning

Ice breaker question

- Name, where you are from, and what was the first car you ever owned?

Introductory discussion

- Ask about shopping habits – Where? Why?
- Ask about fresh produce purchases – what matters? What doesn't? What turns them off? Do they have any concerns about fresh produce, things they may have heard in the media?
- Imported fruit or vegetables – what do they think about that?
- Raise the issue of organics – do they buy? What products? Why?

Labels and branding

- Do they look at labels when they are purchasing different items? Do they check the ingredients, nutrition panels etc What about the heart foundation tick, Low GI – any other schemes – do they trust them? Do they even notice them? Have they seen any branding on vegetables – varieties, suppliers etc.
- What sort of eggs do they buy? Why those ones? Have they changed their purchases because of publicity around this issue?
- What about vegetables – what image comes into their head at the mention of a vegetable farmer? Do they think they are good custodians of the environment, bad custodians, or don't know / never thought about this?

Explanation of IPM

- Explanation of what is meant by organic – strict protocols, can't use anything artificial but can spray natural compounds eg pyrethroids.
- Then conventional – many laws about what can and can't be sprayed, adhere to law, but sprays may be based on calendar not pest populations, may impact beneficial insects or soil health.
- Finally IPM - not organic but less / softer pesticides than conventionally grown products. Use of predatory insects, resistant varieties, cultural pest controls eg hygiene, weed control, crop rotation. Emphasis on sustainability, soil health.

What do they think of IPM? Turned off by the fact there might be insects / turned off by the fact farmers still use chemicals..... OR think this is a good idea.

How do they think vegetables should be grown? Do they care? Are they happy to just buy whatever is cheapest?

Auction

Practice run

- Participants are offered the opportunity to 'upgrade' from a packet of raspberry lollies to a packet of citrus lollies. How much would they pay?
- Each participant writes the maximum they would be willing to pay on the appropriate bidding slip.
- The bidding slips are then collected, and the highest bidder 'wins' the citrus lollies.
- They pay for this using the \$5 they were given at the start of the session and are given the different lollies.

Now, bring out samples of IPM grown products. Let the participants examine the products. All should be similar quality to the samples they were already given.

- Repeat the bidding procedure for the leeks, the lettuce / celery and finally for the rocket
- Tally up the bids each time, 'award' the highest bidder the IPM product and take appropriate payment from the \$5.

Insect showcase

Bring out samples of vegetables with (preferably live) beneficial and pest insects on them. Examples include ladybeetles (larvae and adults), lacewings (larvae and adults), cabbage white caterpillars, aphids, and a small snail. Discuss how they would feel if they found a particular insect on a lettuce, in a bag of salad, or on a head of broccoli. What would they do? Does it make a difference if it's dead or alive? Is this acceptable? If so, when? Would they complain to the store?



Finish

Thank the participants, ask them to sign the attendance sheet and give them their envelope with fee. They can take their purchases with them.

6.3. Results

6.3.1. Where do they shop and why?

The majority of participants shopped mainly at the supermarket. While some also shop at smaller grocery stores, this tended to be in the older groups; among younger consumers supermarkets were extremely dominant. There were also a number of mentions of Aldi, farmers markets (mainly Melbourne) and Harris Farm (Sydney only).



Previous focus groups (2007, 2011) found similar results, in that most people shopped at the supermarkets due to the overwhelming convenience they offer. However, many participants expressed strong resentment of this (perceived?) power over their shopping budget. There were also many complaints about the quality of fresh produce on offer. Independent grocers, particularly Harris Farm Markets, were often felt to offer much better quality and value, if one had the time to go there.

This now appears to be less the case. There were relatively few complaints about the quality of fresh produce in supermarkets and, where there was an issue, it was more in terms of time – Sunday night is notoriously bad for fresh produce, whereas most mornings the fresh produce section looks fresh and appealing. A number of participants even volunteered that they thought quality was good at their particular local supermarket, and that prices were better than independent retailers.

AC Nielson data previously suggested that 45% of consumers buy at least some of their fruit and veg outside the supermarket. To reduce this customer 'leakage' to the fruit and vegetable shops, often located just outside their doors, both major retailers have invested heavily in improving their fresh produce sections. New displays, improved management during transport and in-store as well as better quality products have been implemented. Based on these focus groups, it appears that this strategy is having an effect. While there is still anti-supermarket feeling, it was not as universal or as strong as found previously.

I'm always skeptical of supermarkets; did they buy that 6 months ago and just freeze it? Sometimes apples look just too shiny and you wonder what they've done to them. However the convenience and the price tend to win out.

Actually I think the Coles near me isn't bad, the quality is alright and the range is there

Sydneysiders still mentioned Harris Farm Markets as a good place to shop, but less often than previously. Instead, Thomas Dux was suggested as a great place to go for a 'luxury' shopping experience. It was not clear if participants understood that Thomas Dux is actually part of Woolworths – there seemed to be an impression these stores were an alternative to the supermarkets. Anticos at Northbridge and the Norton Street Grocer were also mentioned as quality stores – although expensive compared to alternatives.



Melbournians in particular were keen on fruit and vegetable markets such as the Queen Victoria Markets, South Melbourne Markets, Prahran Market and a variety of others, some of which are farmers markets and others more standard retail outlets. The major appeal of these was the shopping experience; fresh produce was not always cheaper or better quality than the supermarkets, and certainly not as convenient. Some commented on just how expensive they had found farmers markets to be, and that this was hard to understand given they were buying direct. While buying direct from a farmer was important to some, this was less a priority than the pleasant outing offered by such places.



In summer we go to the Vic Market because it's an outing, and the kids get involved and see all the different types of fruit and veggies

It's great to wander around a farmers market and it puts you in touch with what's in season. It's not cheap though, I always spend more than I would have at the supermarket

Another change from previous focus group outcomes was the frequent mention of Aldi, including for fruit and vegetable purchases. While Aldi does not carry the same range of vegetables as other supermarkets or grocers, many commented that the quality of commonly purchased items was good and prices were low.

I shop a lot of Aldi, their quality is fantastic, including the fresh produce, and they have a great organic range too

Others disagreed, suggesting that the quality and range of produce in Aldi varies considerably store by store. However, it appears that Aldi may be making real inroads into the shopping habits and loyalty of many consumers.



6.3.2. Fresh produce purchases – what matters and what doesn't

Freshness and quality are the main things most shoppers look for; price is less important. Some also mentioned aroma, colour and crispness. They didn't want soggy, soft, blemished or wrinkly vegetables. Some said that, unlike fruit, vegetables were cheap, and so quality was the most important factor

I buy what's in season, I think it tastes better

If you can smell the vegetables, they are going to taste good. Sometimes you pick up those trusses of tomatoes and you can smell it on your hand, like you just picked it yourself

Children

Getting children to eat vegetables was a challenge for many, but led to spirited and interactive discussions of ways to get around this. Most involved hiding vegetables by chopping finely or grating them into hamburgers, spaghetti bolognese and so on. There was even a suggestion that pureed cauliflower could be used as a substitute for milk in cooked dishes, getting even more vegetables onto the plate. One lady had told her small child that it was the law that they had to eat vegetables – a novel but effective approach!

Imports

While a number of participants volunteered that they strongly preferred to buy Australian, this was definitely not universally the case. Many consumers take little interest in where product comes from;



I never thought about it really, I'm just presuming that if it's fresh it's grown in Australia.

In theory I'd like to support the Australian farmers, but in reality if I'm just getting some potatoes or whatever I don't think about it

When I'm in the supermarket I'm not thinking about where it was grown or how, I'm thinking what I'm going to make for dinner

There were even comments about imported products being superior to locally grown

"I always get the US navel oranges, they're juicy and sweet, heaps better than the Australian ones"

The exception was Chinese garlic, which was universally condemned as being tasteless as well as suspected of being contaminated or subjected to some sort of unnatural treatment. There were frequent mentions of chemicals in association with China.

I read somewhere that Australian farmers have to do all these tests for chemicals and there's all this regulation but the stuff that gets imported only has to do half as much. It doesn't seem fair.

In groups where one member came out strongly in favour of always buying Australian, other group members would tend to simply agree. This demonstrates the social pressure to buy Australian, representing the perceived high moral ground even if the reality is different.

Purchasing Australian grown poses a similar moral dilemma to free range eggs and non-generic milk – social pressure to take the high moral ground is counterbalanced by the desire to save money. There appears to be a significant difference between public persona and private behavior, suggesting stated intentions can be quite different to actions!

Other issues

Concerns about GMOs were raised once in Sydney and several times in Melbourne. There seemed to be a common perception that we already grow GM fruit and vegetables. Monsanto and Roundup Ready crops were mentioned in this context. Others, knowing there are no GM vegetable crops, were curious, wondering what they would taste like.



There's not enough regulation about letting consumers know, and how else can they be so perfect?

Another suspicion that many consumers have is that fruit and vegetables are frozen, then sold later

They say they don't freeze vegetables, but I've picked up broccoli and its got ice on it

They're frozen aren't they? Don't they freeze vegetables and then defrost them?

Hydroponics is another technology that arouses suspicion. Participants couldn't understand how such an apparently expensive way of growing vegetables could be economic. Those who had heard of hydroponics considered it unnatural, possibly involving injecting vegetables with something to make them grow larger and faster. In this it was almost akin to GMOs.

I go to the markets and I ask whether things have been grown hydroponically – I like my vegetables to be in the ground, I don't want anything added to my vegetables

6.3.3. Labelling

Very few of the focus group participants said they regularly read labels on food. Exceptions tended to be those who had a family member with allergies or who were vegetarian / vegan. Many were unable to nominate any brandings or labels. When prompted regarding the Heart Foundation tick or Low GI symbol there was general cynicism;



"Well it just shows they paid for the logo doesn't it"

"MacDonalds have those ticks on it, it's just not on"

"I'm suspicious of all those sort of labels, I think it's just a marketing ploy"



All these vague marketing concepts with these different labels, I don't think they've got much value, but then there are people who are sucked in by labels like the heart tick and low GI

The RSPCA logo had some credibility, especially on eggs. While also found on meat products, these tended to be high-priced products already; some people were less willing to pay extra for an already expensive item.

Asked about branding on vegetables, there was a general blank. The main exception was tomatoes, with one participant mentioning Blush brand tomatoes, and others various different varieties (Purina, Roma, grape, Heritage selection) that they liked. There was also some recognition of potato varieties and Coolibah herbs, but otherwise little awareness of vegetable choices.

I look at labels a lot more than I used to, but not with veggies, just with packaged things

It seems vegetable purchases do not involve much thought; most consumers simply buy whatever they need and pay little attention to brands, country of origin, or even variety.

6.3.4. Organics

Very few of the participants volunteered that they regularly look for organic vegetables. Those that did suggested that they bought organic because they were worried about pesticides, because they thought it would be better for them, and/or because they thought it was better for the environment.

The majority view appeared to be that organic produce is not worth the extra cost. Some questioned why they were so much more expensive, suggesting organics was just a 'rip-off'. Others did not completely trust that the products really were organic unless buying direct from the farmer.

Questioned on what they understood was meant by organics, the most commonly nominated explanation was 'no sprays'. However, many could not suggest how organic food was produced.

If you say organic I think – small producer – and growing as naturally as possible

I know what it should mean – no chemicals at all – but I don't really know what organic means (2nd participant - Oh good, I'm not the only one!)

I think that just because you're growing it with organics, it doesn't mean they're producing less greenhouse gases or that it's better in every way.

6.3.5. Washing produce

The reaction to this question was quite mixed. Some people not only wash but scrub their vegetables, including packaged products that state they are washed and ready to use. Others hardly wash anything, especially if they are going to cook the product afterwards.

If my husband is there, or the kids, then I wash them, but otherwise I don't bother

I only wash things that I'm not peeling, and which I'm eating raw. If they're cooked, doesn't that kind of sterilize them anyway?

6.3.6. Paying for things you can't see

Participants were questioned about what type of eggs they buy to assess whether they were willing to pay extra for an ethical choice, even if it would not necessarily benefit them.

Eggs

Very few participants in any of the groups would admit to buying cage eggs. A couple did state that they simply bought the cheap ones. However others admitted to these purchases almost ashamedly, with the excuse that of course they would prefer to buy free range but on their limited funds they could not do so. Admitting to buying cage eggs was made more difficult by the strong emotional reactions of other focus group participants, who all but accused them of personally torturing chickens.



You see those images of the chickens in cages and they are just so bad, so I always get free range

I don't know anyone who buys cage eggs, it's like having a big sign on you saying "I am cruel"

I'm not like a hippy or anything but there's no way I am buying eggs from tortured chickens

In fact, 59% of eggs sold in Australia are cage eggs, and a further 9% are barn laid. Within the focus groups, approximately 80-90% of participants claimed to buy free range. This clearly demonstrates the strong social pressure that exists to purchase free range, even though most consumers actually buy the lower priced product.

While a number of participants cited flavor, appearance and poaching ability as important factors in them choosing free range, the major reason for this decision was the ethical treatment of the chickens. In many cases participants freely admitted they could not tell the difference between the two, yet were willing to pay a premium for the free range product. This indicates a willingness to pay, or at least an aspirational willingness to pay, for something that is not for direct personal benefit but which satisfies a higher, moral need.

I just think that happy hens lay happy eggs and they'll taste better

When you crack a free-range egg the yolk is often a lot darker, it looks better

Milk



Milk was another product that provoked quite a strong reaction from some participants. Growth in sales of private label fresh milk mean that supermarkets now command more than 50% of the total market. Media coverage of the plight of dairy farmers faced with \$1/L milk prices at the supermarket has clearly had impact, with many participants expressing sympathy with the farmers plight. However, many still admitted, a little shamefaced, that (on their limited budget) they bought the generic brand product rather than Dairy Farmers or another type.

If I had a bigger budget I would probably buy the better milk but as it is...

I'd like to help the farmers, but in the end you've just got to look after yourself

It seems clear that, even where people are aware and sympathetic to ethical choices, stated intentions can be quite different to what happens when they are standing in the supermarket choosing what to buy.

6.3.7. What about vegetable farmers?

Having discussed egg and dairy farmers, participants were asked what came into their head if asked to picture a vegetable farmer.

The non-response to this question was extremely revealing. Many or even most had no image at all, having never thought about this before. Others repeated stereotypes – tractors, dirt, old farmers in akubra hats– and so on.

A few participants mentioned that they knew some vegetables were grown indoors using hydroponics, whereas others were in the ground. Some also suggested that farmers were driven by the weather.

A few participants had either lived in the country, or had relatives who did so, and so had some contact with farmers. These were universally supportive of farmers and appreciated what hard work it is.

I have relatives who used to have a farm, they worked really long days, up early every morning. It was really stressful as well, always worrying about the weather. During the drought it was really bad.

When I think of vegetable farmers I think it must be really hard work, and hard to make a living, especially with the supermarkets driving prices down

I've got a friend who's a vegetable farmer on the Mornington Peninsula, his family have owned it forever. They work very hard but get terribly knocked around by the weather as well as low prices. He's a single guy and he says there's no way he could have supported a family on what he has made as a farmer. I think it's a terrible shame.

I've lived in Sydney now for 17 years, but I grew up in the country. It still amazes me how I meet people all the time who think there is nothing out past the mountains, and who have no idea where their food comes from or what it took to produce it.



6.3.8. Where do vegetables come from?

Further prompting brought back some memories of fathers or grandfathers growing vegetables at home, and of how much work was involved. However, most had no idea where vegetables came from. Asked if they had any ideas as to where the leek and lettuce on the table were grown, none of the participants in either Sydney or Melbourne had any suggestions.

One of the Melbourne groups included a very talkative lady who said she was a regular watcher of Landline. However, even she could not suggest where the products had come from.

6.3.9. Are farmers good custodians of the environment?

Finally participants were asked whether they thought farmers generally were good custodians of the environment, or whether they damaged the environment.

Again, most seemed to have never thought about this question. On some reflection, there was a general feeling that they must look after the environment, because otherwise they wouldn't be able to farm.

I think most farmers would want to do the right thing, but they might be forced not to by all the pressures, with prices and so on

"It depends. If you're growing somewhere near the coast where it rains, then it's probably OK, but if you're growing out at Mildura or somewhere and using lots of water, then that's not so good."

You hear about them, like, using heaps of irrigation and pesticides and damaging the groundwater. But, really, I don't know

6.3.10. Integrated Pest Management and sustainability

What is IPM?

The next phase involved the explanation of what was meant by IPM, and introduction of the idea of a sustainability branding.

Interest in IPM clearly varied greatly between the groups. All four of the groups of women aged >35y showed great interest in the explanation of this way of growing vegetables. They asked questions, were clearly engaged and were keen to examine the IPM grown product when it was brought out.

Among the mixed groups of <35yo, interest was more patchy. While some showed interest, others appeared completely indifferent. Surprisingly, perhaps, it was the upper-middle income demographic in Sydney that proved the hardest to engage; only one person from this group showed any real interest in the IPM concept.

How much is sustainability worth?

The object of the auction exercise was to gauge how much extra participants were willing to spend, using their own money, to purchase a product grown sustainably. It was understood that the results would be skewed in IPMs favour, given that the participants knew we, the researchers, were determining whether there was a market for IPM grown product. Moreover, under such public scrutiny, people might be expected to make a more ethical

and, perhaps, more generous choice than they would when faced with the same options in a supermarket.

Simple competitiveness was another factor influencing the bids. There was a clear desire by some to “win” the IPM product, whether or not they were interested in the concept, and whatever it cost. Participants bid to upgrade a product, even when it was something they would rarely eat.

Finally, perhaps more interestingly, there was a perception among some, for some products, that the IPM product looked better or bigger than the one they had been given. In most cases this seemed unlikely, especially as in some cases ALL the product was actually IPM grown! It shows people see what they want to see, even in fresh vegetables.

Only two participants did not bid at all. In general, bids tended to be higher among the older participants than the younger ones. More surprisingly, bids were not only not reduced among low income earners, but tended to be slightly higher. Figure 2 shows the combined total amount bid for the three different IPM vegetables, averaged across focus group participants by age group (under or over 35) and by income demographic (lower middle income or upper middle income).

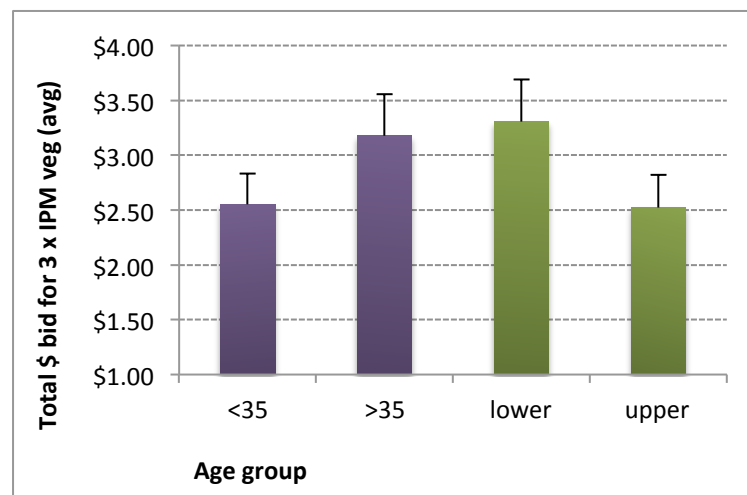


Figure 2 - Average total amount bid by each participant for the three IPM vegetables. Error bars indicate the standard error of each mean (n=28 to 32). Results have been divided by age group and by income segment

The commonest amount bid to upgrade to an IPM product was \$1 - \$1.50. Winning bids ranged from \$1.20 to \$4.00 with a median value of \$2.00. The highest amount bid was \$4.00, which was bid once for the lettuce and once for the rocket.

The results appear to indicate that IPM grown product was not only considered highly desirable by the focus group participants, but that they were willing to pay significantly more to purchase such products. However, the results have to be treated with extreme caution, due to the error factors already described. Behavior within the public forum of a focus group may not translate into real life purchases, despite all efforts to make the exercise as realistic as possible.

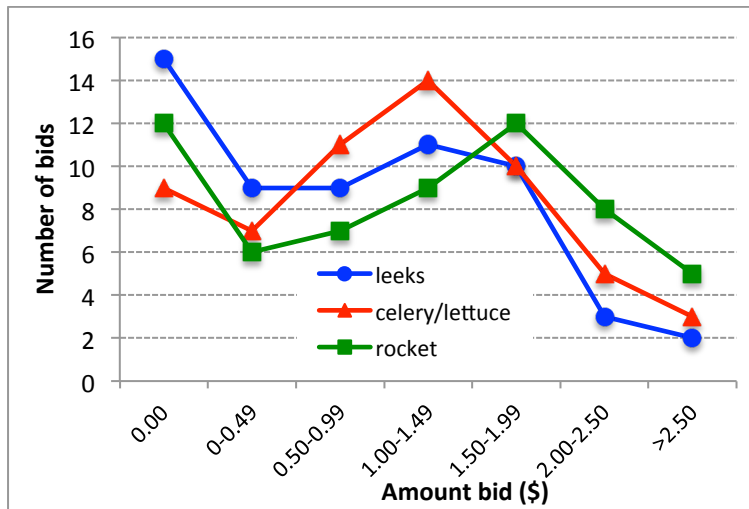


Figure 3 - Number of bids by value to upgrade to IPM leek, celery/lettuce or rocket from standard product. Bids ranged from \$0 to more than \$2.50. Total bids for each product = 59.

6.3.11. Finding a bug

When shown the samples of vegetables with bugs on them, the groups were immediately interested and engaged (Figure 4). They enjoyed the 'sport' of finding the insects, were curious as to what they were and interested in understanding which were pests and which were the 'good' bugs.



Figure 4 - all of the groups enjoyed looking at the samples of vegetables with insects on them and were curious to know more about them

Most of the participants said that not only would it not particularly bother them finding the odd bug, but that they probably wouldn't even notice it. Moreover, most people said they washed produce, so it wouldn't make any difference they would just get washed off anyway.

Nearly every group suggested that if they understood that a product was grown with IPM, and that there might be the occasional insect left on the product as a result, then that would be OK.

If you know what to expect, then that's OK, it's surprises that I don't like. You just need to tell people there might be bugs.

It was pointed out that putting a warning on vegetables – May Contain Bugs – was hardly going to increase sales! However, there was a clear feeling that if people actually

understood how vegetables were grown, they would be more tolerant. This is especially the case if the insects found are beneficials

If someone told me the ladybeetle was there because it was controlling other bugs, then I would be OK with that.

If there's a bug in it I'm thinking wow, that actually came from the soil, and obviously there weren't enough pesticides to kill it

Participants were less confident, however, when faced with larval stages of ladybeetles and lacewings. Such soft bodied insects have a greater “yuck” factor. On the other hand, they were also less noticeable. Similarly for small insects such as aphids and whiteflies. In this case they were placed on the samples in large numbers to make them obvious to the participants. Nevertheless, they still had to be pointed out in terms of yes, those little black dots are the aphids.

Caterpillars, while generally unacceptable, are similarly hard to spot. So while the initial reaction was not very tolerant, once the participants tried to actually find a caterpillar on a head of broccoli (having been told it was there), they better understood the issue for farmers.

The context also matters. Insects are far less acceptable in packaged product than those which are loose or even in an open sleeve, and may be better tolerated at a market or even a fruit and vegetable shop compared to a supermarket.

If it's in a packet you think it's already been washed and checked. It should be ready to eat, there shouldn't be anything in it

You have very different expectations as to what you will accept at Coles or Woolworths compared to a market. If it's a market you know it's straight from the farm, so it's OK if it's a bit dirty or got bugs. But if it's from the supermarket you expect that it's already been washed and cleaned ready to eat. If it's got bugs, it's dirty

If I saw bugs on vegetables in the supermarket not only would I not buy it, I probably wouldn't go back to that store

There was a strong feeling that supermarkets have raised expectations of cleanliness and hygiene, such that now this is expected as part of the shopping ‘package’. None of the participants said they would complain to the store if they found a bug, but some said they would point it out if they noticed it while still in the store, or possibly mention it for the store's own information next time. Despite this, there was a clear feeling among some participants (especially the younger groups) that finding a bug in a packaged product would be a major turnoff.

Faced with the reality of finding an insect on vegetables once they had got it home, most said they would simply wash it off, regardless of their previous objections. Unlike one particular group in the 2010 study, where several participants said they would throw the whole thing away if they found even a ladybeetle, most would either remove that part of the vegetable or not, then wash and eat the rest.

What's the big deal with seeing a bug on something? While it's been growing there might have been bugs all over it, just because you see one doesn't mean there's anything wrong with it, it's not contaminated or anything

There was a clear trend that people who had grown vegetables or herbs themselves, had friends or relatives with farms, or otherwise had some experience with agriculture were far more tolerant of finding insects on vegetables. While this was mainly the over 35 age groups, younger people with such experiences were also very tolerant.

Reflecting on this issue several remarked that – thinking about it – they were surprised how rarely they found insects on produce.

It is amazing to think how rarely we find a bug on fruit and veg from the supermarket, I can't think of the last time I found anything

When people have experience with the process of farming it seems they lose much of their sensitivity and objection to dirt, insects, and other external factors associated with the natural process of growing vegetables.

6.4. Discussion

6.4.1. Where and why people shop

Consumer shopping habits and attitudes appear to have changed compared to previous studies of consumers and vegetables. Supermarket fresh produce is no longer seen as poor quality and expensive, but is now on par with independent grocers, or even better. While some consumers still seemed to resent the supermarkets, and commented negatively on their treatment of suppliers, such negative comments were less frequent than previously. Younger participants in particular seemed to be satisfied with most aspects of their supermarket shopping experiences. The prominent role of Aldi, and the high level of satisfaction with product quality in their stores, is also new.

There was also an apparent difference between Sydney and Melbourne. Markets appeared to be a much bigger thing in Melbourne, with many participants volunteering how much they enjoyed shopping for fresh produce in such places. This was not necessarily about getting better quality or prices, but rather about the contact with the vendors, the range of products on offer, and the whole shopping experience.

Melbourne could therefore prove a better market for sustainably produced vegetables than Sydney.

6.4.2. What matters about fresh vegetables?

In many cases, the answer to this was – not much.

While participants often said they preferred to buy Australian, further probing revealed that this was not always reflected by actual purchases. Faced with a cheaper and imported option, they will often choose the import, and if they feel like eating a particular food and it is out of season, they will readily buy an imported product rather than change what they were going to do.

Many participants had little interest in vegetables over and above quality, price and availability. There are still widespread misconceptions about GMOs, theories that products

are frozen then thawed before sale, and suspicion about farming practices. While some purchased organic vegetables, they did not necessarily have a good understanding of what is involved in growing organically. Most could not name any branding associated with vegetables (fresh or frozen) and struggled to even think of specific varieties they preferred.

Overall, there appeared to be a fairly low level of connection with vegetables, which are widely viewed as commodity products.

6.4.3. Vegetable farmers

Whereas egg farmers, dairy farmers and even cattle farmers have made it into the public consciousness (for good or bad!), vegetable farmers do not have the same presence. Asked to picture a vegetable farm or a vegetable farmer, or asked their opinion on how vegetables are grown, the majority response was a blank.

While the intense media around the issue of milk pricing has certainly raised consciousness of the relationship between farmers and supermarkets, this has not necessarily translated to other farming sectors.

Vegetables are cheap and available and in most cases rather taken for granted. As a result, it seems consumers rarely or never think about where they come from, or the issues involved in production. Several participants commented after the end of the sessions that these were conversations they had never had with anyone before, and had made them think about issues they had never previously considered.

Those participants who had had direct experience of farms and farmers tended to have a different view. They understood the hard work involved in producing vegetables, the difficulties of weather, poor prices and conflicting demands. Even those who had simply grown vegetables had some sympathy, having suffered their own small crop losses to pests, diseases and so on.

While the vegetable industry has worked hard on raising its media profile, it remains poorly understood or appreciated by many consumers.

6.4.4. Willingness to pay

This commodity view, however, does not extend to other products. Focus group participants overwhelmingly said they purchased free range eggs. There was a clear stated intention to pay more for an ethical choice, even when it was of no tangible benefit to them personally.

In fact, 59% of sales are of cage eggs with sales of free range just under 30%. While the small number of participants in the focus groups cannot be extrapolated to the wider population, this does suggest a disconnect between stated intentions in a public forum and actual purchases.

There is clearly an increased social standing associated with attributes such as 'Australian grown', 'free-range' and non-generic milk. In the context of the focus groups, a sustainably grown product elicited a similar reaction. Once the issue was explained, participants showed

a high level of interest and engagement shown. This was particularly the case with the over 35 year olds, but also occurred with some younger consumers as well.

This interest was demonstrated by the strong bidding to exchange the standard products participants had been given for the IPM grown vegetables; only two participants did not bid at all, while more than half of the bids offered \$1 or more to upgrade to an IPM product.

However, while every effort was made to make the auction process as 'real' as possible, consumers may not be as willing to extra for sustainably grown products in a commercial situation, unprompted and unwatched. As one participant said, when they go to the supermarket they are not thinking about where products came from, how they were grown, or any of those issue, they are just thinking what they are going to make for dinner. Of course, this does not apply to all consumers. While sales of free-range eggs appear to be less than stated intentions, at nearly 30% of the market they are still very significant.

6.4.5. Finding a bug

While most focus group participants were fairly tolerant of insects on vegetables, it should be noted that they were asked about this immediately after an explanation of why they might be there. The previous focus group study found strong resistance to finding insects among some participants, mainly young people and particularly lower income demographics.

This intolerance of insects was not repeated in the current groups. It seems possible that the participants had already been 'softened up' by the time they reached this part of the discussion. Thinking about the process by which vegetables were grown may have increased their willingness to accept the odd insect as part of the natural process. Nevertheless, there was still a feeling that insects should not be on products bought from supermarkets, and definitely should not be found inside packaged vegetables.

6.4.6. Conclusions

The results suggest that most consumers are quite tolerant of finding insects on vegetables. A small insect is not only likely to go unnoticed, but is probably going to be washed off before the vegetable is eaten anyway.

The best way for the vegetable industry to increase tolerance is to expose the public to farming. This could be through encouraging people to grow their own vegetables or herbs, open days that allow people to see how farms work, and educating consumers about how vegetables are grown. They are likely to be even more unconcerned about finding an insect if it is not so much of a surprise because they understand how vegetables are grown and have thought about the impact of the natural environment.

This is particularly important for city dwellers who otherwise have no contact with growing food – programs that encourage vegetable farming in schools can provide invaluable experience for the next generation of consumers.

During the focus groups there was a high level of interest and involvement. Many participants were really pleased to have learned something new, and talked about issues

that they never thought about before. This is very encouraging; the issue is not that consumers don't want to know, it is more that many have never thought to ask the question.

With regard to an 'Eco' label, the results superficially appear very positive, with significant premiums possible for IPM grown products. However more market research is needed before investing significant resources in this direction. What people say they will do in a focus groups session does not necessarily translate into real actions afterwards. The large premiums for sustainably produced, environmentally friendly vegetables found during this study are unlikely to be repeated in the relatively anonymous environment of the retail store.

7. Market attitudes to IPM – An online survey

7.1. Aim

To conduct a survey of over 1,000 main grocery buyers, selected so as to reflect the population in terms of State and age group, examining

- What's important in their fruit and vegetable purchases
- Knowledge of and attitudes to vegetable farming
- Tolerance of insect contamination in fresh produce.
- Interest in vegetables grown using IPM
- Willingness to pay extra for sustainably produced vegetables
- How these factors relate to other interests such as organics, gardening and vegetable consumption

7.2. Method

7.2.1. The panel

Research Now, a Sydney based company specialized in online consumer research, conducted the survey coding and hosting. The company keeps a National database of thousands of potential respondents. Suitable respondents who complete the survey receive credits towards retail gift vouchers. Since respondents were not randomly selected from the whole Australian population the results are applicable only to those surveyed, not to the general population.

Only main or joint household grocery buyers over the age of 18 were surveyed. To reflect what is believed to be the gender bias of grocery shoppers within the population (AC Nielson), 70% of respondents were female and 30% male.

Respondents were further selected so as to reflect National population data in terms of age and State. As shown in Table 2, over 55 year olds were somewhat over-represented in the survey data. However, other age groups approximately reflected their comparative numbers in the population, while location of respondents very closely reflected the Australian population as a whole.

Over 1,100 respondents completed the survey over a 10 day period. As respondents are effectively paid to do the survey, a number of automated checks were loaded. Respondents were locked out of the survey if they completed it in less than 3 minutes, or if they repeatedly chose the same answer option.

Table 2 - Age and State demographics of survey respondents compared to those in the general population

Age Group	Survey respondents (%)	Australian population (%)	State	Survey respondents (%)	Australian population (%)
18-24	13.1	10.3	NSW	32.9	32.1
25-34	17.6	14.7	VIC	24.8	24.8
35-44	19.0	14	QLD	20.1	20.1
45-54	18.0	13.4	WA	9.8	10.8
55+	32.3	23.3	SA	8.0	7.3
			TAS	2.1	2.2
			ACT	1.0	1.7
			NT	1.0	1.0

7.2.2. The questions

The questionnaire was designed to range over a number of different issues but be easily completed in approximately 5-7 minutes. It was designed to be as interactive as possible, included pictures wherever possible, and varied in the responses required. The aim was to make it as interesting as possible for the respondent, so as to claim their attention and interest. The full survey is shown in the Appendix of this report.

After an initial “warm-up” question about shopping habits, respondents were asked “what matters most” and “what is a turnoff” when buying fruit and vegetables. They were presented with 8 options + “other” which they could fill out themselves. They then dragged their choices onto boxes marked 1, 2 and 3. To prevent bias due to position within the list, the 8 options were presented in a random order each time.

They were then asked about organics – did they buy them and what did they understand about them. This was asked because the previous study indicated that people who occasionally bought organics could be a key market for a sustainability label. However, the focus groups showed that even people who bought organic did not really understand much about the process.

Another error factor noted from previous on-line survey experience that respondents can tend to simply agree with questions or statements, rather than thinking seriously about their answer. The survey included two series of statements for which responses could range from 5 – ‘strongly agree’ to 1 – ‘strongly disagree’. The first series was on environmentally sustainability as it relates to fresh produce, the other on insect contamination of vegetables.

For each series of six questions, the questions were asked so that a person with strong feelings about the environment or about insects would have answers that were a mixture of ‘agree’ and ‘disagree’. In addition, a second series of questions was constructed such that they were reversed. Each respondent was randomly allocated to either Set A or Set B. For example , Question 6.1 asked;

SET A Supermarkets should favour suppliers who can demonstrate they minimize impacts on the environment, even if it increases prices

SET B Supermarkets should not favour suppliers who can demonstrate they minimize impacts on the environment if that increases prices

The full set of alternate questions is shown in the Appendix.

In addition, a picture was included next to each set of questions (Q7) on insect contamination. It was hoped that showing each insect / vegetable combination visually would improve understanding and help standardize the responses.

Once a written explanation of IPM was presented to the respondents, they were invited to indicate how much they would pay for the sustainably grown product relative to a standard product. Examples used were potatoes (purchased by most consumers) and packaged rocket. These were chosen to represent a vegetable that is always cooked, versus one which is fresh, washed and ready to eat. Respondents moved a cursor along a sliding scale, positive or negative, to indicate how much they would pay. Pictures of the potatoes and a rocket label were provided as additional triggers.

Finally respondents were asked a series of questions about how many vegetables they eat, whether they wash vegetables before use, their experience with growing vegetables or herbs, and basic demographics relating to occupation, income and household.

7.2.3. Confirming the data

As participants are paid to complete the survey, it is important to check whether they are thinking about the questions and not simply answering randomly in order to earn the voucher. In addition to the checks previously described, a series of “flags” were integrated into the questionnaire.

- If they agreed with (test question) Q6.5 “I would rather eat a spoonful of dirt than a spoonful of boiled potato”
- If they suggested that they would throw away salad with a bug in it (Q7.5) but then said that they would still eat salad if it had a cockroach in it (Q7.7)
- If they indicated in Q6.4 that they would be willing to pay more for sustainably grown product, but then nominated a negative value for the amount they would pay for sustainably grown product in Q9

As it seemed possible that a person could make a mistake, they were only deleted if two flags were raised. Additional deletions were made if people showed a strong pattern in their responses (eg selected 1, 2, 3, 4 and 5 in order).

Based on these criteria eighteen respondents were deleted from the survey.

7.3. Results and Discussion

7.3.1. What matters most and what is a turnoff when buying fruit and vegetables

Not only was “freshness” the most frequently chosen factor in choosing fruit and vegetables, but 60% of respondents placed it in their number 1 position. ‘Value for money’ and ‘freedom from rots and bruises’ were next most important (Figure 5). Only 20% of respondents considered ‘pesticide free’ one the of the three most important factors when choosing fresh produce, while ‘no insects’ came a distant last with only 8% of respondents choosing this option. Nineteen respondents put ‘no insects’ as their first choice – 1.7% of the sample.

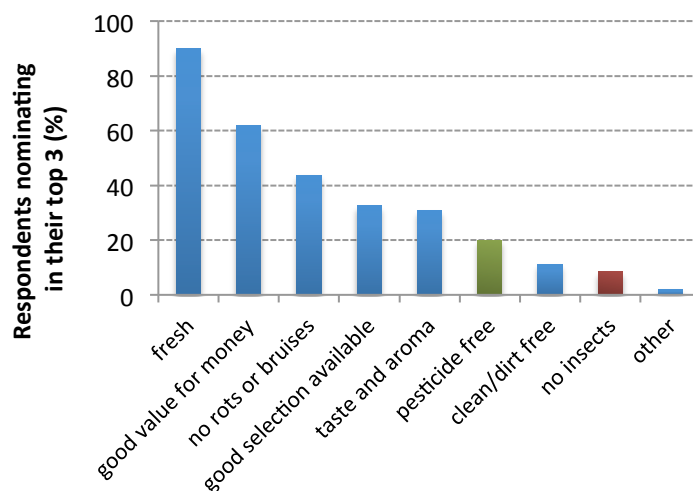


Figure 5 - Responses to the question "What matters most when buying fruit and vegetables? Graph shows the percentage of respondents who nominated each factor in their top 3

Poor quality (mouldy, bruised, limp) were the biggest turnoffs when buying fruit and vegetables (Figure 6). The four next options – ‘expensive’, ‘discoloured’, ‘imported’ and ‘with bugs’ all scored similarly. It is interesting to note that even though ‘no insects’ was not something particularly important when choosing fruit or vegetables, 35% of respondents considered it a top three turnoff.

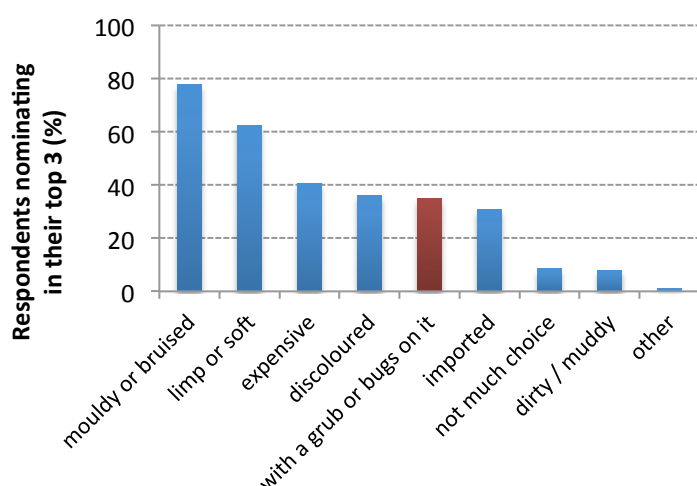


Figure 6 - Responses to the question "What most turns you off when buying fruit and vegetables? Graph shows the percentage of respondents who nominated each factor in their top 3

These results suggest that consumers are interested in quality first, second and third. Other factors are generally of lesser importance, although certain issues such as imports or pesticides) may be intensely important to some individuals or groups.

7.3.2. Organics

Respondents were asked whether they purchased organic fruit and vegetables. The same question was asked in the previous survey. However, this time examples were given of what was meant by 'often' (>2 types of vegetables per week), 'occasionally' (>1 purchase every 1-2 weeks) and rarely (1 purchase every 2-3 months). Perhaps for this reason, the number of respondents who said they sometimes buy organic was lower in the current survey (Table 3).

Table 3 - Responses to the question "when purchasing fresh fruit and vegetables I choose organic products..."

	2010 survey (%)	Current survey (%)
always / often	6.1	8.1
occasionally	44.0	33.5
rarely	38.6	34.6
never	11.3	23.8

Asked about what was involved in growing organic vegetables, 74% of respondents correctly selected 'no artificial fertilisers'. However, only 31% knew that pests could be controlled using predatory insects. Moreover, 71% thought that no sprays of any kind could be applied to organic crops and 3% thought that planting was determined by the phase of the moon.

While the number of correct answers was slightly higher among those respondents who said they always / often purchased organics, so was the idea that planting depended on the moon (Figure 7). Nearly 12% of people who never purchased organics said they didn't know what was involved, compared to 3 and 5% respectively among those who always/often or occasionally purchased these products.

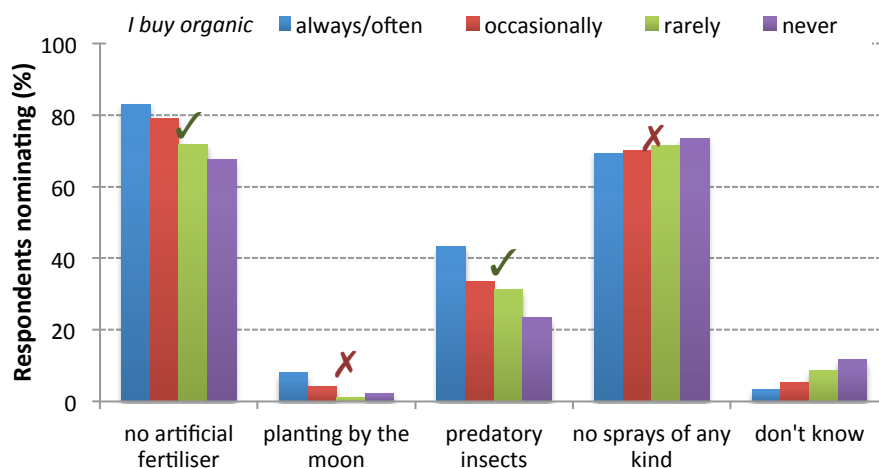


Figure 7 - Responses to the question "what do you understand is involved in growing organic vegetables?". Graph indicates % of respondents who previously said they purchased organic vegetables always/often, occasionally, rarely or never, who selected each option

This suggests that, even among consumers who have a clear interest in farming practices and are willing to pay more for such products, knowledge of the specific details of the process is fragmented and inaccurate. The majority of consumers have limited understanding on what is involved in growing the food they buy.

7.3.3. Interest in environmental sustainability

Analysis of the data indicated that, as had been somewhat expected, respondents were more strongly inclined to agree with a positive statement than to disagree with a negative statement. In other words, there is a tendency to agree with a given statement regardless of what it is. In this case half of the respondents received each question in the negative, and half in the positive. The combined scores should therefore give a balanced indication of true feelings or intention.

More than 50% of respondents thought supermarkets should favour suppliers who can demonstrate they minimize impacts on the environment, even if it increased prices (Figure 8). Only 20% disagreed with this statement. Supporting this position, 43% of respondents indicated they were willing to pay more for vegetables grown in an environmentally sustainable way and 44% would be more likely to buy a product if it was labeled with an "Environmentally sustainable" brand.

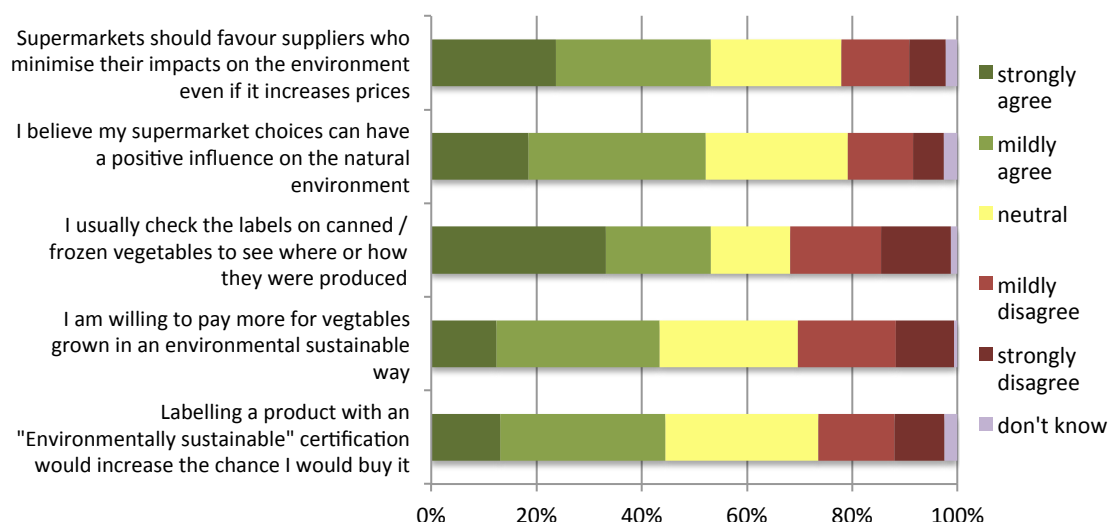


Figure 8 - Portion of respondents agreeing, neutral or disagreeing with a series of statements about environmental sustainability and vegetables. Half the respondents were shown a reversed, negative statement but, for simplicity, data is presented as positive statements only.

7.3.4. Insects on vegetables

As with the questions on environmental sustainability, there was a tendency for respondents to agree with the statements given, regardless of whether sentence was asked as a positive, or reversed to give a negative statement. Again, the results from both positive and negative questions were combined to provide the best possible guide to true intentions.

The results for the first four statements are very similar, with a high level of tolerance for a lacewing on a sandwich, a ladybeetle on herbs, a bug in lettuce leaves and even a caterpillar in a lettuce (Figure 9). It had been expected that there would be less tolerance of this last scenario, but 68% of respondents agreed that they would simply remove the caterpillar and the damaged leaves and wash and eat the rest of the lettuce. Less than 8% of respondents strongly objected to the ladybeetle or the bug on lettuce leaves, while 12% strongly objected to the caterpillar.

However, **tolerance decreased dramatically once vegetables were packaged**. Only 43% of respondents would still eat a packaged salad if they had found a bug in it, and only a small, hardy minority (7%) would eat the same product if it had had a cockroach in it.

It is also notable that less respondents were neutral on these statements than on those about the environment and more were inclined to either strongly agree or strongly disagree with a given statement.

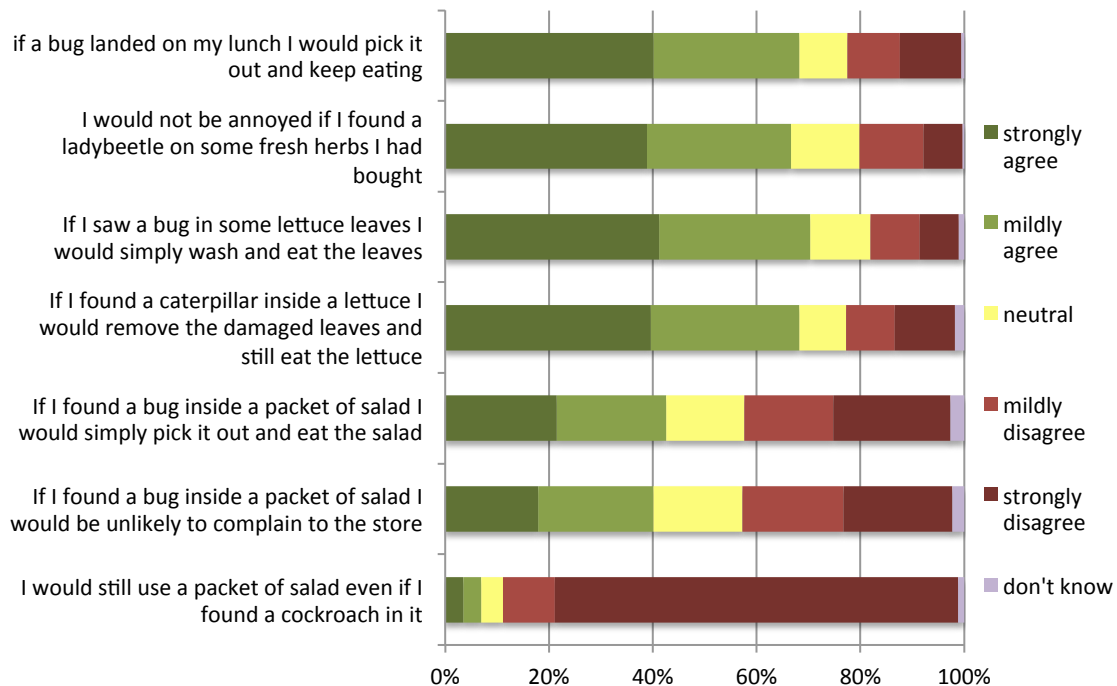


Figure 9 - Portion of respondents agreeing, neutral or disagreeing with a series of statements about insect contamination of vegetables. Half the respondents were shown a reversed, negative statement but, for simplicity, data is presented as positive statements only.

7.3.5. Integrated Pest Management

Asked how much extra (if anything) they would pay for an “Eco” label bag of potatoes or rocket grown using IPM, more than half of all respondents were willing to pay up to \$1 more for the sustainably grown product. Approximately 40% were neutral and a minority devalued the IPM product (Figure 10).

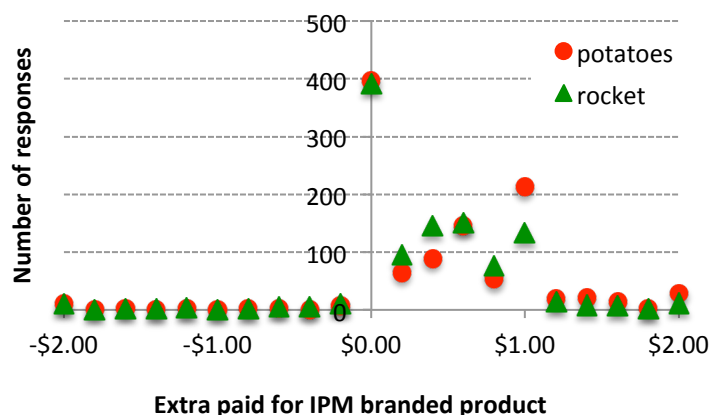


Figure 10 - Frequency of response to the questions "How much extra would you pay for the 'Eco' potatoes?" and "How much extra would you pay for the 'Eco' salad mix?"

These amounts are considerably less the amounts bid to upgrade normal to IPM product during the focus groups; during these, only 10% of participants did not make a significant

bid, and of the bids averaged >\$1 per vegetable. Also, as noted in the focus groups report, stated intentions do not always lead to a real purchase.

Nevertheless, the results indicate that a small premium for an 'eco' labeled product could be achievable, possibly in the order of 10-20% above the standard price.

The issue was then put to the respondents that farmers have to minimize sprays to meet environmental and legal standards but also have to ensure there are no insects on the products or risk having their products rejected. Four solutions were given, and respondents were able to agree or disagree with each, as well as suggest some other option. A (surprisingly) high number of survey respondents volunteered their own ideas. Some comments included;

They're just bugs / customers should toughen up!

Advise consumers to wash products

Educate people that bugs are good, and show the veggies aren't covered in chemicals

Retailers need to pay the farmers decently for their products and keep Australian farmers in business

The wholesaler should check to see that no bugs are on the item

Invent a magnet that can pick insects from a conveyor line at the farm

The most popular of the provided options (89% agreed) was that retail staff should check the vegetables when they are putting them on display. The least popular was that the farmer should use whatever products they need to make sure there are no insects there at harvest (47% agreed).

7.3.6. Eggs

According to Hen Welfare Australia (an advisory panel connected to the Australian Egg Corporation) approximately 59% of eggs purchased in Australia from retail outlets are cage eggs. A further 9% are barn laid and 28% are free range (the balance are specialty eggs).

Asked what sort of eggs they usually purchased, only 34.5% of respondents selected 'standard eggs or whatever's on special' (Table 4). In contrast, 51.3% stated that they bought free range. During the focus groups, close to 90% of participants claimed that they purchased free range eggs. While the anonymity of the online survey more closely approaches the commercial data, there is still a strong, clear bias to nominating free range over cage eggs.

Table 4 - Type of eggs purchased by survey respondents

	Respondents (%)
Standard eggs / what's on special	34.5
Barn laid	6.9
Free range	51.3
I have chickens so rarely buy eggs	5.2
I don't buy eggs for other reasons	2.5

7.3.7. Preparing, cooking and eating vegetables

While nearly 84% of respondents said they always or usually washed a leafy green such as buk choy before cooking, this fell to only 43% of respondents in the case of a pre-prepared, packaged salad mix (Table 5). Fully one third of respondents trusted that this product had already been washed, so there was no need for them to do it again.

This again confirms that while the occasional insect is likely to be tolerated in a loose product or, potentially, not even noticed before being washed off, this is not the case once vegetables are packaged. A large percentage of consumers will assume that bagged products have already been checked and are ready to eat, regardless of whether it indicates this on the package itself. Finding an insect under these circumstances is a surprise, and far less easily tolerated.

Table 5 - Percentage of respondents who said they always, occasionally or rarely wash leafy green vegetables and packaged salad leaves as part of their preparation

<i>As part of my preparation before cooking or serving I...</i>	Leafy vegetables	Packaged salad
...always or usually wash them	83.8	42.8
...occasionally wash them (if they look dirty)	11.6	17.3
..rarely or never wash them as they are about to be cooked OR have already been washed	2.1	33.3
...I never use these products	2.5	6.6

Responses to vegetable consumption and gardening are summarized below (Table 6). It is notable that the 2010 study found that only 18.5% of respondents couldn't or didn't want to grow vegetables, whereas in the current survey this has increased to 28%. This may be related to the relatively large number of older (55+) respondents.

Table 6 - Responses to questions about vegetable consumption and gardening

		Responses (%)
<i>Yesterday I ate...</i>	No vegetables	6.0
	Approximately one serving of vegetables	22.2
	Two – three servings of vegetables	49.7
	Four or more servings of vegetables	22.2
<i>My attitude to vegetables is...</i>	In only cook and/or eat vegetables when I have to	3.7
	Vegetables are OK, but not really an important part of my meals	10.4
	I like vegetables, they are an important part of my diet	59.4
	I like vegetables a lot and eat as many as I can!	26.5
<i>My feelings about gardening are...</i>	I am a keen gardener and grow as many veg and herbs as I can	9.6
	I occasionally grow a few vegetables or herbs for my own use	34.1
	I have grown vegetables in the past, but am not doing so now	28.0
	I can't or am not interested in growing vegetables or herbs	28.3

Vegetable consumption and gardening were cross checked against the amount that each respondent had said they were will to pay for an 'Eco' labeled product. The aim was to try to develop a picture of the type of consumer most likely to be interested in these products. Respondents were divided into four categories;

1. I love IPM Would pay >\$1 extra for the 'Eco' labeled product
2. I like IPM Would pay between 20c - \$1 extra for the 'Eco' labeled product
3. I might buy IPM Neutral, or would pay up to 20c extra for the 'Eco' labeled product
4. I don't like IPM Would pay less for the 'Eco' labeled product than the standard

There was a clear trend to people who were interested in the 'Eco' label to liking vegetables more (Figure 11a) and being higher vegetable consumers (Figure 11b).

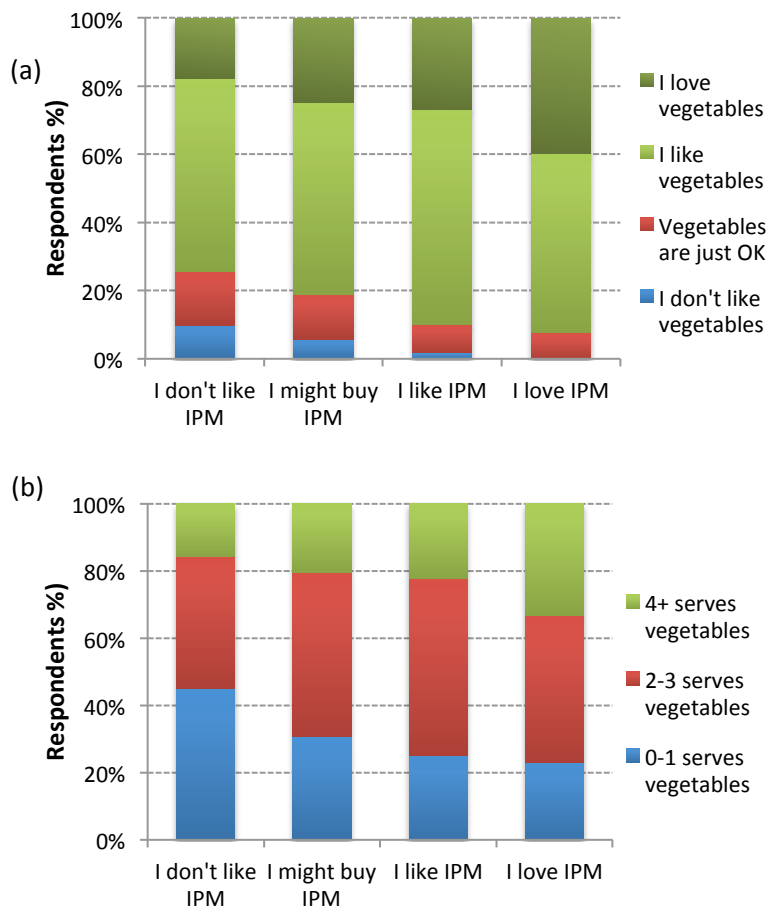


Figure 11 - Relationship between willingness to pay more for an IPM 'eco' label and (a) liking for vegetables in general and (b) the number of serves of vegetables eaten the previous day

Non-gardeners were also less likely to be willing to pay more for an 'eco' labeled product, and more likely to devalue such products (Figure 12). In contrast, keen gardeners were the most interested in these products. Again, this reflects the results from 2010, which found that stated interest in IPM was highest among those with at least some interest or experience with gardening.

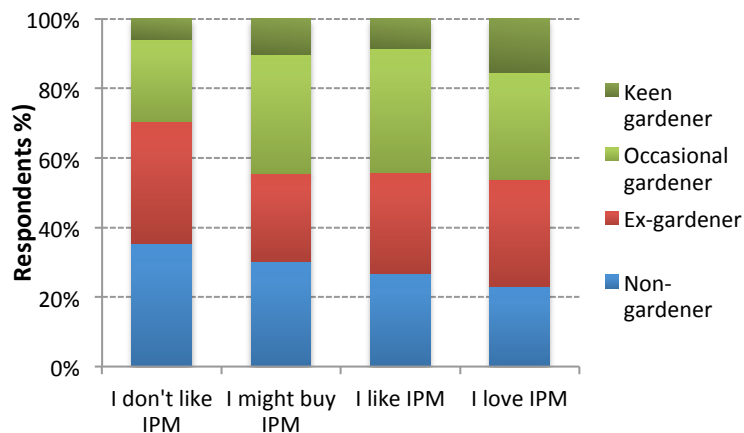


Figure 12 - Relationship between willingness to pay more for an IPM 'eco' label and interest in gardening

However, the strongest relationship of all was with intention to buy free range eggs (Figure 13). Over 70% of those respondents who were willing to pay >\$1 extra for the 'eco' labeled

product also said they purchased free range eggs, while less than 30% opted for the standard eggs, or whatever was on special. However, among those who devalued the 'eco' product, 64% purchased either standard (cage) eggs, barn laid, or what was on special. This is in many ways unsurprising, as both involve paying more for an ethical or environmentally friendly choice which has no direct benefit to the purchaser.

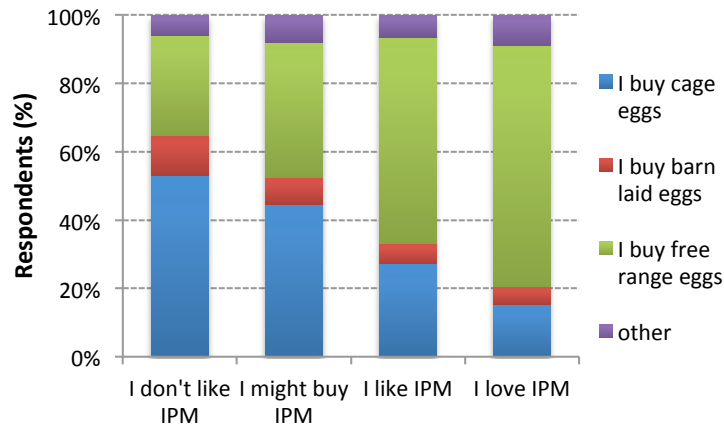


Figure 13 - Relationship between willingness to pay more for an IPM 'eco' label and type of eggs most frequently purchased

In addition, those most interested in an 'eco' label were more likely to be couples with no children than couples with children, and tended to have slightly higher average incomes than other groups.

The results show that there is a clear target market for any potential 'eco' label. Even if this proves a relatively small percentage of the whole population, they are not only willing to pay more, they are likely to be able to pay more. They are also likely to consumer more vegetable than the average person. The close relationship between stated interests in an 'eco' label and free range eggs, it could be possible to further investigate the potential to target this demographic.

8. Informing consumers – a test case

The results of both the focus groups and the online survey indicated a high level of interest among many consumers in how food is produced, and its environmental credentials. However, they also demonstrated that most consumers have little or no idea about how vegetables are grown. In many cases this was not due to lack of interest. It was more just that it was something they had never thought about.

It was also clear that consumers take it for granted that fresh, healthy, clean vegetables will be available whenever they want them. The Australian vegetable industry has excelled in providing exactly that, thus creating high expectations. Finding an insect is therefore a major surprise. The resulting disappointment is increased if the product has been purchased from a major retailer (rather than markets or a small fruit and vegetable shop) and greatest if the product is packaged.

Most of the focus group participants were interested, even amazed, to find out that beneficial insects could be used to control other insects. This was not something they previously knew, but they could clearly understand it was a good practice.

Understanding this naturally leads to the possibility that a beneficial insect might still be on the product at harvest. In this case the presence of an insect is no longer a surprise, but could be seen as a good thing, a sign that the product has been grown naturally and with care for the environment.

8.1. Producing the videos.

We decided the best way to educate consumers on this issue was to show them the farmers, the insects, and the fields of vegetables. It was therefore planned to produce a series of simple videos. While these would feature, and thereby potentially benefit, specific growers, the aim was to produce material that would not only benefit all growers using IPM, but even the wider vegetable industry – by conveying the messages that vegetables are grown sustainably and that the occasional insect is a natural part of the production process.

Key criteria were:

- Short (approx. 30 seconds only)
- Attention grabbing
- Focus on the key message
- Easy to access

Three vegetable growers / farms currently using IPM strategies were selected to feature in the videos;

1. Peter Schreurs - Peter Schreurs and Sons,
2. John Said - Fresh Select
3. Paul Gazzola - Gazzola Farms.

Scripts were developed in conjunction with the growers themselves. Each was slightly different in style, to suit the presenter. The key message from each was that vegetable growers use beneficial insects to control pests, and that if one of these tiny insects turned

up in a product then “that just means it’s been grown naturally”. The draft scripts are attached in Appendix 1.

The videos were filmed over 3 days in February 2014. John Said was unfortunately unable to participate due to travel commitments, so the Fresh Select video was made with Stuart Grigg, an agronomist who works for Fresh Select on their IPM program. It was decided to eliminate the shots in the office, and instead use the nearby broccoli packing line (Fragapanes). Likewise, as Peter Schreurs family was available, the proposed historical shots using family photos were replaced with actual pictures of Peter, his sons and grandchildren. Ladybirds were collected from the fields, but both diadegma wasps and lacewings were obtained from commercial suppliers (Beneficial Bugs, Mundubbera)

The cameraman had brought some special equipment for the filming. This included a green screen to do the shots with a ‘shrinking’ Paul Gazzola, macro lenses to film beneficial insects, and a quadricopter equipped with GoPro camera for aerial shots (Figure 14).



Figure 14 - Cameraman Ron Croft controlling a quadricopter equipped with GoPro camera

The videos were directed by Sharron Olivier and filmed under smoky conditions, which resulted in soft natural light consistent in all shots (Figures 15, 16, 17).



Figure 15 - Filming at Peter Schreurs & Sons



Figure 16 - Filming at Fresh Select



Figure 17 - Filming at Gazzolas

The films were edited and background music was added to make three videos of around 30 seconds each. This included design of a logo, shown in Figure 18. This was animated, the 'insect' legs appearing to emerge from a leaf.



Figure 18 - Logo designed for IPM videos

8.2. Consumer access

To make the videos easily available, it had been decided to link them to QR codes on packaging. The concept was that consumers would be able to scan the QR code and video of the relevant farm would immediately play on their phone. This was to enable consumers to scan in-store, rather than simply providing a website address to view when they got the product home. Moreover, they would be able to see the videos from the other farms as well – if they were engaged and interested, they could easily watch all three.

The stickers and website were professionally designed to be simple, bright and engaging with consistent styles throughout. The website was optimized for mobiles, with rotatable fullscreen video playback. The domain name 'betterveg.com.au' was purchased for the website address. A total of 20,000 of each of the three stickers was printed, diecut and supplied directly to the growers on rolls (Figure 19).



Figure 19 - QR code sticker for packaged products and dedicated mobile website.

Stickering of products commenced during March following final approval of the video material content by Ausveg.

8.3. Impact and Uptake

The videos were initially shown at a Field Day in Sydney's west. The response was overwhelmingly positive from growers and industry professionals present. All three of the growers were extremely happy with the videos and keen to include links on their own websites. There has also been interest expressed by Coles, Woolworths, the Vegetable Growers Association of Victoria and other groups.

Between 25th March and 2nd of June 1,929 hits were registered on the website. The greatest number of hits was recorded on June 23 with 272 hits (Figure 20). The greatest downloads occurred the following day with 2,099 Kbytes downloaded.

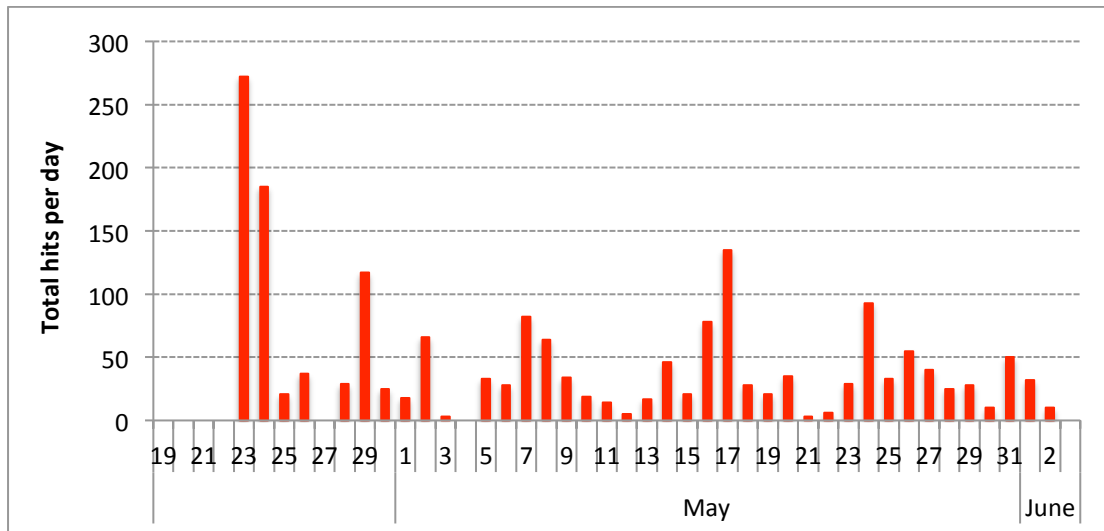


Figure 20 - Total number of hits per day on the "BetterVeg" website between April 19 and June 2nd 2014.

The website could be accessed through Google as well as directly through the QR codes on product. The majority of hits that occurred directly through scanning the QR code came through labels on the Gazzola Farms products (Figure 21). It is interesting to note that nearly half of all hits on the site appear to have come through Google searches. However, more than 50% of the time the first page viewed from these searches was the Gazzola Farms video – so it is possible that these “hits” were also linked to the QR code, even though they appeared to come from a general web search. Schreurs and Sons was viewed first 26% of the time and Fresh Select around 20% of the time.

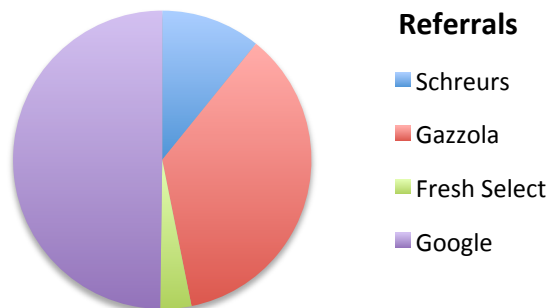


Figure 21 - Number of 'referrals' by source, which indicates whether the site has been found indirectly by Google search or directly through scanning the QR code

It appears that a significant number of people accessing the site clicked through to one or more of the other pages, as exits varied from entries somewhat, particularly during April. It also appeared that the majority of local hits occurred during the morning, after 6:00am, with a steady stream during the afternoon and very few after 7pm at night (Figure 22). Hits that occurred late at night or early morning are likely to have come from overseas sources, and it is noticeable that the number of these increased as time went on. Knowing what time people access the site may be helpful in determining which customers are most likely to scan a QR code, and whether they scan it in the store or after taking the product home.

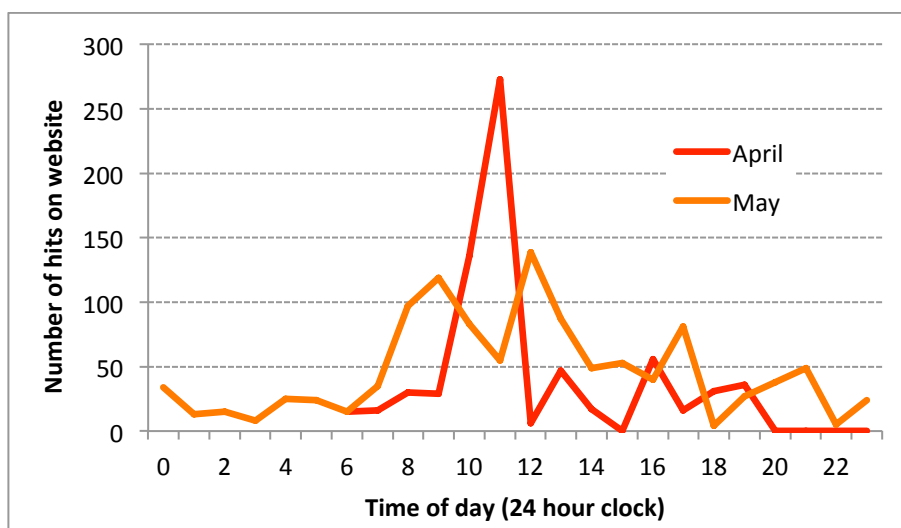


Figure 22 - Time of day website was accessed - data for April and May only

The high rate of response to the Gazzola video may well be to the enthusiastic use of the stickers by this company. It is less clear how many stickers Fresh Select or Schreurs and Sons used, on what products, or where these products were sold.

It also seems likely that the response could have been improved if the stickers had been accompanied by point of sale material to draw attention to them – such as posters or shelf wobblers.

The high rate of hits in the late morning to early afternoon suggests that consumers shopping during the day, most frequently midweek, are the main audience. This group perhaps has more time, so is able to take an interest in what they are purchasing. Perhaps consumers buying the products late in the evening are simply using for the main meal and discarding the packaging, without taking the time to really look at it.

If the main audience is “housewives”, “househusbands” and the elderly, then it could be worthwhile to add the website address to the information – not everyone knows what a QR code is, how to scan it, or even has a smartphone. It could also be possible to augment the website, providing more information about this issue for the interested public.

9. Appendix 1

Video producer: AHR Pty Ltd	Client: HAL / AusVeg
Producer/director: Sharron Olivier	Camera/sound: Ron Croft
Video: IPM - PETER SCHREURS	Duration: 30 secs

DRAFT SCRIPT

VISION	AUDIO	GRAPHICS
<p>Sequence 1 (5 secs) Stills (from Peter's albums):</p> <ul style="list-style-type: none"> -Peter as a young man working on a veg farm (b+w) -Peter in 1964 (b+w) -Peter with his three sons (colour) -Is there a shot with Peter and 3rd and/or 4th generation members of the family? 	<p>PETER SCHREURS voiceover:</p> <p>I care about the environment, and I care about my family.</p>	
<p>Sequence 2</p> <p>Great-looking wide shot of the current vegetable growing operation.</p> <p>Cut to MS from ground level of Peter crouched down, among the cos lettuce rows.</p> <p>(Would be great if a young child from the Schreurs family could be with him.)</p>	<p>PETER 100%</p> <p>That's why I'm passionate about producing fresh vegetables using sustainable practices.</p>	<p>SUPER:</p> <p><i>Peter Schreurs, Devon Meadows, Victoria</i></p>

<p>Sequence 3</p> <p>Peter, to camera, still crouching amongst the lettuce).</p> <p>Peter produces an opened punnet of lacewings.</p> <p>CU of granddaughter Stephanie putting hand into the container and the lacewings crawling around on their hand.</p> <p>He 'pours' the lacewings in amongst lettuce.</p>	<p>PETER 100%</p> <p>We don't use chemicals to control our pests;</p> <p>instead we encourage natural predators like these lacewings.</p> <p>They feed on aphids, mites and other problem insects –</p>	
<p>MACRO of lacewing on baby cos lettuce.</p>	<p>keeping the crop healthy and good.</p>	
<p>Sequence 3</p> <p>Peter to camera, still squatting amongst the baby cos lettuce, holding up his hand with a lacewing on it. Stephanie very gently brushes the lacewing off his hand onto the lettuce.</p> <p>He smiles to camera and says...</p>	<p>PETER 100%</p> <p>Sometimes you might come across one of these little fellas on a lettuce you buy at the shop –</p> <p>but that's OK, that just means it's been grown naturally.</p>	
<p>DIP TO BLACK</p>		
<p>LOGO: Better for you. Better for the environment.</p>		

Video producer: AHR Pty Ltd	Client: HAL / AusVeg
Producer/director: Sharron Olivier	Camera/sound: Ron Croft
Video: IPM – JOHN SAID	Duration: 30 secs

DRAFT SCRIPT

VISION	AUDIO	GRAPHICS
Sequence 1 Office scene with John in business suit – speaks to camera.	John Said 100%: Hi, I'm John Said. Mild mannered businessman on the outside...	
Visual FX	SFX: <i>Super hero theme</i>	
Sequence 2 John, now dressed as a farmer takes Superfood Producer stance (fists on hips) inside the packhouse. Shots of great-looking broccoli moving along the production line WS/MS/C	John 100% but inside I'm a superfood producer! And I'm on a mission to grow the best, healthiest broccoli I can!	SUPER: <i>John Said, Werr Victoria</i>
Visual FX	SFX: <i>Super hero theme</i>	
Sequence 3 John leans against tractor in the broccoli field – speaks to camera. Creative shots of great looking	John 100%: To do that we've been finding ways to grow broccoli that does away with using pesticides in favour of a more natural approach.	

Broccoli. WS/MS/CU		
<p>Sequence 4</p> <p>John crouching amongst the broccoli holding a container of wasps.</p> <p>Cut to MACRO image of wasp on “t might not look like super bugs”</p> <p>John releases wasps into the broccoli</p>	<p>John 100%:</p> <p>One of our best allies is these tiny v</p> <p>– they might not look much like su bugs –</p> <p>but they're deadly to marauding caterpillars that try to attack our broccoli.</p>	
<p>Sequence 5</p> <p>John in the broccoli field – speaks to camera</p>	<p>JOHN 100%</p> <p>This helps us to grow sustainably...</p>	
Visual FX	SFX: <i>Super hero theme</i>	
<p>Sequence 6 Return to office scene v</p> <p>John in business suit – speaks to camera</p>	<p>....and that's better for you and better for the environment.</p>	
DIP TO BLACK		
LOGO: Better for you. Better for the environment.		

Video producer: AHR Pty Ltd	Client: HAL / AusVeg
Producer/director: Sharron Olivier	Camera/sound: Ron Croft
Video: IPM - PAUL GAZZOLA	Duration: 30 secs

DRAFT SCRIPT

VISION	AUDIO	GRAPHICS
<p>Sequence 1</p> <p>Great-looking veggie crop (Asian green preferably)</p> <p>Paul rides his motorbike into frame and dismounts, takes off helmet.</p>	<p>100% (motorbike engine)</p> <p>PAUL GAZZOLA Voiceover:</p> <p>Our family's been growing vegetables here since the 1950s. These days we mainly grow leafy greens, celery and lettuce.</p>	<p>SUPER:</p> <p><i>Paul Gazzola, Cranbourne Victoria</i></p>
<p>Sequence 2</p> <p>Paul to camera.</p> <p>He produces a container of lady beetles (cut to CU of container label) and opens the lid.</p> <p>Paul to camera</p>	<p>PAUL 100%</p> <p>I don't like spraying with chemicals, so instead I get these nice little lady beetles to help me out.</p> <p>Come, I'll show you...</p>	
Visual FX: <i>Paul shrinking</i>	SFX: <i>magical sound</i>	
<p>Sequence 3</p> <p>Mini-size Paul, leafy greens towering above him, indicates the lady beetles crawling around behind him.</p>	<p>PAUL 100%</p> <p>The beetles attack the pests before the pests can damage our crops.</p>	

<p>Lady beetle bumps into Paul from b</p> <p>He reacts, then laughs and puts his out to her.</p> <p>He pats the lady beetle, affectionat her shell.</p>	<p>And that allows us to grow healthie vegetables.</p> <p>Naturally.</p>	
<p>Sequence 4</p> <p>Mini Paul shot from directly above, looking up through the leafy greens (don't need lady beetle in this shot).</p> <p>Pointing index finger straight to car overhead</p>	<p>PAUL 100%: <i>(Projecting his voice, talking to a real-size person 'way up there'!)</i></p> <p>That's better for me,</p> <p>better for you and...</p>	
<p>Visual FX <i>Paul returning to real size</i></p>	<p>SFX: <i>magical sound</i></p>	
<p>Paul is real-size again, and leaning a his motorbike he stretches his arms to indicate the whole field.</p>	<p>...better for the environment.</p>	
<p>DIP TO BLACK</p>		
<p>LOGO: Better for you. Better for th environment.</p>		