Optimum Vegetable Portion Size to Meet Consumer Needs

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Project Number: VG12094

VG12094

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HAL
Horticulture Australia

Project Optimum Vegetable Portion Size to Meet Consumer Needs

Research to determine optimum portion sizes for six Australian vegetables

FINAL REPORT

Project Number: VG12094

Completed 30 May 2014

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HAL Project Number	VG12094
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Other Key Personnel	Rose Pipicella Associate 61 2 9267 6444
Purpose of the Report	To outline the findings from the research study conducted on optimum portion sizes for six Australian vegetables
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Media Summary

The vegetable industry is looking for ways to increase vegetable consumption. It was hypothesised that consumers might be buying fewer vegetables for fear of wasting them. Horticulture Australia in partnership with AUSVEG sought research to explore the potential for optimising portion sizes to drive increased purchase and consumption. The research focussed on six vegetables including carrots, pumpkin, cabbage, cauliflower, celery and broccoli.

Consumers do have a strong aversion to vegetable wastage. At an emotional level, wastage evokes feelings of guilt because consumers resent paying for what they won't use. At a rational level, consumers do not like paying for vegetables and not using them. As a result of this, consumers would rather pay more per kilo if it meant they wasted less. Consumers have unconsciously adapted their behaviour to avoid vegetable wastage, with 81% of consumers trying to purchase the right amount of vegetables for their needs.

As expected, there is not necessarily one optimum portion size for each vegetable, however offering a larger range of alternatives will result in an overall uplift in purchase consumption. It was hypothesised that this uplift would come at the expense of other vegetables, however the survey found it would be in addition to what is already purchased.

'New' portion sizes do not necessarily need to be developed, with consumers welcoming a greater availability of the 'standard' vegetable options. An issue with option availability is evident however, as the survey confirmed that although most choices are already available somewhere, there is substantial inconsistency across locations.

Overall, findings support four recommendations to industry, all of which can lead to increased purchase and consumption of the vegetables of focus:

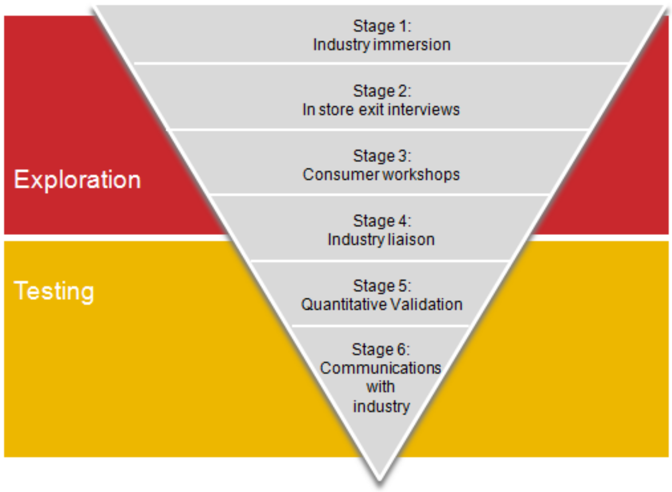
- Retailers will benefit from offering more fairly basic portion options
- Removing ‘excess parts’ of the vegetable will enhance perceived value
- Smaller versions of vegetables should be considered
- Industry should provide greater inspiration about how to store and prepare vegetables

Because of consumer’s habitual nature, any changes need time for consumers to notice, react and then adapt to before success can be assessed.

Introduction

Industry was looking to optimise portion sizes to stimulate increased consumption of vegetables

The vegetable industry is looking for ways to increase vegetable consumption. It was hypothesised that consumers might be buying fewer vegetables for fear of wasting them. Horticulture Australia in partnership with AUSVEG sought research to explore the potential for optimising portion sizes to drive increased purchase and consumption. The research focussed on six vegetables including carrots, pumpkin, cabbage, cauliflower, celery and broccoli.



The project was scoped to be a 6 stage study evaluating various portion sizes for six selected vegetables, ultimately determining the most desired portion sizes of consumers.

Consumer feedback on portion sizes was canvassed in 3 different stages of the study:

- Stage 2: In-store exit interviews
- Stage 3: Consumer workshops
- Stage 5: Quantitative Validation

Given the project task and the possible barrier of portion sizes to purchases it was assumed that the optimum portion size is *purchasing* and not *serving* portions. Nonetheless, purchasing portion size is such a complex area with the optimum size varying substantially, depending upon many factors, including:

- Household structure and lifestage - shopping for a family versus a single, couple etc
- Occasion - everyday versus a dinner party/ BBQ or recipe ingredient
- Health outlook - focus on incorporating vegetables into the diet
- Budgetary and time pressures
- Vegetable size, packaging and display at the point of sale

If we take portions to mean the unit size by which the vegetable is sold, it is therefore highly likely that there would be more than one 'optimum' portion size to fit different buying occasions, household structures and potentially lifestages.

The success of this project, was in taking a fairly complex issue and reducing it down to a simple, pragmatic outcome, one which growers and retailers alike can implement to achieve the benefits sought. Key to the success of the project was early engagement with industry, including vegetable growers, retailers and industry bodies such as AUSVEG. At the outset, two critical factors were seen as determining whether the projects' final output, optimum portion size/s for six vegetables, would be judged successful:

1. Industry must buy in to the proposed changes, believing that the program presents portion sizes that are practical to implement and will result in less wastage and greater consumer take up

2. The new portions will stimulate greater take up of the six vegetables amongst consumers in a real world setting than would occur without implementing any changes to portion sizes.

The study had four key objectives:

Objective 1	Objective 2	Objective 3	Objective 4
Establish optimum vegetable produce portion size for 6 vegetable lines	Increase value and consumption of vegetable crops	Enhance convenience for consumers	Reduce wastage in the home and make more efficient use of resources

Research methodology

Multiple stages built to a final view on the findings for industry

Stage 1: Industry and retailer immersion briefing and scoping: in a project of this size and importance it is crucial to ensure the industry context and varied stakeholder needs are met. Therefore we conducted a detailed immersion in the industry issues through consultation with stakeholders. This was done to ensure cohesion between varied stakeholder objectives and provide a final agreed research scope.

Stage 2: 'In store' vegetable purchase portion decision making: consumer recall of decision making processes quickly erodes once they leave the store. Interviewing them 'in store' provides a far more accurate recall of ALL decision making factors such as time pressures, kids/partner influences, planned spend, availability of substitutes as well as the portion sizes available in store. It also reflects that some 40% of decision making occurs in store (source: Vegetracker Feb 2010).

In total n=150 x 5 minute in store exit interviews were conducted across six locations in NSW, VIC and QLD (including outer and inner suburbs). Fieldwork 12 July 2013.

Knowing accurately the decision making around portion sizes for each vegetable enabled us to go into...

Stage 3: Consumer workshops to generate portion ideas/ options: Workshops with consumers were used to reveal the frustrations with present portion sizes and their preferences for alternatives. Knowledge gained from the in store survey was used to discuss how these preference would make their decision making easier and result in increased purchase. Shoppers in the workshop were asked to produce their Optimum portions for each of the six veg with appropriate packaging and display needs.

In total n=10 consumer workshops of 2 hours each with customers who limit vegetable purchases due to concerns about wastage were conducted across NSW, VIC and QLD. Fieldwork 6 -15 August 2013.

The Optimum portions generated from the workshops and shopper needs and opinions which formed them were then discussed at ...

Stage 4: Industry and retailer liaison of consumer portion ideas: it is important that the optimum portion sizes are commercially implementable by retailers, growers or via production or processing. Stress testing the consumer view of the Optimum portion sizes industry wide allowed for refinement of the list of potential portions for testing.

We originally proposed two stages of stress testing:

Stage 5: Robust quantitative assessment of portion options: to assess the likely take up of the portion sizes in the market, to ascertain likely commercial success and narrow down the portion options from perhaps a more diverse list. This provided clear direction to decision making with respect to which portion sizes are worthy of being trialled for each of the six vegetables. The quantitative assessment measured the likely net increase in purchase of the six vegetables by consumers.

In total n=1522 x 10 minute online interviews were conducted with main grocery buyers who limit vegetable purchases due to concerns about wastage across Australia. Fieldwork 24-31 October 2013.

Stage 6: Communication to industry: In order to gain industry support for the initiative and encourage implementation it was important to communicate the process, progress and outcomes of the program to relevant stakeholders in the industry. A range of retailers were presented the findings, with diverse reactions driven by grower relationships and business models.

Detailed findings

There were four findings of interest to industry

1. The consumer aversion to waste presents substantial opportunity for industry
2. A preference for vegetables in their natural state presents an opportunity for ‘smaller’
3. There are a range of non portion initiatives that will increase vegetable utility and consumption
4. Offering a greater range of portion options will increase overall vegetable purchase

The consumer aversion to waste presents substantial opportunity for industry

It turns out that shopping behaviour is highly habitual, with consumers tending to cook the same meals and buying these vegetables as a part of a standard repertoire. This habitual behaviour has adapted to what is readily available, with 70% of consumers planning ahead what vegetables they will purchase, and 95% leaving stores with the vegetable they intended to purchase.

Three primary drivers of purchase behaviour were evident:

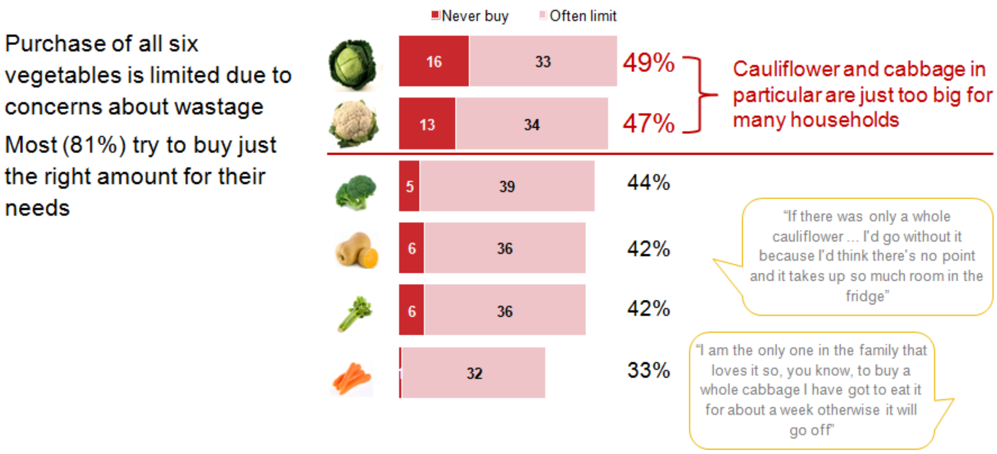
1. What I (or the family) like
2. Habits and what’s know
3. What size is available

The research also revealed that 4 out of 10 main grocery buyers would purchase more of these vegetables if alternative options were available.

Consumers have a strong aversion to vegetable wastage. At an emotional level, wastage evokes feelings of guilt because consumers resent paying for what they won’t use. Issues of world famine and un-used food not being returned to the earth were also raised. At a rational level, consumers do not like paying for vegetables and not having them stay fresh for as long as anticipated, purchasing too much of the vegetable due to the limited sizes available, paying for parts of the vegetable that cannot be eaten or not knowing how to use certain components of the vegetable. As a result of this, consumers would rather pay more per kilo if it meant they wasted less.

Consumers have unconsciously adapted their behaviour to avoid vegetable wastage, with 81% of consumers trying to purchase the right amount of vegetables for their needs. 1 in 2 consumers often limit or never purchase cabbage or cauliflower due to wastage concerns, with both vegetables being too big for many households. Purchase limitation of broccoli, pumpkin, celery and carrots is also evident, however less pronounced.

Limit vegetable purchase due to concerns about wastage
(% vegetable opportunity segment)



Base: All respondents Exit Interviews; (n= 150), Population Study; (n=1,522).
Source: Exit Interviews Q6. Do you ever limit your purchase of any of the following vegetables due to concerns about wasting?
Population Study Q1.2. To what extent do you agree or disagree with each statement, where 5 means you strongly agree and 1 means you strongly disagree?

A preference for vegetables in their natural state presents an opportunity for 'smaller'

There is a natural level of wastage due to the way some vegetables are structured. Once home, certain vegetables had to be 'processed' to fit in the fridge. Consumers hated buying the 'useless' part, but equally hated throwing it away. As a result, some felt 'ripped off' because they didn't know how to use it. This resulted in some in-store tampering to avoid paying for what was not used e.g. Broccoli. Others had found uses for those parts of the vegetable. Perceptions of value for money were impacted by the degree to which 'waste' was seen to have a use.

Consumers feel that industry ‘processing’ for some vegetables make them easier to transport home, and easier to store. This convenience however, is derived at the expense of freshness and overall value. Consumers see an inevitable loss of freshness by cutting vegetables into smaller pieces, and also perceive packaged vegetables as a way of gaining a ‘quick sale’ for older produce. Additional handling was also seen to increase the cost of the vegetable.

Although consumers recognised that smaller sizes are more suited to the household, most claim to prefer doing any ‘processing’ themselves. Consumers are captivated by the idea that certain vegetables can be offered as a smaller whole. They didn’t think it was possible without ‘tampering’ with vegetable genetics, and associated ‘smaller’ with being more ‘gourmet’, enhancing convenience and value without compromising freshness.

There are a range of non portion initiatives that will increase vegetable utility and consumption

1. Consumers would welcome greater inspiration on how to use vegetables.
Many consumers were ‘bored’ with their vegetable repertoire. Across workshops the same old recipes were cited, and consumers became animated with the exchange of new ideas. Shows such as MasterChef were an inspiration for many. Yet an inherent laziness to source themselves meant they were looking for it to be easy.

84% Would be open to learning different ways to use vegetables in cooking

58% Would purchase more vegetables if they knew more ways to use them

- In store demonstrations
- More ideas on how to prepare
- Understanding of the nutritional benefits
- Marketing to address negative perceptions
- Vegetable ‘stir-fry bin’ with ready to cook

Note: *Agree or strongly agree
Base: All respondents; Population Study (n=1522)
Source: Population Study Q1.2. Below are a list of statements other people have made about fresh vegetables and cooking generally. To what extent do you agree or disagree with each one, where 5 means you strongly agree and 1 means you strongly disagree? Consumer Workshops

Cabbage and Cauliflower in particular would benefit from marketing to overcome perceptions of being boring and old fashioned. These vegetables in particular suffered from negative perceptions due to lack of familiarity

Don't know to prepare and serve

Perceived to have limited shelf life

Perception of boring and old fashioned

Dislike taste/not popular with whole family

Don't know how to store to prolong freshness

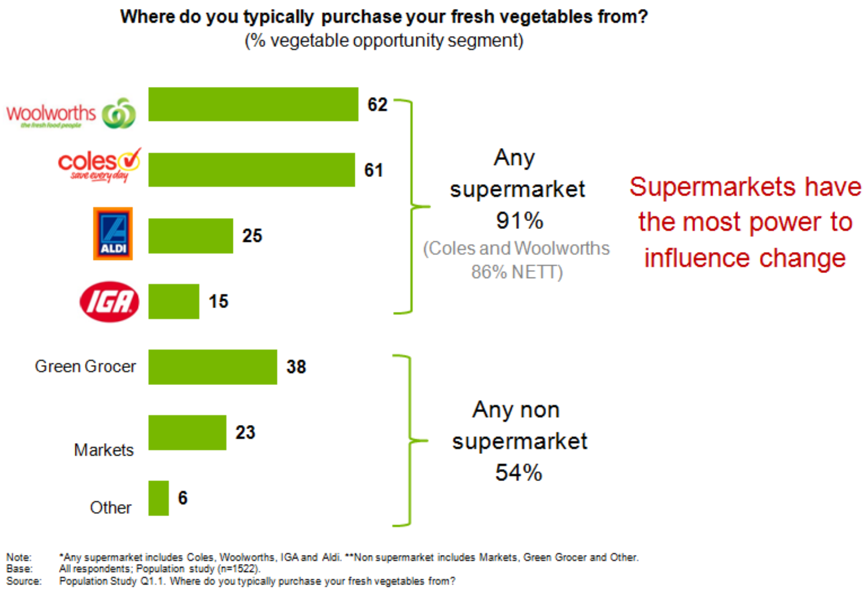
Limited appreciation for the nutritional benefits

2. The idea of a 'vegetable butcher' appeals for its nostalgia and increased value.

The idea was brought up spontaneously by a number of independent groups. It triggered recall of old days and good old fashioned customer service. The idea resonated most for pumpkins which required strength to cut and peel. However, there was recognition that this would add cost to retailers and that consumers would ultimately pay. If the cost was 'acceptable', most were warm to it (interest ranged from 30% to 57% across vegetables). The inconvenience of waiting was raised as a challenge unless you could leave and come back later. There was limited awareness that some supermarkets already offer it now.

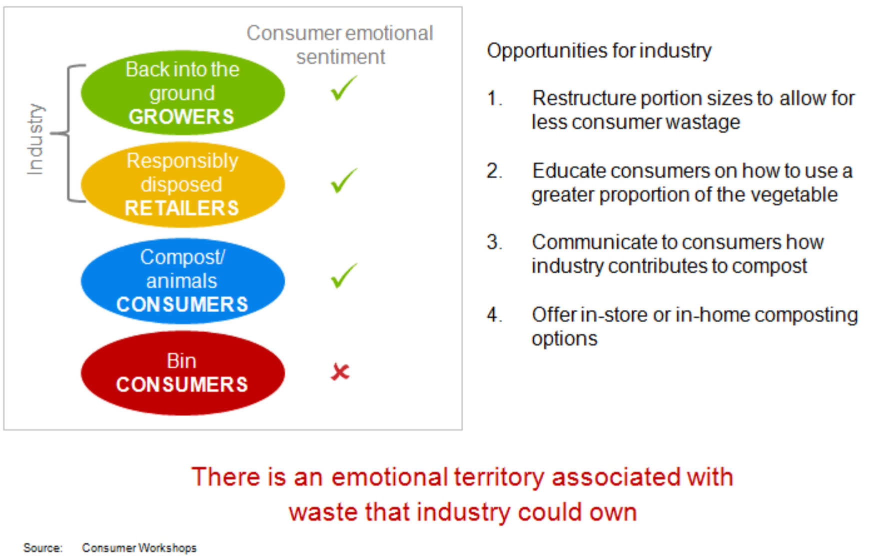
3. Inconsistencies in 'fridge life' suggest opportunities to improve the supply chain.

There was substantial variation in freshness across locations. In particular consumers based on Melbourne reported that vegetables didn't last as long. Even within states there was variability of freshness across locations. Green grocers and market gardens were seen to have the freshest produce. However supermarkets were the most convenient place to buy.



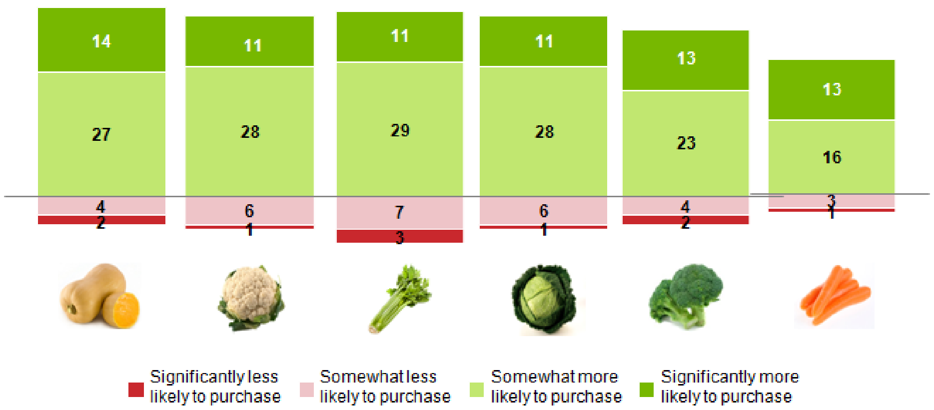
4. Industry was seen as the natural champion for reducing vegetable waste.

Consumers feel guilty when food is thrown away when it could be 'returned to the earth'.



Offering a greater range of portion options will increase overall vegetable purchase

As expected, there is not necessarily one optimum portion size for each vegetable, however offering a larger range of alternatives will result in an overall uplift in purchase consumption. It was hypothesised that this uplift would come at the expense of other vegetables, however the survey found it would be in addition to what is already purchased.



Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q2.6. Assuming the options you selected previously were available, overall do you think you would purchase more or less of this vegetable than you do now? Q2.7 You mentioned earlier that you would purchase more of the following vegetables. Would you purchase more: "no change" not graphed

'New' portion sizes do not necessarily need to be developed, with consumers welcoming a greater availability of the 'standard' vegetable options. An issue with option availability is evident however, as the survey confirmed that although most choices are already available somewhere, there is substantial inconsistency across locations.

Recommendations

Overall, findings support four recommendations for industry

It is clear that consumers would welcome a greater range of options that would meet their needs in terms of portion sizes. The following recommendations support increased purchase and consumption of the vegetables of focus:

1. Retailers will benefit from offering more fairly basic portion options
2. Removing 'excess parts' of the vegetable will enhance perceived value
3. Smaller versions of vegetables should be considered
4. Industry should provide greater inspiration about how to store and prepare vegetables

Because of consumer's habitual nature, any changes need time for consumers to notice, react and then adapt to before success can be assessed.

Appendix 1:

Stage 2 Intercept Interview Findings

Project Optimum Vegetable Portion Size

Research to determine the optimum portion size for six vegetables in the Australian market

Results from Exit Interviews

(Project VG12094)

Prepared for Philippa Lorimer, Horticulture Australia

By Georgina Woodley and Rose Pipicella

25 July 2013

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Research was sought to to determine the optimum portion size for six vegetables in the Australian market

Australian consumers waste an estimated $1.1bn of fruit and vegetables, resulting in unnecessary financial cost to both consumers and the environment.

With the bulk of the wastage occurring in the home, packaging and portion sizes can play an important role in minimising food wastage.

Horticulture Australia has commissioned a program of works to design, execute and report on Optimum vegetable portions for six vegetables currently subject to the vegetable growers' levy.

The ultimate benefit of the program is to increase optimise portion sizes to reduce wastage by consumers, retailers and growers.

In turn, offering the Optimum portion size is expected to stimulate greater consumption and reduced waste. In turn it will result in more efficient use of resources for growers.

This document outlines the findings of the first stage of the research, preliminary interviews with shoppers of fresh vegetables

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The fundamental task is to establish opportunity to increase the utility of vegetable portioning for Australian consumers

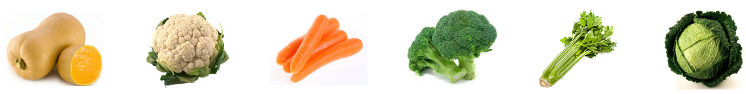
There are four key objectives of the study

1. Establish optimum vegetable produce portion size for 6 vegetable lines
2. Increase value and consumption of vegetable crops
3. Enhance convenience for consumers
4. Reduce wastage in the home and make more efficient use of resources

It is likely that there will be more than definition of 'optimum' driven by ...

1. Household structure and lifestage: shopping for a family versus a single, couple etc
2. Occasion: everyday versus a dinner party/ BBQ or recipe ingredient
3. Health outlook: focus on incorporating vegetables into the diet
4. Budgetary and time pressures
5. Vegetable size, packaging and display at the point of sale

The focus of the study is on customer preferences for the optimal way to purchase each of the six chosen vegetables; individual vegetable size and potential packaging



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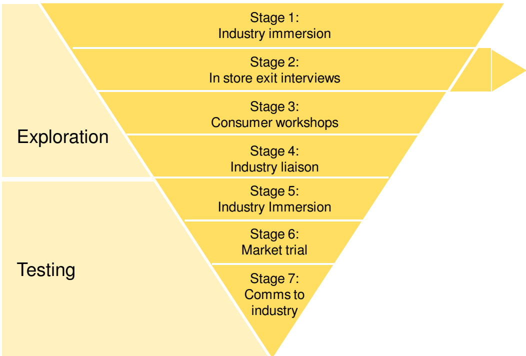
This report outlines the findings from stage 2 of a 7 stage program



A total of n=150 interviews of 5 minutes each with customers exiting the fresh food section of supermarkets.

Conducted across six locations to ensure a spread of people were interviewed, including outer and inner suburban locations across NSW, VIC and QLD. (A total of n=25 per location).

Fieldwork was conducted on Saturday 12 July 2013.

Stage 2 of the research was guided by input from industry

The following areas were of interest to stakeholders

1. What is in the typical shopping basket or trolley? Do consumers typically purchase other fresh food besides vegetables?
2. What occasions drive the purchase of each of the vegetables?
3. How does shopping behaviour vary depending on the occasion of the purchase?
4. What, if any barriers are there to the purchase of vegetables, and what drives this?
5. To what extent is purchase restricted by concerns about wastage?

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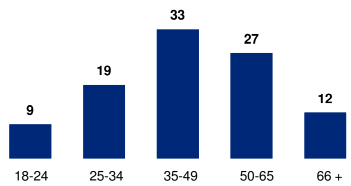
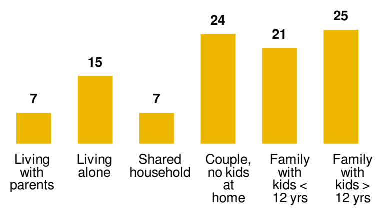
We spoke to grocery shoppers across a range of household types and ages

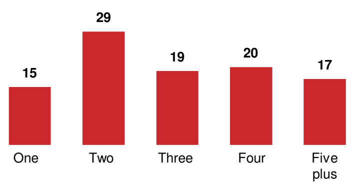
Age
(% respondents)



Living situation
(% respondents)



People in household
(% respondents)



Base: All respondents (n=150).
Source: F1 Which of these best describes your age? F2 Which of these best describes your living situation? F3 How many people live in your household. including yourself?

Respondents had a variety of gender, working and nationality profiles

66% of respondents work full time

18% work part time

16% are not working in paid employment

67% of respondents were born in Australia

33% of respondents were born overseas

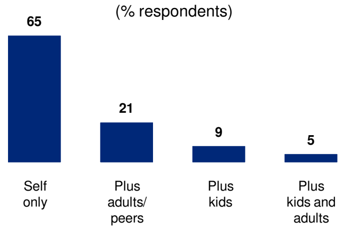
74% were female

26% were male

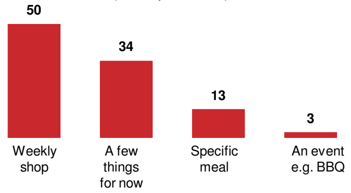
Base: All respondents (n=150).
Source: F4 Are you currently working… F5 Were you born in Australia… F6 Record gender

Most participants were shopping alone or with peers, either doing their weekly shop or buying a few things for now with most pushing a shopping trolley

Shopping group
(% respondents)



Purpose for shopping
(% respondents)



85% used a trolley

15% used a bag/basket

1% used nothing

Base: All respondents (n=150).
Source: F7 Record shopping group F8 Record shopping basket F9 Why are you shopping today?

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Summary of Preliminary Findings

1. There appears to be substantial opportunity to influence consumer purchasing via alterations to portion sizes
2. All six vegetables of interest are subject to limitations in purchase due to concerns about wastage
3. Consumers appear to have adapted their shopping behaviour to what is available in store
4. The largest opportunity for increased purchase *appears* to lie with cabbage and cauliflower
5. Consumer's individual tastes are a substantial driver of purchase frequency

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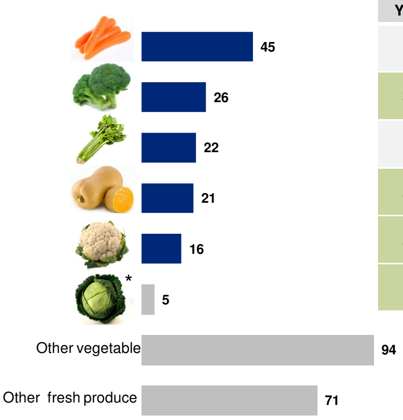
Most grocery shoppers leave with the vegetables they came intending to purchase

Vegetables purchased
(% respondents)



Any vegetables intended to purchase but didn't
(% respondents)

Yes	No
0	100
3	97
0	100
5	95
5	95
1	99

'Too expensive, too small for the price'
'I can't store it for a long time; it won't last 1-2 weeks in my fridge. I can only see whole Cauliflowers, no ½ or ¼'

'Thought it would go off before I cooked them'
'I got a whole Cauliflower, it was cheaper than the Broccoli'

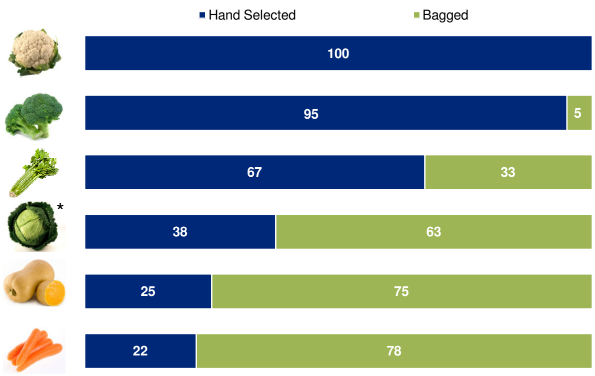
'Only had full and I only need ¼ so didn't buy'
'Again, it's the price, I normally get them at markets but thought I'll check them out here today'

'Too pricey, doesn't look fresh and the quality doesn't appeal to me'
'Too expensive here, I can get them cheaper elsewhere like the markets'

* Cabbage has small base size.
Base: All respondents (n=150).
Source: Q1. What vegetables did you purchase today? How have you bought them? Q2. Were there any vegetables that you intended to buy but **didn't?** Q3. What stopped you from purchasing those today...?

Bagged versus hand selected purchase varies by vegetable

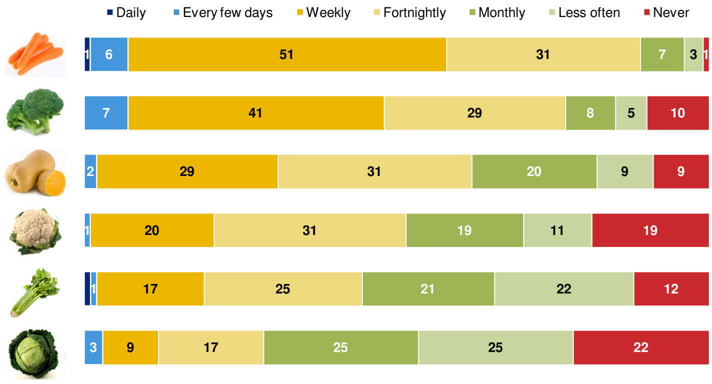
Purchase type
(% respondents)



* Cabbage has small base size.
Base: All respondents (n=150); Cauliflower (n=24), Broccoli (n=39), Celery (n=33), Cabbage (n=8), pumpkin (n=32), Carrots (n=68).
Source: Q1. What vegetables did you purchase today? How have you bought them?

Frequency of purchase varies substantially across each of the six vegetables

Typical Frequency of purchase
(% respondents)



Base: All respondents (n=150).
Source: Q4a. Which of the following best describes how often would you purchase each of the following vegetables ON AVERAGE...?

There are no 'obvious' combinations of vegetables purchased

Vegetables purchased by other vegetables purchased
(% respondents purchasing the vegetable)

						*
	100	38	59	44	64	63
	13	100	18	19	3	38
	34	29	100	22	30	50
	21	25	18	100	9	13
	31	4	26	9	100	25
*	7	13	10	3	6	100

* Cabbage has small base size.
Base: All respondents (n=150); Carrots (n=68), Cauliflower (n=24), Broccoli (n=39), Pumpkin (n=32), Celery (n=33), Cabbage (n=8).
Source: Q1. What vegetables did you purchase today?

Purchase frequency is largely driven by consumer enthusiasm for the taste of the vegetable, with most buying as needed

Why do you buy at that frequency?
(% respondents)

Cabbage
Purchase when I need **48%**
Don't eat often/don't like taste 24%
Freshness 10%
Lasts a long time 8%
Convenience 7%

Pumpkin
Purchase when I need **45%**
Don't eat often/don't like taste 15%
Lasts a long time 14%
Favourite/eat a lot 12%
Convenience 10%

Cauliflower
Purchase when I need **43%**
Don't eat often/don't like taste 18%
Favourite/eat a lot 15%
Freshness 13%
Convenience 9%

Celery
Purchase when I need **40%**
Don't eat often/don't like taste 23%
Freshness 14%
Eat in many dishes/snacks 12%
Lasts a long time 10%

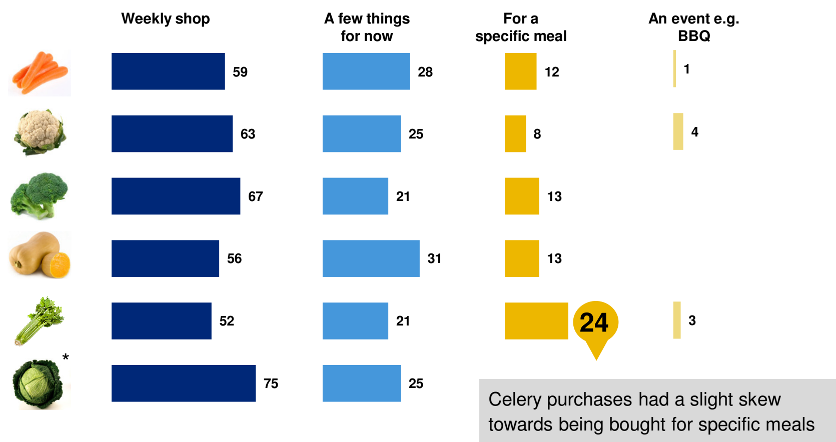
Broccoli
Purchase when I need **39%**
Favourite/eat a lot 21%
Freshness 15%
Don't eat often/don't like taste 8%
Doesn't last long time 6%

Carrots
Purchase when I need **38%**
Favourite/eat a lot 23%
Freshness 14%
Convenience 12%
Lasts a long time 10%

Base: All respondents (n=150); Carrots (n=149), Cauliflower (n=121), Broccoli (n=135), Pumpkin (n=137), Cabbage (n=117), Celery (n=131)
Source: Q4b. Why do you purchase those items at that frequency?

The shopping occasion is largely consistent across vegetables purchased

Vegetables purchased by reason for shopping
(% respondents)



* Cabbage has small base size.
Base: All respondents (n=150); Carrots (n=68), Cauliflower (n=24), Broccoli (n=39), Pumpkin (n=32), Celery (n=33), Cabbage (n=8).
Source: Q1. What vegetables did you purchase today? F9. Why are you shopping today?

Larger vegetables are most commonly purchased in halves

What quantities are typically purchased?
(% respondents)

Cabbage
½ wrapped **66%**
1 whole 18%
¼ wrapped 15%
Bag slice 2%

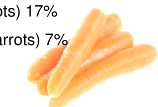
Pumpkin
½ wrapped **55%**
¼ wrapped 28%
1 whole 15%
1 kg 2%

Cauliflower
1 whole **63%**
½ wrapped 30%
1 small/medium whole 6%

Celery
½ bunch **47%**
1 bunch 34%
Individual stalks (1-5) 17%
2 bunches 1%

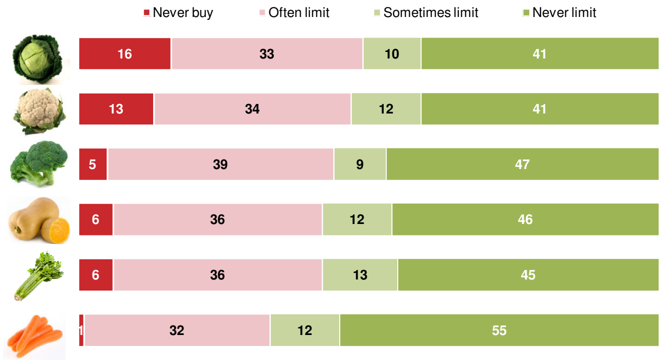
Broccoli
1 head **44%**
2 heads 37%
3-4 heads 15%
5 plus heads 3%

Carrots
1 kg bag **62%**
Hand picked (1-4 carrots) 17%
Hand picked (5 plus carrots) 7%
2 Kg bags 6%



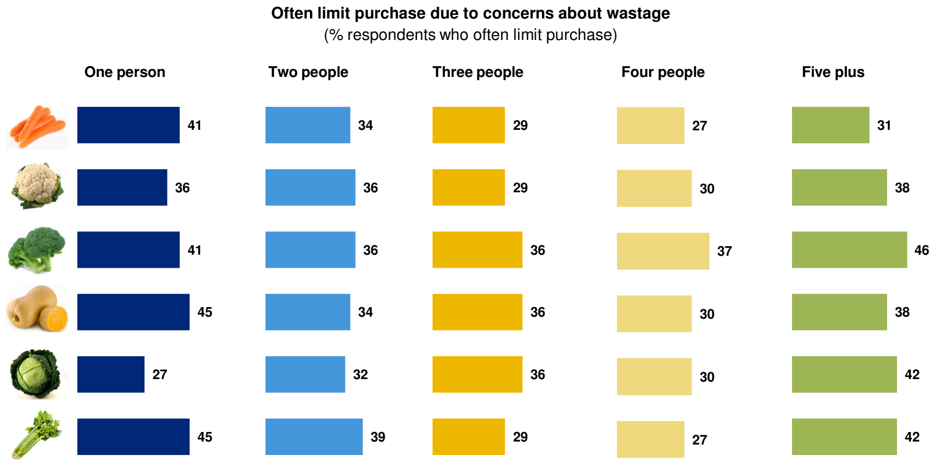
Nearly a third of grocery buyers often limit their purchases of the six vegetables due to concerns about wastage

Limit purchase due to concerns about wastage
(% respondents)



The greatest opportunity to stimulate greater purchase through alterations to package size is in cabbage and cauliflower

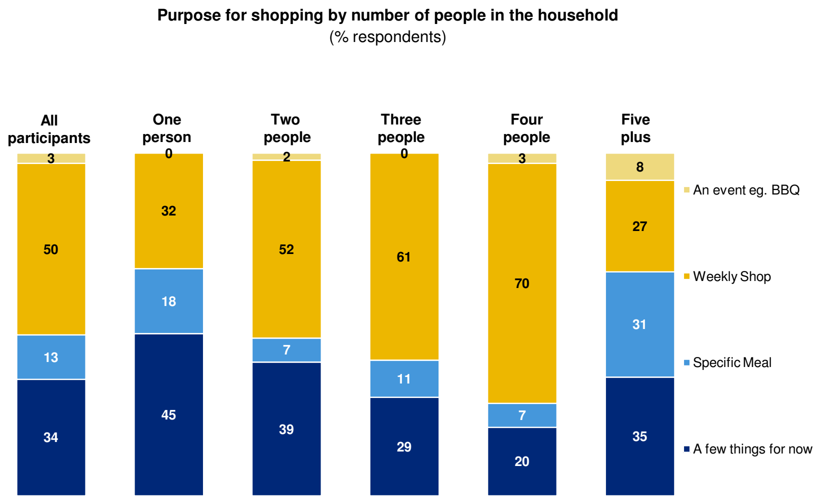
Household size is not really a factor in limits due to concerns about wastage



Those not working are less likely to limit their purchase than those either working full time or part time

Base: All respondents (n=150); One person (n=22), Two people (n=44), Three people (n=28), Four people (n=30), Five plus (n=26).
Source: Q6. Do you ever limit your purchase of any of the following vegetables due to concerns about wasting?

Smaller households are more likely to shop for a few things for now



Base: All respondents (n=150); One person (n=22), Two people (n=44), Three people (n=28), Four people (n=30), Five plus (n=26).
Source: F9. Why are you shopping today? Q6. Do you ever limit your purchase of any of the following vegetables due to concerns about wasting?

Many participants believed there wasn't anything to change

What would make you buy more?
(% respondents)

Cabbage
Nothing to change **36%**
- ½ head 15%
- ¼ head 8%
- Small breed of cabbage 7%
- Firm/tight 6%

Pumpkin
Nothing to change **36%**
- ¼ wrapped 15%
- Dark orange in colour 12%
- ½ wrapped 12%
- Whole smaller pumpkin 7%

Cauliflower
Nothing to change **35%**
- Tight and white head 15%
- Offer a variety of sizes 8%
- ½ cauliflower wrapped 7%
- Cut into smaller sizes 6%

Celery
Nothing to change **43%**
- Crisp/Not limp 16%
- Offer ½ bunch 14%
- Chop bottom and top off – buy in sticks 13%
- Loose, single sticks 5%

Broccoli
Nothing to change **31%**
- Darkness in colour 19%
- Remove stalks (make shorter) 19%
- Tight/firm head 16%
- Package to last/stay fresh longer 10%

Carrots
Nothing to change **43%**
- Even thickness and length 12%
- 1 kg medium size 10%
- Package to last/stay fresh longer 10%
- Smaller package (<1 kg) 10%

Base: All respondents (n=150); Carrots (n=67), Cauliflower (n=88), Broccoli (n=80), Pumpkin (n=81), Cabbage (n=89), Celery (n=83)
Source: Q7. This next question relates specifically to the vegetables that you have concerns about wastage for. Assuming you could change anything about them, what would make you buy more? And why would this make you buy more?

Appendix 2:

Stage 3 Qualitative Findings

Project Optimum Vegetable Portion Size

Research to determine the optimum portion size for six vegetables in the Australian market

Results from Consumer Workshops

(Project VG12094)

Prepared for Philippa Lorimer, Horticulture Australia

By Georgina Woodley and Rose Pipicella
15 October 2013

bdrc jones donald

strategy partners

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HAL Horticulture Australia

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Research was sought to to determine the optimum portion size for six vegetables in the Australian market

Australian consumers waste an estimated $1.1bn of fruit and vegetables, resulting in unnecessary financial cost to both consumers and the environment.

With the bulk of the wastage occurring in the home, packaging and portion sizes can play an important role in minimising food wastage.

Horticulture Australia has commissioned a program of works to design, execute and report on Optimum vegetable portions for six vegetables currently subject to the vegetable growers' levy.

The ultimate benefit of the program is to increase optimise portion sizes to reduce wastage by consumers, retailers and growers.

In turn, offering the Optimum portion size is expected to stimulate greater consumption and reduced waste. In turn it will result in more efficient use of resources for growers.

This document outlines the findings of the third stage of the research, workshops with consumers who limit vegetable purchases due to concerns about wastage

The fundamental task is to establish opportunity to increase the utility of vegetable portioning for Australian consumers

There are four key objectives of the study

1. Establish optimum vegetable produce portion size for 6 vegetable lines
2. Increase value and consumption of vegetable crops
3. Enhance convenience for consumers
4. Reduce wastage in the home and make more efficient use of resources

It is likely that there will be more than one definition of 'optimum' driven by ...

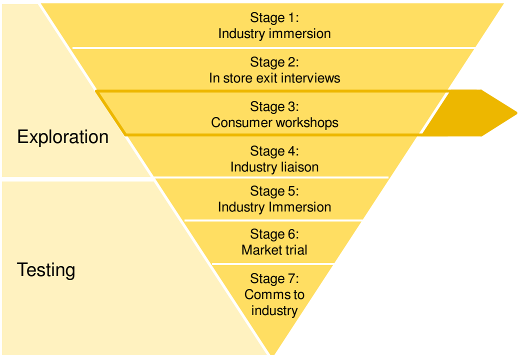
1. Household structure and lifestage: shopping for a family versus a single, couple etc
2. Occasion: everyday versus a dinner party/ BBQ or recipe ingredient
3. Health outlook: focus on incorporating vegetables into the diet
4. Budgetary and time pressures
5. Vegetable size, packaging and display at the point of sale

The focus of the study is on customer preferences for the optimal way to purchase each of the six chosen vegetables; individual vegetable size and potential packaging






This report outlines the findings from stage 3 of a 7 stage program



A total of n=10 consumer workshops of 2 hours each with customers who limit vegetable purchases due to concerns about wastage.

Workshops were conducted across three states to ensure a spread of people were interviewed. Four workshops were held in NSW, two in Sydney and two in Parramatta, three workshops were held in VIC, and another three were held in QLD.

Fieldwork begun on Tuesday 6 August 2013 and finished on Thursday 15 August 2013.

Stage 3 of the research was guided by the exit interview findings as well as input from industry

The following areas of interest were discussed in the workshops

1. **Drivers of vegetable purchase** - Where do people purchase vegetables? How often do people purchase vegetables? Do people purchase any vegetables more or less often than others? What dictates vegetable purchases in a given situation?
2. **Feelings about wastage** – Do consumers waste a lot of certain vegetables? To what extent is wastage a problem in the household? Are there certain vegetables people waste more than others? Are there vegetables people would purchase more of if they could purchase differently?
3. **Optimising the vegetables** – How convenient is the way vegetables are currently sold? What influence does how the vegetable is packaged or presented have on people's decisions to purchase? How would people change the way vegetables are sold? If vegetables could be purchased in this way, would people purchase more or less?

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Workshops were segmented based on household structure

NSW Sydney	Young families with children under 12 years old
	Shared households
NSW Parramatta	Older families with kids over 12 years old
	Couples with no children – 18 to 49 years old
VIC	Young families with children under 12 years old
	Singles
	Older families with kids over 12 years old
QLD	Young families with children under 12 years old
	Older families with children over 12 years old
	Couples with no children – 50+ years old

51% of respondents work full time

28% work part time

21% are not working in paid employment

75% were female

25% were male

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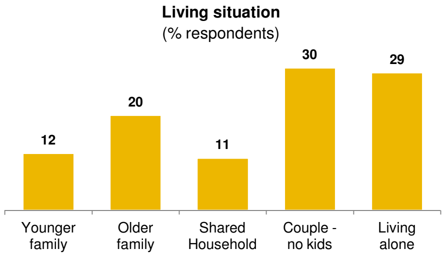
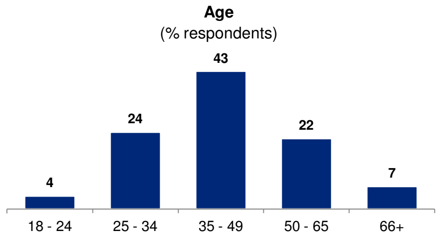
We spoke to grocery shoppers across a range of household types and ages





Participants of consumer workshops were selected on the following basis:

1. The main grocery buyer for the household
2. A buyer of at least four of the six selected vegetables
3. Limit purchase of at least one of the six selected vegetables due to concerns about wastage
4. Willing to purchase more of at least one of the six selected vegetables if they could change its size or the amount available to purchase

Contents

Summary of Key Findings

1 There is an appetite to increase vegetable consumption, both in terms of *volume and variety*, amongst Australian consumers across all demographic profiles

2 Consumers on the whole do not like vegetable wastage on either a rational *or* emotional level and attitudes to wastage impact purchase behaviour

3 Current (large) portion sizes available discourage purchase of certain vegetables despite consumer interest, while other vegetables may be overlooked based on their current format

4 Consumers are open to alternative vegetable formats which address barriers to purchase; these include both physical changes to the vegetables themselves and changes to available purchase options

Summary of Key Findings

5 Beyond physical changes to available vegetables, consumers are open for information and advice to educate and inform their vegetable usage including;

- Information on nutritional value, calorie content and health benefits of particular vegetables
- Information on how to select a particular vegetable/ how to assess freshness/readiness to consume
- Advice on how to best store to prolong freshness
- Direction on ways to prepare; which parts can be used and which parts discarded; recipe ideas that cover a range of cuisines

6 Qualitative workshops identified a number of possible new and alternative vegetable formats ; appeal and take up for which will be quantified in the next research stage

Four consumer archetypes were observed in the workshops

Organised planner

- Buys what's in season
- Shops weekly
- Uses a shopping list
- Plans meals in advance
- Purchases quantities required for specific recipes
- Will routinely purchase vegetable 'staples'
- Price aware and price sensitive
- Larger household

Top up shopper

- Plans in advance but may need extra items based on last minute meal plans
- Likely to buy exactly what's needed in required quantity

Daily decision maker

- Purchases meal ingredients daily
- Will purchase from supermarket or greengrocer/speciality store whatever is most convenient
- Not price sensitive
- Limited wastage

Impulse buyer

- Rarely has a list
- Chooses based on 'what looks good'
- Less aware of quantities required
- Not price aware or sensitive
- Shops at greengrocer and specialty vegetable store

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Whilst the Supermarket is often the key purchase location, perceptions of quality and freshness vary

"I have a growers market in my area so usually I tend to go there because they tend to be fresher, but Coles has upped their game lately. A lot of them have been renovated I think so they've started icing and doing some interesting things with their vegetables."

"I'd be happy with pre chopped vegetables in a good quality store…like a Harris Farm or something. I wouldn't get it probably at Woolies or Coles but at somewhere like Harris Farm where you know there's a big turnover (so the food is fresh)"

"Aldi seems to stack up vegetables like groceries – I don't like that"

"I generally go to Coles just because it's easy. I just do it all in one go and I do find although it's probably not as fresh and it's not as good but it is cheaper"

"I just find that supermarkets, whether it's for the sake of convenience for themselves, or…more and more products are coming packaged, which don't suit a certain family size and you find yourself buying too much of something and there's wastage. There's not an option to buy two carrots, you can only buy a bag full of carrots".

" Some Coles and Woollies are great while others are awful – we left Woollies the other day without any vegies because they all looked old and sad"

"I find the market is a lot fresher but you've got to buy in bulk, you've got to buy a tray of whatever, maybe a whole cabbage, and there's only two of us so we waste a lot if I do that. Yes the greengrocer is the freshest. I don't often find them to have quarters there though, quarters would be much more appropriate".

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Most consumers are ‘creatures of habit’ with a limited vegetable repertoire which impacts volume and variety purchased and consumed

Drivers of vegetable choice

Habit and familiarity

- Used to buying and eating
- Know how to prepare and use

“I just buy the same thing pretty much every week and then we just go what have we got? Well I’ll do this, this and this....”

Perceived freshness	Perceived value	Availability
• Looks fresh • Looks like it will taste good • Consistent quality	• Not too expensive • Available in desired portion size(s)	• Can buy at my usual purchase outlet • Readily available

“With vegies if it doesn’t look appealing then I won’t buy it. If it’s nice and fresh and it really jumps out at you then I tend to buy whatever looks fresh”

“I’m guided by what it looks like when I get there, and by the price. So because you know you can go in and see broccoli and it’s going to seed sometimes, it’s been sitting there for a while, it’s all wilted when you go and pick it up. It’s just very soft and bendable”

“I buy literally what I need for that night. So, that’s my thing that I don’t waste because I think okay tonight we’ll have x, y, z for dinner so I go to the shops. So that’s how I get away from wasting food is just literally buying for tonight or for tonight and tomorrow night.”

That said, consumers are willing to be more adventurous and try new vegetables and different recipes if barriers to purchase are overcome

Consumers don’t like vegetable wastage on a rational or emotional level

Rational

- Paying for something then not having it last (stay fresh) as long as anticipated
- Buying too much/more than is needed given only large portion sizes available
- Not knowing how to use leftovers or certain components to eliminate wastage

Emotional

- Feeling guilty that un-used food is thrown away not recycled and returned to the earth
- Knowing that elsewhere in the world there is hunger and starvation
- Sense that they are throwing money away
- Feeling that they are being wasteful generally
- Not knowing alternative uses/options to minimise wastage
- Not knowing how best to store to prolong use

You’ve also got wastage two-fold, you’ve got the wastage that you’re throwing things out because you bought too much, or you haven’t eaten it so you’re throwing out, or you’ve also got wastage because you buy it and thinking it’s going to last and it doesn’t.

“It always upsets me, waste. I don’t want to waste anything, really. Especially when you’ve spent good money on it.”

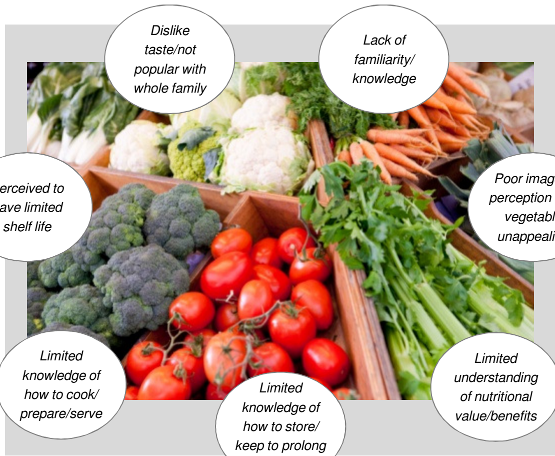
“I won’t buy things if I think there’s going to be waste. So if I do buy, like, a broccoli, I’ll make sure it’s quite a small one, and I’ll think of, like, two recipes in a week, because I only do one shop a week, I’ll think of two recipes or three recipes that I can use it in and I’ll stick to it. I will plan ahead like that, and I’ll make sure there won’t be any wastage.”

Cauliflower and cabbage in particular suffered from a poor understanding of their benefits

Barriers to using certain vegetables

"Well you have to tell people what the rewards of eating it are because people think okay well I know that carrots are good, I know that broccoli has a lot of nutrients and I know that sweet potatoes or yams are becoming one of those foods that everybody says oh they're really good to eat. So what rewards does cabbage or cauliflower have?"

"I would just say put more ideas about how to cook them and stuff. I would buy more of them if I had more ideas of what to cook them in within the week, instead of just making the same meals"



- Dislike taste/not popular with whole family
- Lack of familiarity/ knowledge
- Perceived to have limited shelf life
- Poor image – perception that vegetable unappealing
- Limited knowledge of how to cook/ prepare/serve
- Limited knowledge of how to store/ keep to prolong freshness
- Limited understanding of nutritional value/benefits

"I associate them (cauliflower and cabbage) with something that old people would eat"

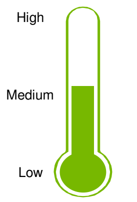
"I'd like advice on how to store different veggies at home - how to keep them fresh"

I think it might be nice if they actually had recipes next to the different veggies, especially for some of the newer ones.

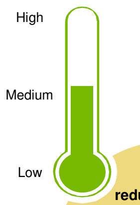
Cauliflower overview

Image:
- Old-fashioned
- Outdated

Overall Appeal



Purchase Frequency



Factors liked
- ✓ Easy to cook
- ✓ Traditional (cauliflower cheese)
- ✓ Adds variety to vegetable selection

Factors disliked
- ✗ Portion sizes too large
- ✗ Heavy to carry
- ✗ Space needed to store
- ✗ Limited shelf life (goes brown)
- ✗ Not versatile (limited uses when cooking)
- ✗ Taste quite bland

How to reduce wastage
- Make available in smaller portion sizes (half and quarter)
- Promote alternative ways of preparing/serving

Opportunities to increase consumption
- Promote nutritional value
- Make available in smaller portion sizes
- Educate consumer on range of ways to prepare
- Build perceptions of versatility
- Offer smaller whole cauliflower (one quarter current size)
- Sell packaged with broccoli
- Sell as florets – loose or in punnet

"I think (cauliflower) is one of those vegetables that are not really on my radar. I don't really pay attention to it."

"Things like cauliflower, for example, I like it but I don't overly like it and there's not that many things I can do with it, so I don't want to buy a whole one, and quite often they haven't got it in half, so I just don't buy it."

"I would buy a small one or florets that have already been prepared. For me because there's only two of us that eat it I could buy a small handful for one meal and then I wouldn't be wasting it"

"I associate them (cauliflower and cabbage) with something that old people would eat or I don't know how to cook them"

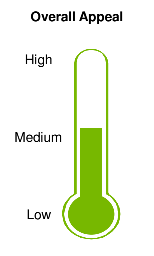
"Beyond Cauliflower Cheese what do I do with it?"

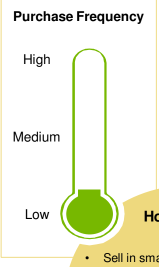
"I'd buy more (cauliflower) if it was in smaller sizes for sure."

Celery overview

Image:

- For snacking
- Non-essential





Factors liked

- ✓ Low calorie
- ✓ Good snack food
- ✓ Good for parties

Factors disliked

- ✗ Usually sold in large bunches
- ✗ Half bunch too big for most households
- ✗ Can go limp quickly if not stored correctly
- ✗ Stringy
- ✗ Bland flavour
- ✗ Too big for shopping bag
- ✗ Too big for crisper

How to reduce wastage

- Sell in smaller portion sizes (quarter bunch or by the stick)
- Educate consumer on how to use all components (e.g. leaves)
- Educate consumer on how to store to prolong freshness

Opportunities to increase consumption

- Offer smaller (shorter) whole celery
- Make available a less stringy, cleaner-bite version
- Promote nutritional value
- Promote versatility

"The thing is with celery is I find that you can buy it in a full bunch or half bunch but even a half bunch is massive. In a soup I'll put one stalk or sometimes two stalks but then what do you do with the rest?"

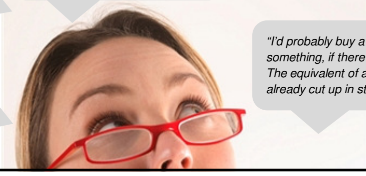
"If you're trying to tempt me to eat more celery you would cut everything off, cut the base and offer it to me in a nice little container already cut into sticks about that long without having to wash and I would want to eat it."

"Stringiness is definitely a problem for me, strings annoy me…They get stuck in your teeth as well. It's like flossing with massive floss"

"I don't eat my celery because I'm too lazy, I've got to chop it to make it fit in the fridge crisper"

"I'd probably buy a half bunch or something, if there was dip with it. The equivalent of a half bunch if it was already cut up in stalks"

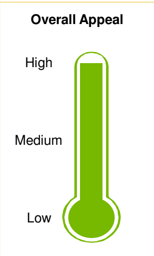
"Celery would be better if it was sold in a zip bag or a sold in a re-sealable bag that was made for storage/freshness"

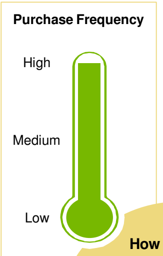


Pumpkin overview

Image:

- Popular
- Family friendly





Factors liked

- ✓ Taste
- ✓ Liked by whole family
- ✓ Range of types
- ✓ Long shelf life

Factors disliked

- ✗ Portion sizes too large
- ✗ Heavy to carry
- ✗ Difficult to peel
- ✗ Too many seeds
- ✗ Time taken to cook

How to reduce wastage

- Sell in smaller portion sizes
- Educate consumer on additional ways to prepare
- Make consumers aware that skin can be eaten on some variants

Opportunities to increase consumption

- Make available in smaller portion sizes (halves and quarters)
- Develop and make available an easy-peel version with fewer seeds
- Offer pre-cut and pre-peeled in serving size portions
- Offer via deli-counter cut and prepared to order after selection

"There is a lot of variety of pumpkins I find. You can get big pieces and whole ones and then you get little baby ones and there's a lot of different types of variety. It keeps well"

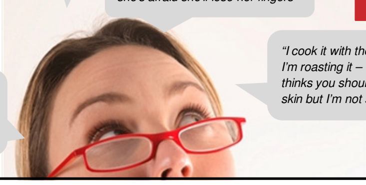
"I love pumpkin. It's one of those vegetables where you can get as much or as little as you want. "

"You know what I'd love? I'd absolutely love a greengrocer to do what some of the butchers do. You can say here's my pumpkin can you chop it for me?"

"My wife won't peel the pumpkin , she's afraid she'll lose her fingers"

"I cook it with the skin on if I'm roasting it – my Mum thinks you should eat the skin but I'm not sure"

"Because people know what to use it for. It has a better taste I think. You can put it in more recipes and actually it will flavour things. It's more versatile"



Carrot overview

Image:

- Popular
- Versatile

Overall Appeal

Purchase Frequency

Factors liked

- ✓ Taste
- ✓ Liked by whole family
- ✓ Versatile
- ✓ Good for you (vision)
- ✓ Easy to prepare
- ✓ Can eat raw or cooked
- ✓ Good value

Factors disliked

- ✗ Sometimes quality/freshness issues
- ✗ Inconsistent sizing within pre-packaged bags
- ✗ Often only available in a bag

How to reduce wastage

- Offer loose (consistently)
- Provide advice on storage

Opportunities to increase consumption

- Sell in bite size/kids size ready to eat
- Offer in julienne strips for salads and stir-fry's
- Sell pre-packaged with other vegetable mixes ready to use
- Merchandise with dips

"My daughter loves carrots. She'll have it in anything so I just use it in whatever I'm making"

"You can cook them in a variety of ways: bakes, stews, all sorts"

"When my kids were younger a big bag of those baby carrots was always a staple as a snack – kids love raw carrots"

"My mother always said "eat your carrots, it will help you, you won't need to wear glasses"

"Sometimes in those pre packaged bags they are all different sizes and thicknesses which I don't like"

"Those orange tinged plastic bags they sell them in in a supermarkets seem to keep them fresher longer"

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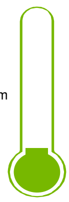
Cabbage overview

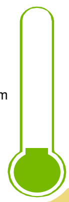
Image:

- Old school
- Bland

Overall Appeal



Purchase Frequency



Factors liked

- ✓ Can eat cooked or raw
- ✓ Easy to prepare-cook

Factors disliked

- ✗ Portion sizes too large
- ✗ Heavy to carry
- ✗ Space needed to store
- ✗ Bland flavour
- ✗ Limited versatility

How to reduce wastage

- Sell in smaller portion sizes (half or quarter)
- Educate on additional/alternative uses
- Educate consumers on proper storage to maintain freshness

Opportunities to increase consumption

- Promote nutritional value
- Promote versatility
- Offer smaller whole cabbages (one quarter current size)
- Offer pre-shredded for coleslaw or stir-fry
- Offer pre-shredded and packed with other stir-fry or salad vegetables
- Offer via deli-counter – cut and prepared to order after selection

"I'd buy little whole ones if they were available....all the goodness and minimal wastage"

"For me (cabbage) is an old man's vegetable. I don't know if that's a horrible thing to say but I don't know, not that there's anything wrong with that but it seems like something they would have eaten in the old days."

"They're so massive. There's no need for them to be that big. They're bigger than a soccer ball sometimes."

"There seems to be a lot of cooking stuff going on and advertisements with how to cook things. I think out of all these vegetables whenever I have cabbage in my fridge it's like what do I do with it?"

"When I was growing up my parents would serve cabbage every now and again, but it is quite bitter and flavourless so I'd want to know how to cook it."

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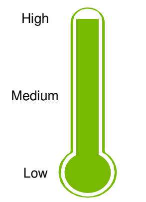
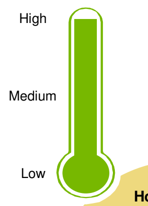
Broccoli overview

Image:

- Family favourite
- Modern





Factors liked

- ✓ Taste
- ✓ Versatility
- ✓ Family friendly

Factors disliked

- ✗ Fragile (florets)
- ✗ Stalks can be long and thick
- ✗ Stalks increase cost given weight
- ✗ Stalk taste and lack of uses

How to reduce wastage

- Educate consumers on how to use all components (e.g. stalks)
- Educate consumers on proper storage to maintain freshness

Opportunities to increase consumption

- Sell as florets (loose by the kilo or pre-packaged in a punnet)
- Sell pre-packaged with cauliflower
- Develop new variant with less stalk (or remove stalk at point of sale

"I would buy it more if I could buy a smaller piece. Even the smallest pieces that I've found are still too big for what I need it for"

"When I buy broccoli I will feel the weight of it, and I look at what, like the head and I feel the weight, and if the stalk is really heavy I won't buy it for that simple reason, because you're chopping it off and you're not using it."

"Broccoli is multi-purpose. People use it for lots of things, whereas cabbage we have one dish, that's all it's used for."

"Broccoli is a firm favourite with the kids. The whole family loves it steamed or in stir frys"

"As far as available sizes go Broccoli is very versatile. The only thing I get annoyed with are the long stalks which you pay for (by weight) but don't eat"

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Consumers had a range of ideas for portion sizes and other ways to increase overall appeal

"I'd be happy if they could break up little florets (of cauliflower) and have a big bin like they do the mixed lettuce and you could just take as much as you want and you're not getting all the leaves and the hard stuff either"

"Our Woolies actually had farmers in the store and you could talk to them. You could taste whatever it was that they produced be it a carrot or celery or whatever."

"Maybe if I had half broccoli and half cauliflower, because sometimes I like to get sort of both. If I get one I sort of like to get the other, but I'm not going to eat that big bunch, and I'm not going to eat that big bunch, so if I had one and they were sort of wrapped together"

"They could have someone in the vegetable section actually cutting stuff for you if you wanted. I wouldn't even have a clue about how to cut a pumpkin."

"There's a lot out there about your fruit and veggies and you have to eat so many a day, but really why? Why not give people an understanding as to the benefits"

"In shop demonstration would be really good if you saw a recipe like cabbage stir fry or something and then you were like oh that tastes really nice, you saw it was easy to make then I think I would be inclined to do that."

I'm thinking really lazily, but with broccoli we usually have it in stir fries, so if you had like a stir fry counter at the fruit place, so everything chopped up so you can just pick broccoli, pick cauliflower, pick chopped up carrot, pick bean sprouts..and so on"

"You know what I'd love? I'd absolutely love a greengrocer to do what some of the butchers do. You can say here's my pumpkin can you chop it for me?"

"People don't have time to think what else can I do with this rather than waste it because that does take some effort to say okay I'll use the leaves in my salad, whatever to think of alternate uses, so you end up wasting it."

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Consumer Portion Ideas and Vegetable Options (Consolidated)

Pumpkin	Cauliflower	Carrots	Cabbage	Celery	Broccoli
Smaller whole pumpkin Sold in quarters Pre-peeled and cut into serving size portions Pre-peeled and cut as wedges New variant which is "easy to peel" New variant which has fewer seeds "Deli-Counter" - Cut and prepared to order in store after selection	Smaller Whole Cauliflower (approximately one quarter current size) Sold in Quarters Sold as floret's (loose or in a punnet) Sold Half/half with Broccoli "Deli Counter" - Cut and prepared to order in store after selection	Sold in julienne strips for salads and stir fry's Bite Size/Kids size for school and dips Pre-packaged with other vegetables/ready to use	Smaller Whole Cabbage (approximately one quarter current size) Sold in halves and quarters Pre-shredded for coleslaw or stir fry Pre-packaged with other stir fry vegetables "Deli Counter" - Cut and prepared to order in store after selection	Smaller Whole Celery (approximately half the current height/size) Sold in quarter bunches Sell individual stalks loose New variant which is less stringy	Sold as florets (loose or in a punnet) Sold Half/half with Cauliflower New variant with less stalk

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Appendix 3:

Stage 5 Status Update

Project Optimum Vegetable Portion Size

Research to determine the optimum portion size for six vegetables in the Australian market

Results to date

(Project VG12094)

Prepared for Philippa Lorimer, Horticulture Australia

By Georgina Woodley and Rose Pipicella
13 December 2013

bdrc jones donald

strategy *partners*

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Research was sought to determine the optimum portion size for six vegetables in the Australian market

Australian consumers waste an estimated $1.1bn of fruit and vegetables, resulting in unnecessary financial cost to both consumers and the environment

With the bulk of the wastage occurring in the home, packaging and portion sizes can play an important role in minimising food wastage.

Horticulture Australia has commissioned a program of works to design, execute and report on Optimum vegetable portions for six vegetables currently subject to the vegetable growers' levy.

The ultimate benefit of the program is to increase optimal portion sizes to reduce wastage by consumers, retailers and growers.

In turn, offering the optimum portion size is expected to stimulate greater consumption and reduced waste. In turn it will result in more efficient use of resources for growers.

This document outlines the findings of the fifth stage of the research, a market study with consumers who limit vegetable purchases due to concerns about wastage

The fundamental task is to establish opportunity to increase the utility of vegetable portioning for Australian consumers

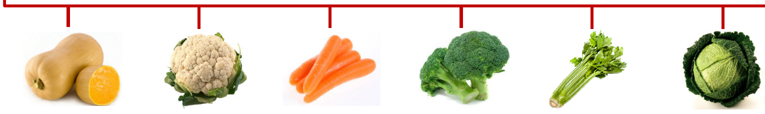
There are four key objectives of the study

1. Establish optimum vegetable produce portion size for 6 vegetable lines
2. Increase value and consumption of vegetable crops
3. Enhance convenience for consumers
4. Reduce wastage in the home and make more efficient use of resources

It is likely that there will be more than one definition of 'optimum' driven by ...

- Household structure and lifestage: shopping for a family versus a single, couple etc
- Occasion: everyday versus a dinner party/ BBQ or recipe ingredient
- Health outlook: focus on incorporating vegetables into the diet
- Budgetary and time pressures
- Vegetable size, packaging and display at the point of sale

The focus of the study is on customer preferences for the optimal way to purchase each of the six chosen vegetables; individual vegetable size and potential packaging



All stages of the research have been guided by industry

The following were areas of interest for stakeholders

Drivers of vegetable purchase

Where do people purchase vegetables? How often do people purchase vegetables? Do people purchase any vegetables more or less often than others? What dictates vegetable purchases in a given situation?

Feelings about wastage

Do consumers waste a lot of certain vegetables? To what extent is wastage a problem in the household? Are there certain vegetables people waste more than others? Are there vegetables people would purchase more of if they could purchase differently?

Optimising the vegetables

How convenient is the way vegetables are currently sold? What influence does how the vegetable is packaged or presented have on people's decisions to purchase? How would people change the way vegetables are sold? If vegetables could be purchased in this way, would people purchase more or less?

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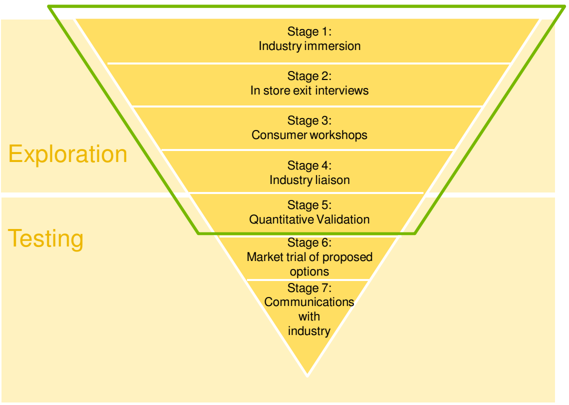
This report outlines findings from stages 1-5 of a 7 stage program



Stage 2

n=150 x 5 minute in store exit interviews across six locations in NSW, VIC and QLD (including outer and inner suburbs). Fieldwork 12 July 2013.

Stage 3

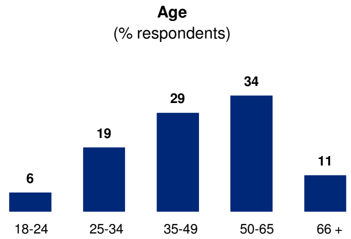
n=10 consumer workshops of 2 hours each with customers who limit vegetable purchases due to concerns about wastage, across NSW, VIC and QLD. Fieldwork 6 -15 August 2013.

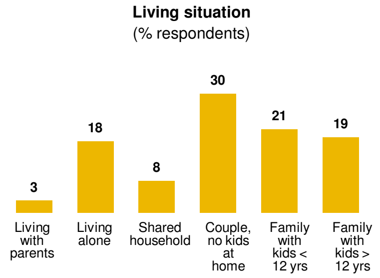
Stage 5

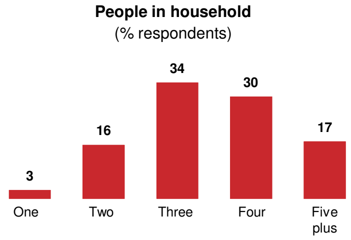
n=1522 x 10 minute online interviews with main grocery buyers who limit vegetable purchases due to concerns about wastage across Australia. Fieldwork 24 -31 October 2013.

Contents

Research participants are main grocery shoppers across a range of household types and ages







Base: All respondents; Exit interviews (n=150), Workshops (n=76), Population study (n=1522).
Source: Exit interviews: F1 Which of these best describes your age? F2 Which of these best describes your living situation? F3 How many people live in your household. including yourself? Population study: S2. Please indicate which of the following best describes your age: D3. Which of the following best describes your household? D2. Including yourself, how many people are in your household?

Respondents have a variety of gender, working and nationality profiles

42% of respondents work full time

36% of respondents are not working in paid employment

23% of respondents work part time

67% of respondents were born in Australia

33% of respondents were born overseas

66% were female

34% were male

Base: All respondents; Exit interviews (n=150), Workshops (n=76), Population study (n=1522).
Source: Exit interviews; F4 Are you currently working… F5 Were you born in Australia… F6 Record gender. Population study; D5. Which of the following best describes your personal working situation? D1. Are you….?

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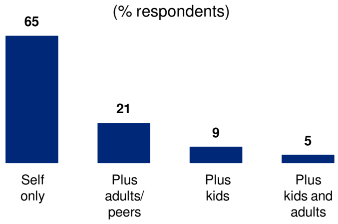
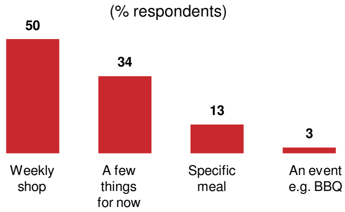
In store participants typically shop alone or with peers, either doing their weekly shop or buying a few things for now with most pushing a shopping trolley





85% used a trolley

15% used a bag/basket

1% used nothing

Base: All respondents; Exit interviews (n=150), Workshops (n=76), Population study (n=1522).
Source: Exit Interviews; F7 Record shopping group F8 Record shopping basket F9 Why are you shopping today?

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Summary of Key Findings

1 Consumers are creatures of habit with a limited vegetable repertoire

2 Purchasing behaviour has evolved to avoid waste

3 Offering greater choice in vegetable portions will have a positive impact on consumption

4 Advice and ideas for expanding the use of vegetables will stimulate consumption

5 Consumers had varying feedback on each of the six vegetables

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There are four consumer grocery buying archetypes for vegetables

Organised planner

- Buys what's in season
- Shops weekly
- Uses a shopping list
- Plans meals in advance
- Purchases quantities required for specific recipes
- Will routinely purchase vegetable 'staples'
- Price aware and price sensitive
- Larger household

Top up shopper

- Plans in advance but may need extra items based on last minute meal plans
- Likely to buy exactly what's needed in required quantity

Daily decision maker

- Purchases meal ingredients daily
- Will purchase from supermarket or greengrocer/ speciality store whatever is most convenient
- Not price sensitive
- Limited wastage

Impulse buyer

- Rarely has a list
- Chooses based on 'what looks good'
- Less aware of quantities required
- Not price aware or sensitive
- Shops at greengrocer and specialty vegetable store
- Smallest group

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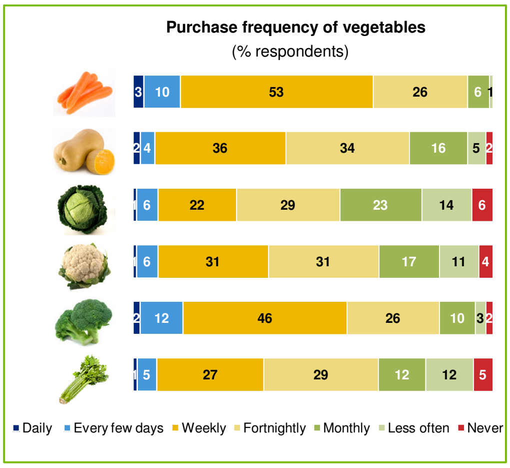
Regardless of archetype, three main factors shape the choice and frequency of vegetable purchase

Three factors influence purchase frequency with purchase frequency varying substantially across vegetables

1	What I (or the family) like	"I know I like it"
2	What size is available to purchase	"I know I can buy how much I need"
3	Habits and what's known to them (recipes)	"I know what to do with it"



Base: All respondents; Exit interviews (n=150).
Source: Exit Interviews Q4a. Which of the following best describes how often would you purchase each of the following vegetables ON AVERAGE...?

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Most consumers are "creatures of habit" with a limited vegetable repertoire which impacts the volume and variety purchased and consumed

Most shopping is pre-planned, with shopping behaviour having adapted to what's available

70%	Plan ahead what vegetables they are going to buy
74%	Are happy to buy vegetables without a specific meal in mind
95%	Leave with the vegetable they intended to purchase

Habit and familiarity

- Used to buying and eating that vegetable
- Know how to prepare and use
- The six vegetables are staples that all the family enjoy or will at least eat

"I just buy the same thing pretty much every week and then we just go what have we got? Well I'll do this, this and this...."

"I always know roughly what I need. I have a few recipes in my mind that are going to be quick and easy for the week, and I'll think what vegetables I need for them"

"Most of the time we have already planned what we're going to eat with those [vegetables]. The staples, I tend to use them whatever dish I'm cooking"

"My kids eat pretty much the same thing everyday so I just go down the list of the online shopping and go tick, tick, tick. It's the same thing. The guy must be able to pack my order without even looking"

Base: All respondents; Exit interviews (n=150). Population study (n=1522).
Source: Population study: Q1.2. Below are a list of statements other people have made about fresh vegetables and cooking generally. To what extent do you agree or disagree with each one, where 5 means you strongly agree and 1 means you strongly disagree? Exit interviews: Q2. Were there any vegetables that you intended to buy but didn't?

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Whilst the Supermarket is often the key purchase location, perceptions of quality and freshness vary

"I have a growers market in my area so usually I tend to go there because they tend to be fresher, but Coles has upped their game lately. A lot of them have been renovated I think so they've started icing and doing some interesting things with their vegetables"

"I'd be happy with pre chopped vegetables in a good quality store…like a Harris Farm or something. I wouldn't get it probably at Woolies or Coles but at somewhere like Harris Farm where you know there's a big turnover (so the food is fresh)"

"Aldi seems to stack up vegetables like groceries – I don't like that"

"I generally go to Coles just because it's easy. I just do it all in one go and I do find although it's probably not as fresh and it's not as good, it is cheaper"

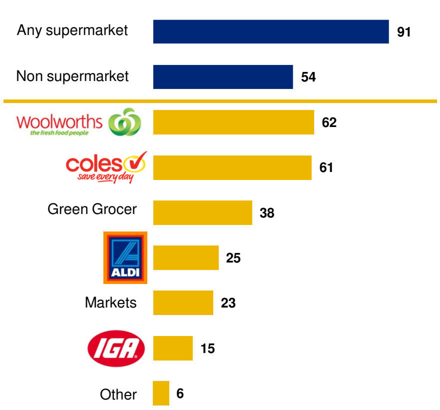
"I just find that supermarkets, whether it's for the sake of convenience for themselves, or…more and more products are coming packaged, which don't suit a certain family size and you find yourself buying too much of something and there's wastage. There's not an option to buy two carrots, you can only buy a bag full of carrots"

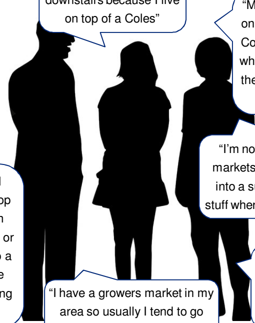
" Some Coles and Woolies are great while others are awful – we left Woolies the other day without any veggies because they all looked old and sad"

"I find the market is a lot fresher but you've got to buy in bulk, you've got to buy a tray of whatever, maybe a whole cabbage, and there's only two of us so we waste a lot if I do that. Yes the greengrocer is the freshest. I don't often find them to have quarters there though, quarters would be much more appropriate"

Source: Consumer Worksops

Implementing choice in the two major supermarkets will have the most impact for the industry





"I basically buy vegetables from downstairs because I live on top of a Coles"

"My greengrocer is actually only a few doors away from Coles, so it just depends on what time I go shopping … If the other place is closed, I'll get it at Coles"

"I'm not really one for going to markets. I would much rather go into a supermarket and buy my stuff where it's all nicely presented"

"I shop at IGA. So I normally do a big shop and get pretty much most of it every week or fortnight … I might do a bit of a top-up at the greengrocer depending on where I am"

"I have a growers market in my area so usually I tend to go there"

"I get mine delivered from a delivery online person and then I just do top ups at the supermarket"

The largest proportion of vegetable purchases occur at the supermarket; whilst most consumers prefer the idea of growers markets, the convenience of the supermarket often overrides the perceived advantages of the grower market

Base: All respondents; Population study (n=1522).
Source: Population Study Q1.1. Where do you typically purchase your fresh vegetables from?

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Once in store, vegetable selection is influenced by freshness, value and convenience

Freshness

- Looks fresh
- Looks like it will taste good
- Appears a consistent quality
- Looks like it will last until it will be used

"I'm guided by what it looks like when I get there, and by the price. So because you know you can go in and see broccoli and it's going to seed sometimes, it's been sitting there for a while, it's all wilted when you go and pick it up. It's just very soft and bendable"

Value

- Not too expensive
- Available in desired portion size(s)
- Cost is reasonable relative to what it has been and other vegetables

"With veggies if it doesn't look appealing then I won't buy it. If it's nice and fresh and it really jumps out at you then I tend to buy whatever looks fresh"

Convenience

- Easily stored in available space
- Can easily get it home
- Available in a size that will be used by the household

"Every time I go to the supermarket I look at it and I stand there and I stare and I'm like, 'Am I going to buy it? Am I going to buy it?' And I have not bought it yet, because it's too big" – Pumpkin

Base: All respondents (n=1,522).
Source: Q1.2. Below are a list of statements other people have made about fresh vegetables and cooking generally. To what extent do you agree or disagree with each one, where 5 means you strongly agree and 1 means you strongly disagree?

Certain vegetables are less convenient due to the requirement for "processing" by the consumer

Processing was required for some vegetables in order to fit them in the fridge

- Wouldn't fit in the crisper whole
- Base and leaves required removal to use
- Often chopped up and stored (sometimes in water)

"If we're having celery or carrots we will cut them up, put them in the glass tub with a bit of water in there as well, keeps them hydrated"

- Removal of the leaves
- Sometimes cut into florets to make size manageable
- Savvy customers had specialist vegetable Tupperware

"I just find it's very hard to cut. I've had cauliflower and you've got to rip those side leaves off like this then you try to chop little bits off "

- Pumpkin was hard to cut up and required patience and strength in peeling
- A whole butternut took up substantial fridge space
- Yet cutting up was not preferred until it was time to consume

"I think the only veggies I probably throw out is the pumpkin, maybe, because I can't store as easily as the others"

Source: Consumer Workshops

Freshness and value drive a strong preference for natural rather than “processed” vegetables

Despite the inconvenience, most consumers would prefer to bear the “cost” of processing themselves

Any “tampering” with the vegetable was perceived to reduce its shelf life

Additional handling was also seen to increase the cost of vegetables

“I think if you do buy celery with the base and the leaves on I think that it's going to stay fresher for longer”

“When the leaves are cut off, that's not fresh ... because it's taking the freshness away from it” – Cauliflower

“I think with anything that is in a package is usually for a quick sale. It's when you have selected yourself you know it is the freshest, and it's a little bit more expensive of course because you are picking your own selection”

Source: Consumer Workshops

Summary of Key Findings

1 Consumers are creatures of habit with a limited vegetable repertoire

2 **Purchasing behaviour has evolved to avoid waste**

3 Offering greater choice in vegetable portions will have a positive impact on consumption

4 Advice and ideas for expanding the use of vegetables will stimulate consumption

5 Consumers had varying feedback on each of the six vegetables

Consumers have an extreme aversion to vegetable wasting both rationally and emotionally

The reaction was strong but many found it hard to articulate why

Rational

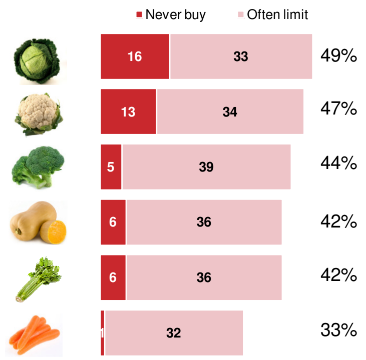
- Paying for something then not having it last (stay fresh) as long as anticipated
- Buying too much/more than is needed given only large portion sizes available
- Not knowing how to use leftovers or certain components to eliminate wastage

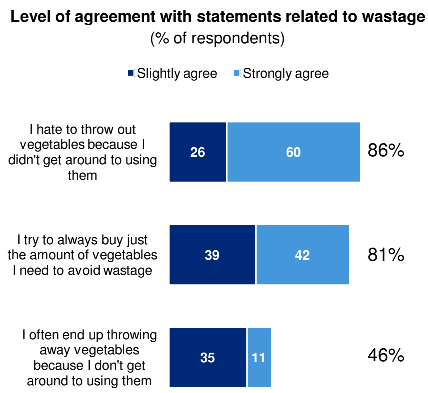
Emotional

- Story sense that they are throwing money away
- Feeling that they are being wasteful generally
- Feeling guilty that un-used food is thrown away not recycled and returned to the earth
- Knowing that elsewhere in the world there is hunger and starvation
- Not knowing alternative uses/options to minimise wastage
- Not knowing how best to store to prolong use
- A limited number had compost facilities. Those with compost facilities had less aversion to waste as the vegetable was ultimately doing some good elsewhere

Source: Consumer Workshops

Nearly half of all grocery buyers limit their purchases of vegetables due to concerns about wastage





Consumers purchase behaviour has evolved to avoid waste.
Consequently whilst there was still some wastage, most attempted to minimise it

Base: All respondents Population Study; (n=1,522).
Source: Population Study Q6. Do you ever limit your purchase of any of the following vegetables due to concerns about wasting? Q1.2. To what extent do you agree or disagree with each statement, where 5 means you strongly agree and 1 means you strongly disagree?

Consumers resent paying for what they don't expect to use

- There was a strong feeling about the natural wastage associated with processing the vegetable e.g. removing the stalk from the broccoli or taking leaves off the celery
- It felt wasteful to pay for something only to throw it away as soon as you got home
- Some had found ways to use what others throw away. This group would see lower utility in a vegetable without it
- Yet consumers did not make a conscious connection between this additional handling or removal and an increase to the price per kilo or unit
- For some reason it was seen as better value to only buy what you use
- Overall more were in favour of industry removing additional "waste" rather than doing it themselves at home
- There was a preference that industry dispose of waste in a more responsible way. Whilst some consumers had compost facilities most did not

Source: Consumer Workshops

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Offering consumers choice in vegetable portion sizes is expected to result in an overall increase in vegetable purchase

Would buy more if could change the size or amount available to purchase
(% of respondents)

Pumpkin	65%

Cabbage	60%

Cauliflower	64%

Broccoli	57%

Celery	60%

Carrots	54%

Base: All respondents; Population Study (n=1522).
Source: Population Study S5. Would you purchase more of any of the following fresh vegetables if you could change the size or the amount that was available to purchase in store?

Consumers have limited imagination for options outside of what is familiar to them

Despite being given a clean slate to suggest whatever changes they could think of, most defaulted to what they know

- In initial exit interviews many consumers said there was nothing about the six vegetables that they would change
- In workshops the ideas were limited initially and took a while to flow
- Once the options were explored, most ideas were things they'd either seen in shops elsewhere or heard about from friends
- Because behaviour had been shaped by what was available, many had evolved their shopping habits and didn't see a need for change
- The practicalities for retailers were a strong consideration, with strong awareness of the cost to make a change

"Nothing, they are already varied in sizes so I can choose the size I want" – Broccoli

"Already have loose and bagged - comes in different ways to buy" – Cauliflower

"With carrots it's probably best if they're all loose anyway because that way anyone can buy whatever they want whatever length they want, as many as they do or don't want"

Source: Consumer Workshops

Once stimulated consumers had a range of ideas to increase overall appeal

"I'd be happy if they could break up little florets (of cauliflower) and have a big bin like they do the mixed lettuce and you could just take as much as you want and you're not getting all the leaves and the hard stuff either"

"Our Woolies actually had farmers in the store and you could talk to them. You could taste whatever it was that they produced, be it a carrot or celery or whatever"

"Maybe if I had half broccoli and half cauliflower, because sometimes I like to get some of both. If I get one I sort of like to get the other, but I'm not going to eat that big bunch, and I'm not going to eat that big bunch, so if I had one and they were sort of wrapped together"

"They could have someone in the vegetable section actually cutting stuff for you if you wanted. I wouldn't even have a clue about how to cut a pumpkin"

"There's a lot out there about your fruit and veggies and you have to eat so many a day, but really why? Why not give people an understanding as to the benefits"

"In shop demonstration would be really good if you saw a recipe like cabbage stir fry or something and then you were like oh that tastes really nice, you saw it was easy to make, then I think I would be inclined to do that"

"With broccoli we usually have it in stir fries, so if you had like a stir fry counter at the fruit place, everything chopped up so you can just pick broccoli, pick cauliflower, pick chopped up carrot, pick bean sprouts..and so on"

"You know what I'd love? I'd absolutely love a greengrocer to do what some of the butchers do. You can say here's my pumpkin can you chop it for me?"

"People don't have time to think 'what else can I do with this rather than waste it?', because that does take some effort to say 'okay I'll use the leaves in my salad', whatever to think of alternate uses, so you end up wasting it"

- In store demonstrations
- Vegetable butcher
- Farmers in store
- Vegetable stir-fry bin
- Understanding of the benefits

Source: Consumer Workshops

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A range of portion ideas and vegetable options were proposed by consumers

					
Pumpkin	**Cauliflower**	**Carrots**	**Cabbage**	**Celery**	**Broccoli**
Smaller whole pumpkin Sold in quarters Pre-peeled and cut into serving size portions Pre-peeled and cut as wedges New variant which is "easy to peel" New variant which has fewer seeds "Deli-Counter" - Cut and prepared to order in store after selection	Smaller Whole Cauliflower (approximately one quarter current size) Sold in Quarters Sold as floret's (loose or in a punnet) Sold Half/half with Broccoli "Deli Counter" - Cut and prepared to order in store after selection	Sold in julienne strips for salads and stir fry's Bite Size/Kids size for school and dips Pre-packaged with other vegetables/ready to use	Smaller Whole Cabbage (approximately one quarter current size) Sold in halves and quarters Pre-shredded for coleslaw or stir fry Pre-packaged with other stir fry vegetables "Deli Counter" -Cut and prepared to order in store after selection	Smaller Whole Celery (approximately half the current height/size) Sold in quarter bunches Sell individual stalks loose New variant which is less stringy	Sold as florets (loose or in a punnet) Sold Half/half with Cauliflower New variant with less stalk

Source: Consumer Workshops

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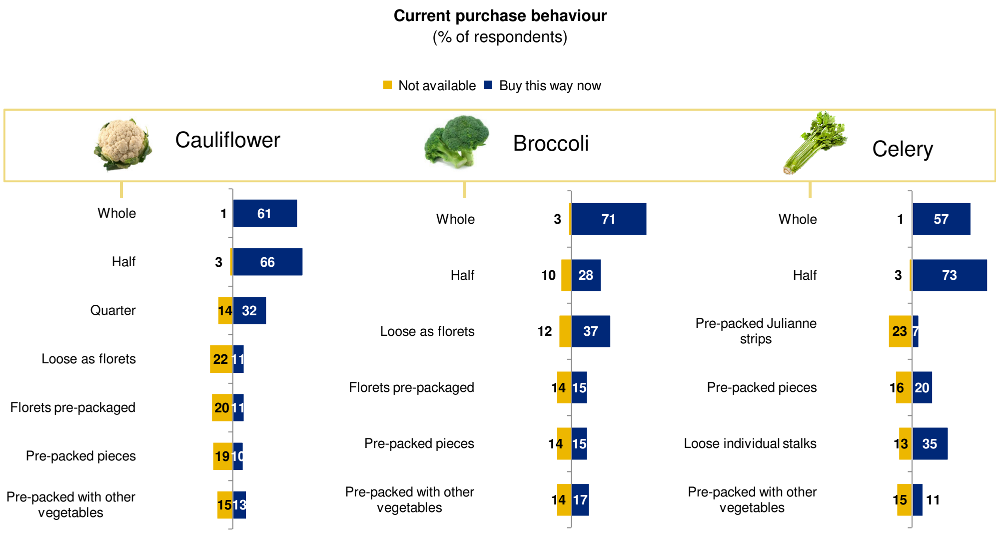
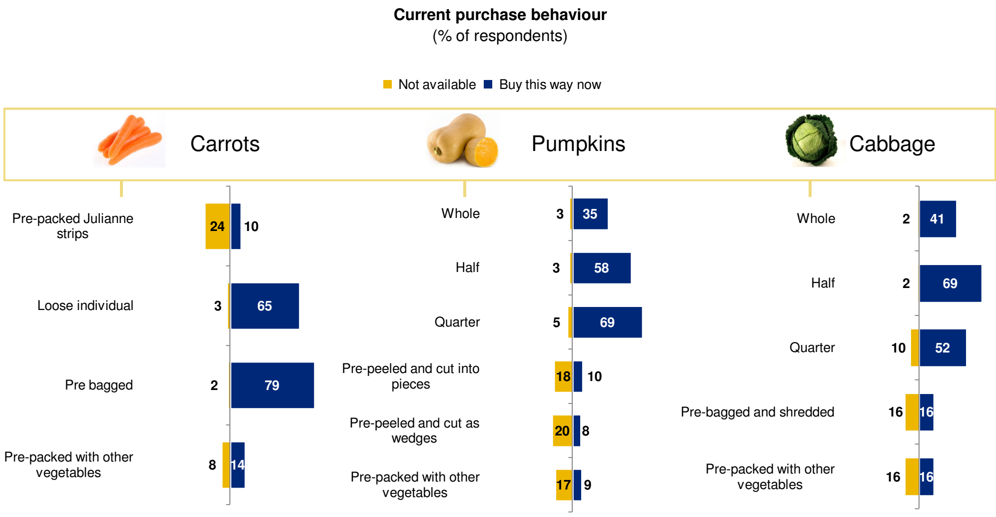
When tested many consumers are already well served by available portion sizes
(1 of 2)



Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q2.3. How do you currently purchase the following vegetables? Q2.4. Assuming that vegetables were available in all the following options, how would you purchase them? Please assume that the size was similar value for money to what is available now.

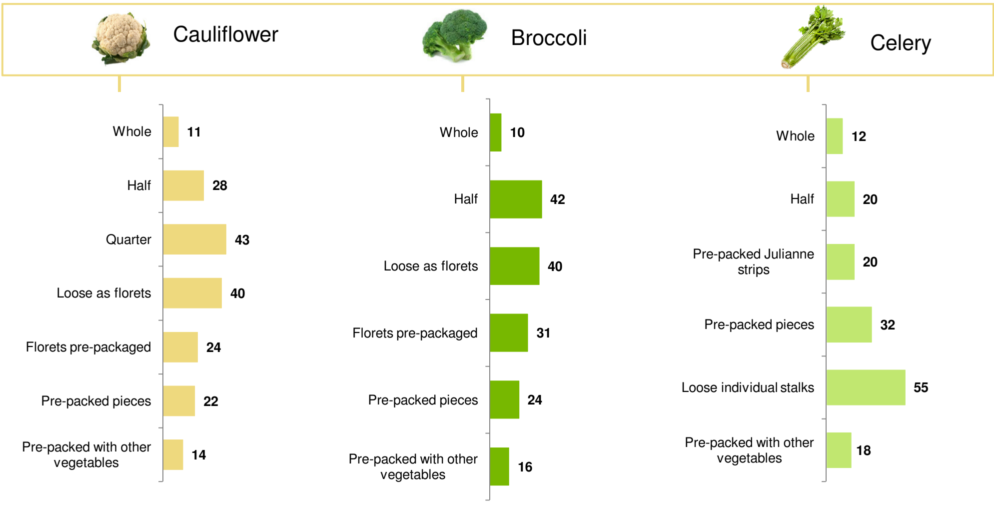
When tested many consumers are already well served by available portion sizes
(2 of 2)



Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q2.3. How do you currently purchase the following vegetables? Q2.4. Assuming that vegetables were available in all the following options, how would you purchase them? Please assume that the size was similar value for money to what is available now.

There was strong demand for alternative options amongst those that don't currently buy (1 of 2)

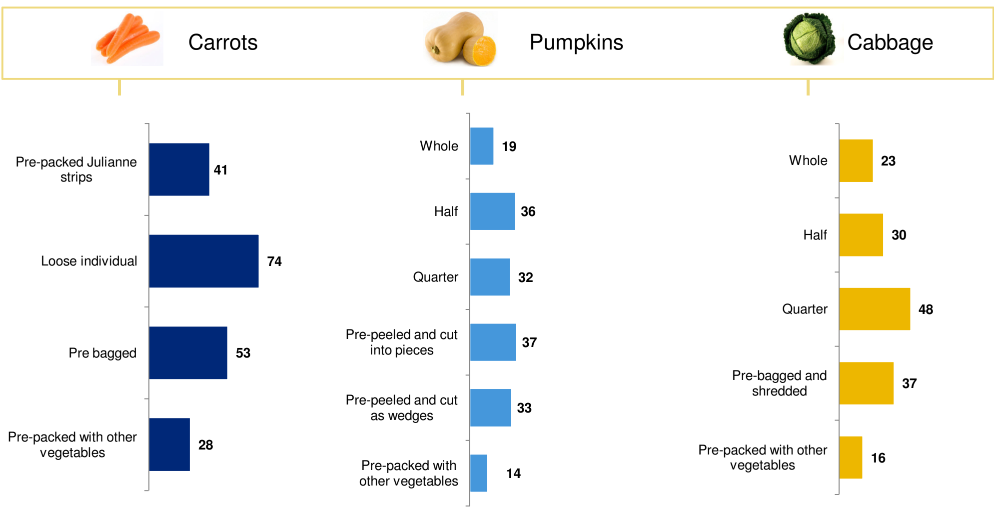
Current purchase behaviour
(% of respondents who don't buy currently)



Base: All respondents; Population Study (n=1522); Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q2.4. Assuming that vegetables were available in all the following options, how would you purchase them? Please assume that the size was similar value for money to what is available now.

There was strong demand for alternative options amongst those that don't currently buy (2 of 2)

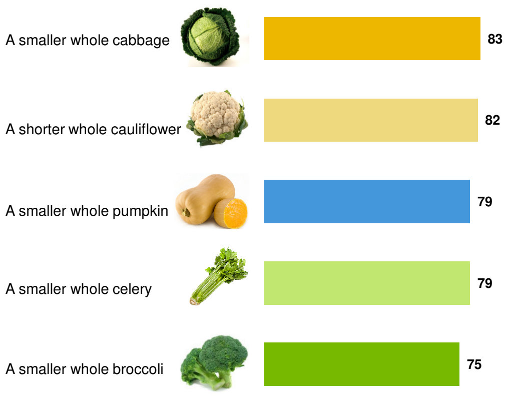
Current purchase behaviour
(% of respondents who don't buy currently)



Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760).
Source: Population Study Q2.4. Assuming that vegetables were available in all the following options, how would you purchase them? Please assume that the size was similar value for money to what is available now.

There was across the board interest in purchasing smaller versions of existing vegetable options

Would you be interested in purchasing...?
(% of respondents)



- Most didn't realise it was possible to make vegetables smaller without interfering with the genetics
- Making the vegetable smaller was better than cutting into halves, quarters or pieces as it avoided the loss of freshness associated with cutting or "tampering"
- Smaller versions were also considered more gourmet and exciting

"Grow them smaller would be a good idea"
– Cauliflower

"Could they be grown smaller?"
– Celery

Base: All respondents; Population Study (n=1522).
Source: Population Study Q2.5. Would you be interested in purchasing?

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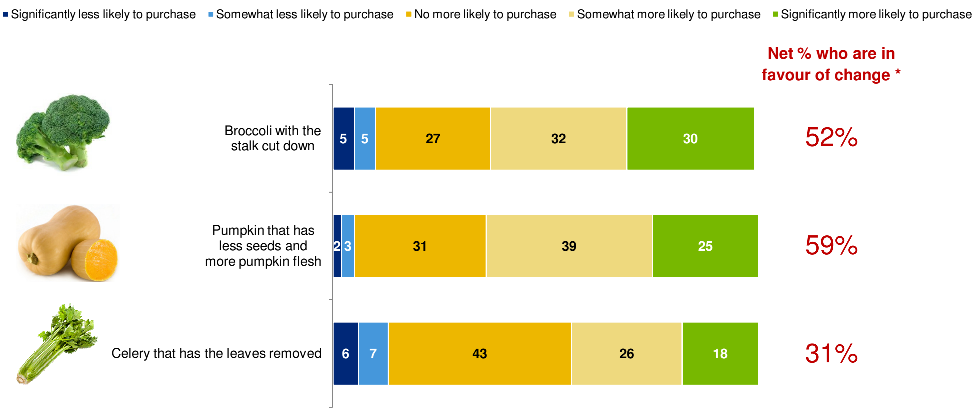
Removing the "extras" will stimulate overall purchase

Impact on purchase behaviour if choices were made available
(% of respondents)



*Note: Difference between somewhat more like to purchase and significantly more likely to purchase, and somewhat unlikely to purchase and significantly less likely to purchase
Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q3.3. How likely are you to purchase the following vegetables in comparison to the vegetables you purchase now?

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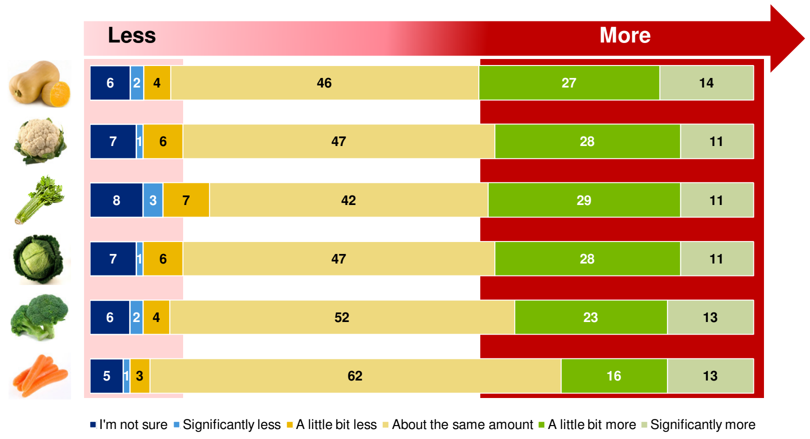
Offering the preferred choices would result in an uplift in overall purchase volumes

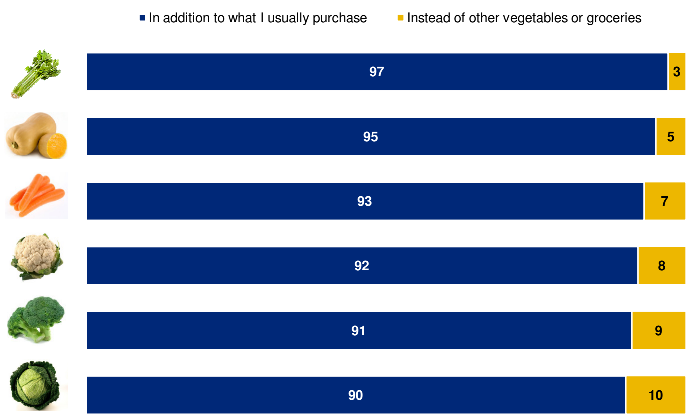
Impact on purchase behaviour if choices were made available
(% respondents)



Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q2.6. Assuming the options you selected previously were available, overall do you think you would purchase more or less of this vegetable than you do now?

The expected increase in demand is in addition to what is usually purchased

Purchasing more instead of or in addition to
(% of respondents who would increase purchase)



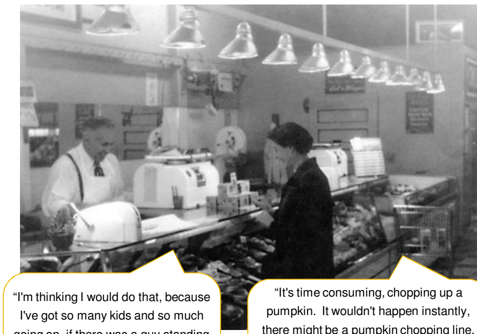
Very few consumers claimed they would purchase fewer other fresh vegetables as a result of any changes

Base: All respondents; Population Study (n=1522); Carrots (n=220), Pumpkin (n=321), Cabbage (n=298), Cauliflower (n=340), Broccoli (n=272), Celery (n=306).
Source: Population Study Q2.7. You mentioned earlier that you would purchase more of the following vegetables. Would you purchase more?

The idea of a vegetable "butcher" captured the imagination of consumers in workshops

There was nostalgia to old days and good old fashioned customer service

- This service was assumed to be delivered by a man. It was assumed a man had the strength to cut through the large vegetables
- This idea resonated most for pumpkins which required strength to cut and peel. Older people in particular were seen to benefit from this service. It was recognised that they may avoid eating due to the difficulty in cutting
- Whilst there was recognition that this would cost retailers and that therefore the consumer would have to pay, if the cost was acceptable, most were warm to it
- The inconvenience of waiting was raised as a major challenge. The ability to leave the vegetables at the counter and come back later to collect them strengthened the overall appeal



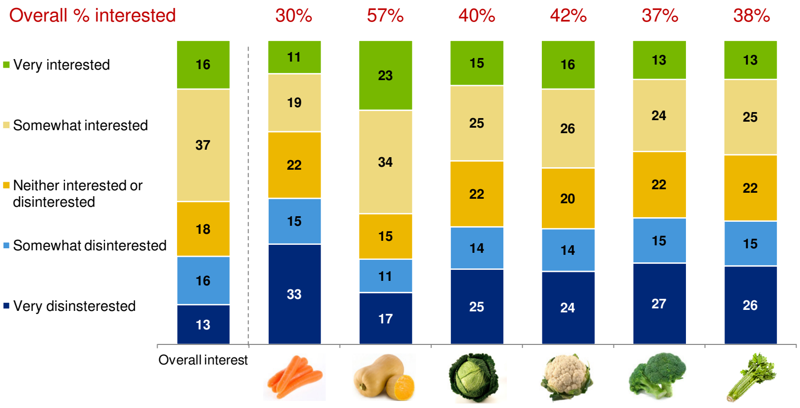
"I'm thinking I would do that, because I've got so many kids and so much going on, if there was a guy standing there saying pay me an extra dollar and I'll chop your pumpkin for you, I would be over like a shot"

"It's time consuming, chopping up a pumpkin. It wouldn't happen instantly, there might be a pumpkin chopping line. Take a number. Leave your pumpkin and then go back. Oh yes that would be good"

Source: Consumer Workshops

When tested across the wider population there is moderate interest in the idea of a vegetable butcher, with interest strongest for pumpkin

Interest in a the idea of a "butcher" for vegetables
(% of respondents)



The idea of a vegetable butcher had slightly more appeal to people in shared households

Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q3.1. An idea people have suggested is having a person in store standing by to cut/prepare your vegetables after you have selected them. How interested would you be in using this service? Q3.2. And how would you rate your interest in using this service for each of the following vegetables?

Summary of Key Findings

1 Consumers are creatures of habit with a limited vegetable repertoire

2 Purchasing behaviour has evolved to avoid waste

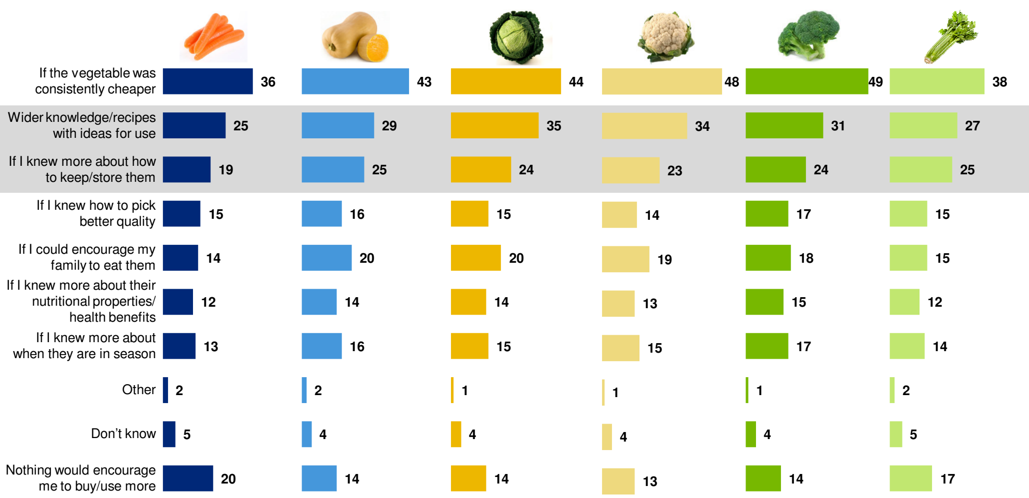
3 Offering greater choice in vegetable portions will have a positive impact on consumption

4 Advice and ideas for expanding the use of vegetables will stimulate consumption

5 Consumers had varying feedback on each of the six vegetables

Whilst price is always an important factor, an opportunity exists to drive growth in consumption through education

Reason to purchase more often (other than portion sizes)
(% of respondents)



Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q2.9. Aside from different portion sizes, what else might encourage you to purchase the following vegetables more often?

Most consumers had a fairly standard set of recipes that they used the six vegetables in

Typical recipes vegetables used in

- Roast
- Mash
- Soups
- Fries
- Salads
- Pie
- Scones

- Salads
- Stir-fry
- Steamed
- Coleslaw
- Cabbage rolls

- Cauliflower cheese
- Cauliflower soup
- Steamed
- Stir-fry
- Boiled
- Cauliflower rice
- Fries

- Steamed
- Boiled
- Stir-fry

- Salads
- Soups
- Stir-fry
- Raw with dip
- Chicken stock

- Raw with dip
- Grated in sandwiches
- Roasted
- Steamed
- Soup
- Salads
- Stir-fry
- Casseroles

Source: Consumer Workshops

There was strong interest in readily accessible material on how to make vegetables more interesting

- Reality TV shows such as Masterchef were widely credited with stimulating on interest in cooking
- Consumers became very animated with unusual recipe ideas
- At points during workshops consumers were swapping recipe ideas
- In store information on recipe ideas was widely cited as something that will help
- Tastings in the supermarket were also proposed

84%*	Would be open to learning different ways to use vegetables in cooking
58%*	Would purchase more vegetables if they know more ways to use them

"If you're talking about selling points, quite often those recipe suggestions, they do make you buy different food, if it's a very simple, if you're not a cook and you're looking at the card"

"I was just sharing my recipe, which is basically German, which is the cabbage, the onion, bacon and chilli"

"I think the recipe card ideas are great, they inspire people to buy different things"

Note: *Agree or strongly agree
Base: All respondents; Population Study (n=1522)
Source: Population Study Q1.2. Below are a list of statements other people have made about fresh vegetables and cooking generally. To what extent do you agree or disagree with each one, where 5 means you strongly agree and 1 means you strongly disagree?

Consumption of cauliflower and cabbage in particular will benefit from marketing to overcome negative perceptions of taste, utility and nutritional value

These two vegetables in particular were seen as boring and old fashioned

"There seems to be a lot of cooking stuff going on and advertisements with how to cook things. I think out of all these vegetables whenever I have cabbage in my fridge it's like what do I do with it?"

"I think (cauliflower) is one of those vegetables that are not really on my radar. I don't really pay attention to it"

"For me (cabbage) is an old man's vegetable. I don't know if that's a horrible thing to say but I don't know, not that there's anything wrong with that but it seems like something they would have eaten in the old days"

"I associate them (cauliflower and cabbage) with something that old people would eat"

"Well you have to tell people what the rewards of eating it are because people think okay well I know that carrots are good, I know that broccoli has a lot of nutrients and I know that sweet potatoes or yams are becoming one of those foods that everybody says oh they're really good to eat. So what rewards does cabbage or cauliflower have?"

"I would just say put more ideas about how to cook them and stuff. I would buy more of them if I had more ideas of what to cook them in within the week, instead of just making the same meals"

Source: Consumer Workshops

Summary of Key Findings

1 Consumers are creatures of habit with a limited vegetable repertoire

2 Purchasing behaviour has evolved to avoid waste

3 Offering greater choice in vegetable portions will have a positive impact on consumption

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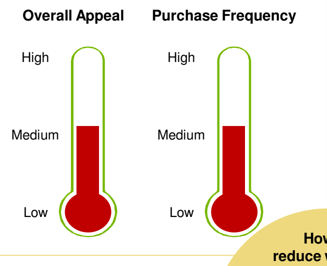
5 Consumers had varying feedback on each of the six vegetables

Cauliflower overview

Image
- Old-fashioned
- Outdated



Factors liked
- ✓ Easy to cook
- ✓ Traditional (cauliflower cheese)
- ✓ Adds variety to vegetable selection

Factors disliked
- ✗ Portion sizes too large
- ✗ Heavy to carry
- ✗ Space needed to store
- ✗ Limited shelf life (goes brown)
- ✗ Not versatile (limited uses when cooking)
- ✗ Taste quite bland

How to reduce wastage
- Make available in smaller portion sizes (half and quarter)
- Promote alternative ways of preparing/serving

Opportunities to increase consumption
- Promote nutritional value
- Make available in smaller portion sizes
- Educate consumer on range of ways to prepare
- Build perceptions of versatility
- Offer smaller whole cauliflower (one quarter current size)
- Sell packaged with broccoli
- Sell as florets – loose or in punnet

"I think (cauliflower) is one of those vegetables that are not really on my radar. I don't really pay attention to it"

"I would buy a small one or florets that have already been prepared. For me because there's only two of us that eat it I could buy a small handful for one meal and then I wouldn't be wasting it"

"Things like cauliflower, for example, I like it but I don't overly like it and there's not that many things I can do with it, so I don't want to buy a whole one, and quite often they haven't got it in half, so I just don't buy it"

"I associate them (cauliflower and cabbage) with something that old people would eat or I don't know how to cook them"

"Beyond Cauliflower Cheese what do I do with it?"

"I'd buy more (cauliflower) if it was in smaller sizes for sure"

Source: Consumer Workshops

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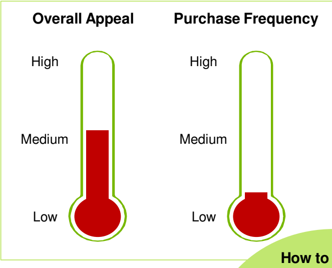
Celery overview

Image
- For snacking
- Non-essential



Factors liked
- ✓ Low calorie
- ✓ Good snack food
- ✓ Good for parties

Factors disliked
- ✗ Usually sold in large bunches
- ✗ Half bunch too big for most households
- ✗ Can go limp quickly if not stored correctly
- ✗ Stringy
- ✗ Bland flavour
- ✗ Too big for shopping bag
- ✗ Too big for crisper

How to reduce wastage
- Sell in smaller portion sizes (quarter bunch or by the stick)
- Educate consumer on how to use all components (e.g. leaves)
- Educate consumer on how to store to prolong freshness

Opportunities to increase consumption
- Offer smaller (shorter) whole celery
- Make available a less stringy, cleaner-bite version
- Promote nutritional value
- Promote versatility

"The thing is with celery is I find that you can buy it in a full bunch or half bunch but even a half bunch is massive. In a soup I'll put one stalk or sometimes two stalks but then what do you do with the rest?"

"If you're trying to tempt me to eat more celery you would cut everything off, cut the base and offer it to me in a nice little container already cut into sticks about that long without having to wash and I would want to eat it"

"Stringiness is definitely a problem for me, strings annoy me…They get stuck in your teeth as well. It's like flossing with massive floss"

"Celery would be better if it was sold in a zip bag or a sold in a re-sealable bag that was made for storage/freshness"

"I don't eat my celery because I'm too lazy, I've got to chop it to make it fit in the fridge crisper"

"I'd probably buy a half bunch or something, if there was dip with it. The equivalent of a half bunch if it was already cut up in stalks"

Source: Consumer Workshops

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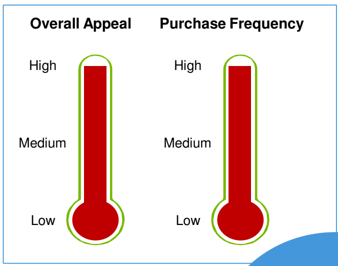
Pumpkin overview

Image
- Popular
- Family friendly



Factors liked
- ✓ Taste
- ✓ Liked by whole family
- ✓ Range of types
- ✓ Long shelf life

Factors disliked
- ✗ Portion sizes too large
- ✗ Heavy to carry
- ✗ Difficult to peel
- ✗ Too many seeds
- ✗ Time taken to cook

How to reduce wastage
- Sell in smaller portion sizes
- Educate consumer on additional ways to prepare
- Make consumers aware that skin can be eaten on some variants

"There is a lot of variety of pumpkins I find. You can get big pieces and whole ones and then you get little baby ones and there's a lot of different types of variety. It keeps well"

"I love pumpkin. It's one of those vegetables where you can get as much or as little as you want. "

"You know what I'd love? I'd absolutely love a greengrocer to do what some of the butchers do. You can say here's my pumpkin can you chop it for me?"

"My wife won't peel the pumpkin , she's afraid she'll lose her fingers"

"Because people know what to use it for. It has a better taste I think. You can put it in more recipes and actually it will flavour things. It's more versatile"

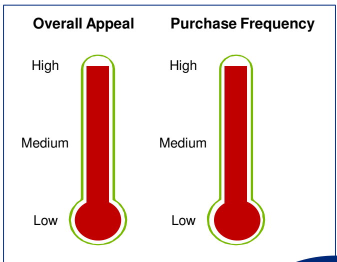
"I cook it with the skin on if I'm roasting it – my Mum thinks you should eat the skin but I'm not sure"

Opportunities to increase consumption
- Make available in smaller portion sizes (halves and quarters)
- Develop and make available an easy-peel version with fewer seeds
- Offer pre-cut and pre-peeled in serving size portions
- Offer via deli-counter cut and prepared to order after selection

Source: Consumer Workshops

Carrot overview

Image
- Popular
- Versatile



Factors liked
- ✓ Taste
- ✓ Liked by whole family
- ✓ Versatile
- ✓ Good for you (vision)
- ✓ Easy to prepare
- ✓ Can eat raw or cooked
- ✓ Good value

Factors disliked
- ✗ Sometimes quality/freshness issues
- ✗ Inconsistent sizing within pre-packaged bags
- ✗ Often only available in a bag

How to reduce wastage
- Offer loose (consistently)
- Provide advice on storage

"My daughter loves carrots. She'll have it in anything so I just use it in whatever I'm making"

"You can cook them in a variety of ways: bakes, stews, all sorts"

"When my kids were younger a big bag of those baby carrots was always a staple as a snack – kids love raw carrots"

"My mother always said "eat your carrots, it will help you, you won't need to wear glasses"

"Sometimes in those pre packaged bags they are all different sizes and thicknesses which I don't like"

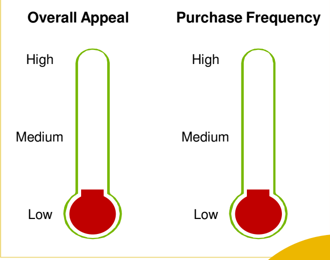
"Those orange tinged plastic bags they sell them in seem to keep them fresher longer"

Opportunities to increase consumption
- Sell in bite size/kids size ready to eat
- Offer in julienne strips for salads and stir-fry's
- Sell pre-packaged with other vegetable mixes ready to use
- Merchandise with dips

Cabbage overview

Image

- Old school
- Bland



Factors liked

- ✓ Can eat cooked or raw
- ✓ Easy to prepare-cook

Factors disliked

- ✗ Portion sizes too large
- ✗ Heavy to carry
- ✗ Space needed to store
- ✗ Bland flavour
- ✗ Limited versatility

How to reduce wastage

- Sell in smaller portion sizes (half or quarter)
- Educate on additional/alternative uses
- Educate consumers on proper storage to maintain freshness

“For me (cabbage) is an old man's vegetable. I don't know if that's a horrible thing to say but I don't know, not that there's anything wrong with that but it seems like something they would have eaten in the old days”

“I'd buy little whole ones if they were available....all the goodness and minimal wastage”

“They're so massive. There's no need for them to be that big. They're bigger than a soccer ball sometimes”

“There seems to be a lot of cooking stuff going on and advertisements with how to cook things. I think out of all these vegetables whenever I have cabbage in my fridge it's like what do I do with it?”

“When I was growing up my parents would serve cabbage every now and again, but it is quite bitter and flavourless so I'd want to know how to cook it”

Opportunities to increase consumption

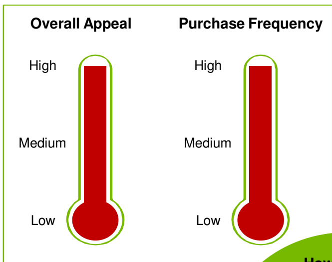
- Promote nutritional value
- Promote versatility
- Offer smaller whole cabbages (one quarter current size)
- Offer pre-shredded for coleslaw or stir-fry
- Offer pre-shredded and packed with other stir-fry or salad vegetables
- Offer via deli-counter – cut and prepared to order after selection

Source: Consumer Workshops

Broccoli overview

Image

- Family favourite
- Modern



Factors liked

- ✓ Taste
- ✓ Versatility
- ✓ Family friendly

Factors disliked

- ✗ Fragile (florets)
- ✗ Stalks can be long and thick
- ✗ Stalks increase cost given weight
- ✗ Stalk taste and lack of uses

How to reduce wastage

- Educate consumers on how to use all components (e.g. stalks)
- Educate consumers on proper storage to maintain freshness

“When I buy broccoli I will feel the weight of it, and I look at what, like the head and I feel the weight, and if the stalk is really heavy I won't buy it for that simple reason, because you're chopping it off and you're not using it”

“I would buy it more if I could buy a smaller piece. Even the smallest pieces that I've found are still too big for what I need it for”

“Broccoli is multi-purpose. People use it for lots of things, whereas cabbage we have one dish, that's all it's used for”

“Broccoli is a firm favourite with the kids. The whole family loves it steamed or in stir frys”

“As far as available sizes go, broccoli is very versatile. The only thing I get annoyed with are the long stalks which you pay for (by weight) but don't eat”

Opportunities to increase consumption

- Sell as florets (loose by the kilo or pre-packaged in a punnet)
- Sell pre-packaged with cauliflower
- Develop new variant with less stalk (or remove stalk at point of sale)

Source: Consumer Workshops

Contents

Implications for moving forward (1 of 3)

1 Any proposed changes should be given plenty of time before their success is assessed

Consumers are such creatures of habit and have evolved their shopping behaviour to what is available to them now. They mostly pre-plan what they are going to buy, and enter the shopping environment with a clear idea of what they will select. Consequently it make take time for them to notice any changes to available vegetable options. Even once noticed, they will take time to adapt to the alternative uses.

2 Industry should consider removal of extraneous product weight to increase perceptions of value

There is an inherent aversion to wastage in any form. When paying by the kilo consumers are extremely sensitive to the fact that they are often paying for something that is thrown away. Removing the extraneous vegetable matter, but increasing the per kilo price will increase consumer perceptions of value for money.

Consumers also consider that industry are better placed to responsibly dispose of wastage in a more productive way.

Source: Consumer Workshops

Implications for moving forward (2 of 3)

3 Retailers will benefit from offering a few more fairly basic portion choices

Consumer's preferences for portion options are fairly basic, with most wanting the product in its natural form. Household structure and taste preferences impacted consumption, with some vegetables simply not bought because they were too big. There was a widespread reluctance for too much tampering and packaging of vegetables, with this seen to adversely impact cost and freshness. Offering more options will positively increase overall consumption.

4 Smaller versions of virtually all tested vegetables have universal appeal

For the most part the reluctance to purchase the six tested vegetables was driven by the size. All vegetables were appealing to most consumers, with the size of some being a substantial barrier. Offering small versions of all vegetables was appealing and is expected to increase overall consumption.

Implications for moving forward (3 of 3)

5 There is appetite for greater inspiration and education about how to store and prepare vegetables

Most consumers are creatures of habit with a very limited repertoire of vegetable recipes. Some vegetables, particularly cauliflower and cabbage, suffered from negative perceptions as to their nutritional content and desirability. There was a high level of interest in information on how to prepare the six vegetables in more exciting and engaging ways.

Many consumers were unaware of how best to store vegetables to maximise their life and freshness.

Storage of vegetables was a less exciting topic, and would have more impact if coupled with recipe ideas.

Appendix 4:

Stage 6 Presentation for Industry

Project Optimum Vegetable Portion Size

Research to determine optimum portion sizes for six Australian vegetables

Results from consumer research

(Project VG12094)

Prepared for the Vegetable Industry

By Georgina Woodley, Tracy Sheridan and Rose Pipicella

28 March 2014

bdrc jones donald

HAL Horticulture Australia AUSVEG **strategy** *partners*

Industry is looking to **increase the purchase** of vegetables

It is believed that anticipated wastage is a significant barrier

Research was sought to explore the **potential for optimising portion sizes** as a strategy to drive increased purchase

We're here to **share the findings** so far and look at the pathway forward

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This presentation contains five parts

1. The consumer aversion to waste presents substantial opportunity for industry
2. A preference for vegetables in their natural state presents an opportunity for ‘smaller’
3. There are a range of non portion initiatives that will increase vegetable utility and consumption
4. Offering a greater range of portion options will increase overall vegetable purchase
5. There are a number of implications for industry in moving forward

Six vegetables were assessed for individual size and potential packaging

Expected benefits

1. Increased value of crops
2. Improved convenience for consumers
3. Reduced wastage
4. An increase in overall consumption

It was expected there would be more than one definition of ‘optimum’

The results are sufficiently clear to support industry implementation or trial

This report contains the findings from 5 stages of 7 stage program

1	**Industry immersion** crystallised objectives
2	**In-store exit interviews** captured decision making
3	**Consumer workshops** generated portion ideas
4	**Industry and retailer liaison** stress tested portion ideas
5	**Population study** measured expected impact of changes
6	**Market trial** will test take up of new portion options
7	**Communications to industry** will support implementation

n=150 in-store interviews

10 x 2 hour consumer workshops

n=1,522 online interviews

Multiple stages of consumer feedback have pointed to the same conclusions

Exit interviews: n=150 x 5 minute in store exit interviews across six locations in NSW, VIC and QLD (July 2013).Consumer workshops: n=10 x 2 hour consumer workshops with customers who limit vegetable purchases, across NSW, VIC and QLD (August 2013).Population Study: n=1522 x 10 minute online interviews with main grocery buyers who limit vegetable purchases across Australia (October 2013). Participant screening across all three stages: limit purchase of 1 or more vegetables due to concerns about wastage.

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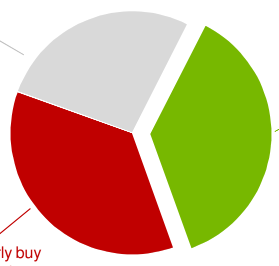
4 out of 10 main grocery buyers would buy more if alternative options were available

Vegetable buying behaviour amongst main grocery buyers
(% of adult main grocery buyer population)



Results reflect the views of this 'vegetable opportunity' segment

Source: S3. What is your role in purchasing groceries for your household? S4. Which of the following fresh vegetables do you regularly buy? By 'regularly' we mean monthly or more frequently. By 'fresh' we mean not canned or frozen. S5. Would you purchase more of any of the following fresh vegetables if you could change the size or the amount that was available to purchase in store?

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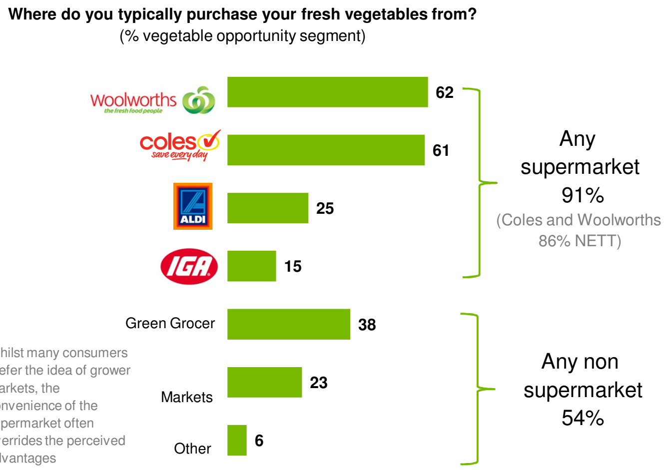
9 out of 10 vegetable purchases occur at the supermarket

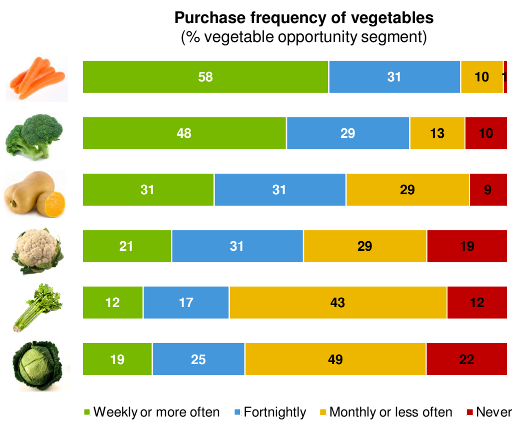


Supermarkets have the most power to influence change

Whilst many consumers prefer the idea of grower markets, the convenience of the supermarket often overrides the perceived advantages

Note: *Any supermarket includes Coles, Woolworths, IGA and Aldi. **Non supermarket includes Markets, Green Grocer and Other.
Base: All respondents; Population study (n=1522).
Source: Population Study Q1.1. Where do you typically purchase your fresh vegetables from?

Consumers are regularly purchasing most of the six vegetables



Carrots popular and versatile

Broccoli family favourite and modern

Pumpkin popular and family friendly

Cauliflower old-fashioned and cumbersome

Celery best for snacking but non-essential

Cabbage 'old-school' and bland

Base: All respondents; Exit interviews (n=150).
Source: Exit Interviews Q4a. Which of the following best describes how often would you purchase each of the following vegetables ON AVERAGE...?

Most shopping behaviour is habitual, driven in part by what is available

Drivers of shopping behaviour

1	What I (or the family) like	"I know I like it"
2	Habits and what's known	"I know what to do with it"
3	What size is available	"I know I can buy how much I need"

"I just buy the same thing pretty much every week and then we just go what have we got? Well I'll do this, this and this...."

"I always know roughly what I need. I have a few recipes in my mind that are going to be quick and easy for the week, and I'll think what vegetables I need for them"

"Most of the time we have already planned what we're going to eat with those [vegetables]. The staples, I tend to use them whatever dish I'm cooking"

"My kids eat pretty much the same thing everyday so I just go down the list of the online shopping and go tick, tick, tick. It's the same thing. The guy must be able to pack my order without even looking"

Most shopping is pre planned with 70% planning ahead what vegetables they are going to buy, and 95% leaving with the vegetable they intended to purchase

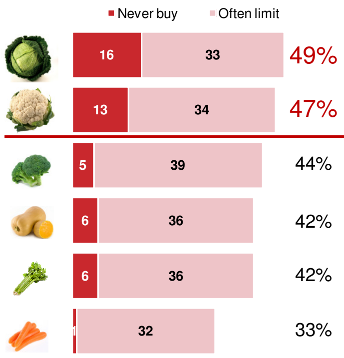
Base: All respondents; Population study (n=1522).
Source: Population study: Q1.2. Below are a list of statements other people have made about fresh vegetables and cooking generally. To what extent do you agree or disagree with each one, where 5 means you strongly agree and 1 means you strongly disagree?

Shopping behaviour across the six vegetables has adapted to avoid waste

Purchase of all six vegetables is limited due to concerns about wastage

Most (81%) try to buy just the right amount for their needs

Limit vegetable purchase due to concerns about wastage
(% vegetable opportunity segment)



Cauliflower and cabbage in particular are just too big for many households

"If there was only a whole cauliflower ... I'd go without it because I'd think there's no point and it takes up so much room in the fridge"

"I am the only one in the family that loves it so, you know, to buy a whole cabbage I have got to eat it for about a week otherwise it will go off"

Base: All respondents Exit Interviews; (n= 150), Population Study; (n=1,522).
Source: Exit Interviews Q6. Do you ever limit your purchase of any of the following vegetables due to concerns about wasting? Population Study Q1.2. To what extent do you agree or disagree with each statement, where 5 means you strongly agree and 1 means you strongly disagree?

There is strong resentment towards paying for what won't be used

The aversion to waste was both rational and emotional

- The idea of waste evoked a strong emotional reaction, but most had difficulty articulating why
- High levels of guilt at wasting money were evident, regardless of absolute value
- This was exacerbated for vegetables sold on weight versus per unit
- Those with compost or animals were less concerned as at least it was being used

"You may as well just throw $10 in the bin while you're at it with the wastage"

"It always upsets me, waste. I don't want to waste anything, really. Especially when you've spent good money on it"

Many consumers would rather pay more per kilo if it meant they wasted less

Source: Consumer Workshops
Base: All respondents Population Study; (n=1,522).
Source: Population Study Q6. Do you ever limit your purchase of any of the following vegetables due to concerns about wasting?
Q1.2. To what extent do you agree or disagree with each statement, where 5 means you strongly agree and 1 means you strongly disagree?

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This presentation contains five parts

1 The consumer aversion to waste presents substantial opportunity for industry

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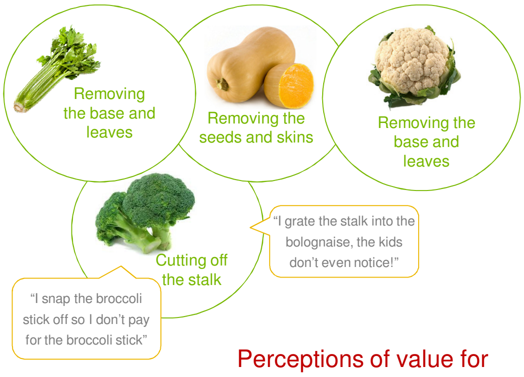
There is a natural level of wastage due to the way some vegetables are structured

Once home, certain vegetables had to be 'processed' to fit in the fridge

- Consumers hated buying the 'useless' part, but equally hated throwing it away
- As a result, some felt 'ripped off' because they didn't know how to use it
- This resulted in some in-store tampering to avoid paying for what was not used e.g. Broccoli
- Others had found uses for those parts of the vegetable



Perceptions of value for money were impacted by the degee to which 'waste' was seen to have a use

Source: Consumer Workshops

Any industry 'processing' enhancing convenience came at the expense of freshness and overall value

Freshness

- Once cut into halves, quarters or pieces there was an inevitable loss of freshness
- Packaged vegetables were perceived by many as the retailer looking to gain a 'quick sale' for older produce

Value

- Additional handling was seen to increase the cost of the vegetables
- Positively consumers recognised the size would then be suitable for the amount that will be used for the household and vegetable would be used instead of exceeding 'fridge life' and being thrown away

Convenience

- For some vegetables processing made them easier to transport from the supermarket to home
- It was also easier to store e.g. celery that fits into the crisper without cutting

On balance, most consumers preferred to do any 'processing' themselves

Consumers are captivated by the idea that certain vegetables could be smaller

It enhanced convenience and value without compromising freshness

- Most didn't realise it was possible to make vegetables smaller without interfering with the genetics
- Smaller versions were also considered more gourmet and exciting
- There was strong demand for smaller whole vegetables across all six that were tested, with interest ranging from 75% - 83% depending on the vegetable

Base: All respondents; Population Study (n=1522).
Source: Population Study Q2.5. Would you be interested in purchasing?

onald

Offering smaller vegetables provides numerous advantages[1] across the supply chain

	Consumers	Retailers	Growers
Meets consumer needs due to better match of use to purchase, increasing freshness and convenience	✓	✓ Perception of retailer freshness	✓ Drives consumption in the long term
Picking at an earlier stage means less exposure to the sun which reduces creaminess and increases visual appeal	✓	✓	✓
Allows growers to fit more to a crate, reducing the cost of supply and allowing for innovation of product	✓	✓	✓

[1]Benefits articulated are for cauliflower in particular

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Consumers would welcome greater inspiration on how to use vegetables

Many consumers were 'bored' with their vegetable repertoire

- Across workshops the same old recipes were cited
- Consumers became animated with the exchange of new ideas
- Shows such as MasterChef were an inspiration for many
- Yet an inherent laziness to source themselves meant they were looking for it to be easy

84% Would be open to learning different ways to use vegetables in cooking

58% Would purchase more vegetables if they knew more ways to use them

- In store demonstrations
- More ideas on how to prepare
- Understanding of the nutritional benefits
- Marketing to address negative perceptions
- Vegetable 'stir-fry bin' with ready to cook

Note: *Agree or strongly agree
Base: All respondents; Population Study (n=1522)
Source: Population Study Q1.2. Below are a list of statements other people have made about fresh vegetables and cooking generally. To what extent do you agree or disagree with each one, where 5 means you strongly agree and 1 means you strongly disagree?
Consumer Workshops

Cabbage and Cauliflower would benefit from marketing to overcome perceptions of being boring and old fashioned

These vegetables in particular suffered from negative perceptions due to lack of familiarity

"I think (cauliflower) is one of those vegetables that are not really on my radar. I don't really pay attention to it"

"I would just say put more ideas about how to cook them and stuff. I would buy more of them if I had more ideas of what to cook them in within the week, instead of just making the same meals"

"I associate them (cauliflower and cabbage) with something that old people would eat"

"There seems to be a lot of cooking stuff going on and advertisements with how to cook things. I think out of all these vegetables whenever I have cabbage in my fridge it's like what do I do with it?"

"Well you have to tell people what the rewards of eating it are because people think okay well I know that carrots are good, I know that broccoli has a lot of nutrients ... So what rewards does cabbage or cauliflower have?"

Don't know to prepare and serve

Perceived to have limited shelf life

Perception of boring and old fashioned

Dislike taste/not popular with whole family

Don't know how to store to prolong freshness

Limited appreciation for the nutritional benefits

The idea of a 'vegetable butcher' appeals for its nostalgia and increased value

The idea was brought up spontaneously by a number of independent groups

- Triggered recall of old days and good old fashioned customer service
- Resonated most for pumpkins which required strength to cut and peel
- There was recognition that this would add cost to retailers and that consumers would ultimately pay
- If the cost was 'acceptable', most were warm to it (interest ranged from 30% to 57% across vegetables)
- The inconvenience of waiting was raised as a challenge unless you could leave and come back later
- Limited awareness that some supermarkets already offer it now

"I'm thinking I would do that, because I've got so many kids and so much going on, if there was a guy standing there saying pay me an extra dollar and I'll chop your pumpkin for you, I would be over like a shot"

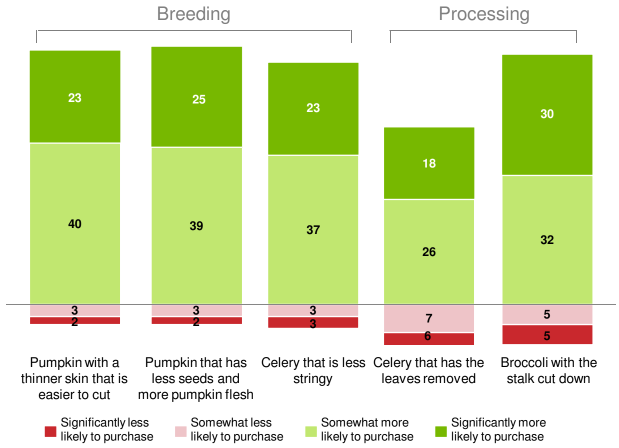
"It's time consuming, chopping up a pumpkin. It wouldn't happen instantly, there might be a pumpkin chopping line. Take a number. Leave your pumpkin and then go back. Oh yes that would be good"

"You know what I'd love? I'd absolutely love a greengrocer to do what some of the butchers do. You can say here's my pumpkin can you chop it for me?"

Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q3.2. And how would you rate your interest in using this service for each of the following vegetables? Consumer Workshops

Changes to vegetable make up would improve perceived value for money

Impact on purchase behaviour if choices were made available
(% vegetable opportunity segment)



Consumers have a range of ideas as to how vegetables can be improved

*Note: Difference between somewhat more like to purchase and significantly more likely to purchase, and somewhat unlikely to purchase and significantly less likely to purchase
Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q3.3. How likely are you to purchase the following vegetables in comparison to the vegetables you purchase now?

Inconsistencies in 'fridge life' suggest opportunities to improve the supply chain

There was substantial variation in freshness across locations

- Consumers based on Melbourne reported that vegetables didn't last as long
- Even within states there was variability of freshness across locations
- Green grocers and market gardens were seen to have the freshest produce
- However supermarkets were the most convenient place to buy

"I have a growers market in my area so usually I tend to go there because they tend to be fresher, but Coles has upped their game lately. A lot of them have been renovated I think so they've started icing and doing some interesting things with their vegetables"

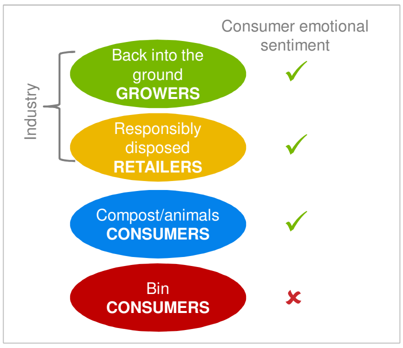
"Some Coles and Woolies are great while others are awful – we left Woolies the other day without any veggies because they all looked old and sad"

"I find the market is a lot fresher but you've got to buy in bulk, you've got to buy a tray of whatever, maybe a whole cabbage, and there's only two of us so we waste a lot if I do that."

Source: Consumer Workshops

Industry was seen as the natural champion for reducing vegetable waste

Consumers feel guilty when food is thrown away when it could be 'returned to the earth'



Opportunities for industry

1. Restructure portion sizes to allow for less consumer wastage
2. Educate consumers on how to use a greater proportion of the vegetable
3. Communicate to consumers how industry contributes to compost
4. Offer in-store or in-home composting options

There is an emotional territory associated with waste that industry could own

Source: Consumer Workshops

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Consumers welcomed greater availability of the ‘standard’ vegetable options

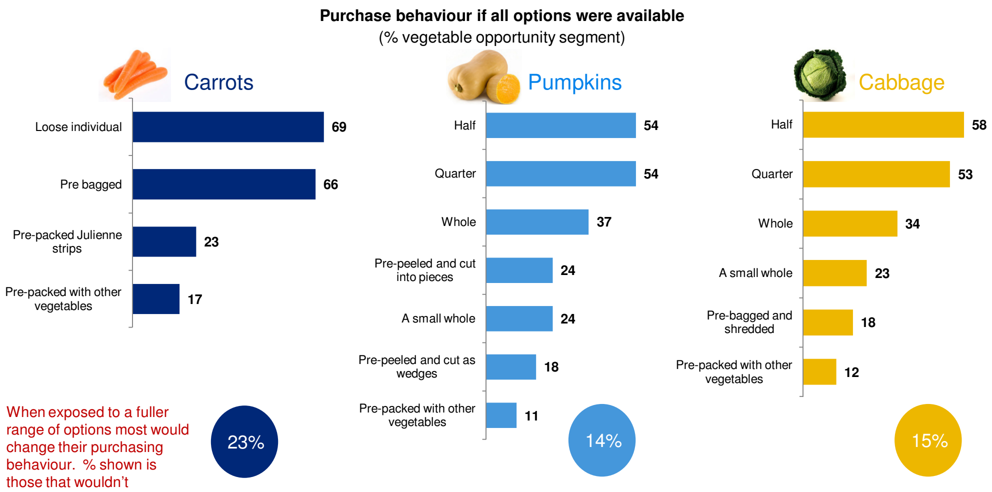
Consumers saw benefits to a change in portion options but had limited imagination outside what was familiar

FRESHNESS	Improved as they could buy what they needed
VALUE	Increased as they could buy in the quantities they would use – less waste
CONVENIENCE	Able to better store the quantities bought

- Initially they had very few ideas for alternative options
- When pushed they came up with a fairly ‘standard’ set of options, all of which were available to some but not all
- When quantified there was substantial inconsistency in the choices available across locations
- Most would change the way they would buy if more options were available

Source: Consumer Workshops

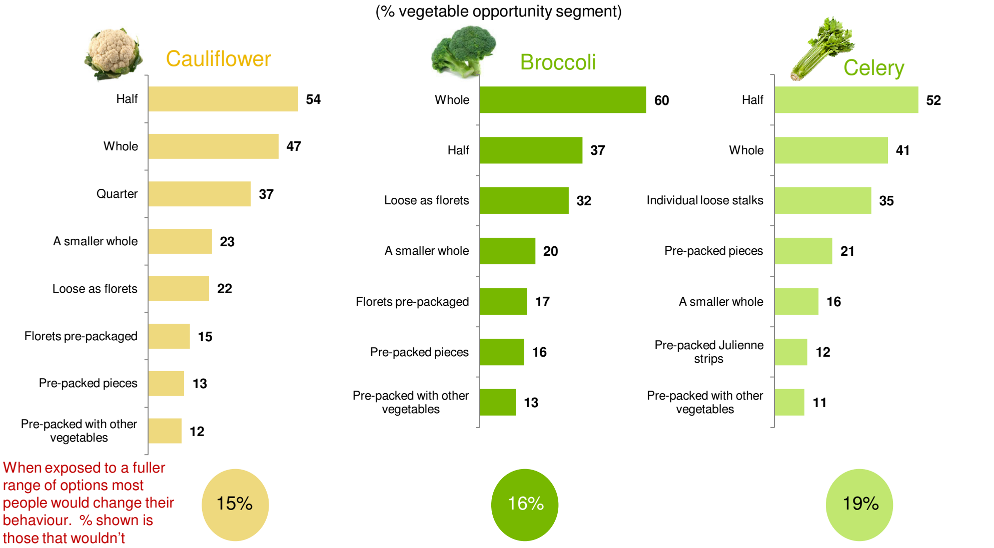
There is demand for a range of options across the six vegetables (1 of 2)



Base: All respondents; Population Study (n=973).
Source: Population Study Q2.3. How do you currently purchase the following vegetables? Q2.4. Assuming that vegetables were available in all the following options, how would you purchase them? Please assume that the size was similar value for money to what is available now.

There is demand for a range of options across the six vegetables (2 of 2)

Purchase behaviour if all options were available
(% vegetable opportunity segment)



When exposed to a fuller range of options most people would change their behaviour. % shown is those that wouldn't

Base: All respondents; Population Study (n=973).
Source: Population Study Q2.3. How do you currently purchase the following vegetables? Q2.4. Assuming that vegetables were available in all the following options, how would you purchase them? Please assume that the size was similar value for money to what is available now.

Offering more alternatives will result in an uplift in overall purchase volume

Increase or decrease in purchase behaviour if choices were made available
(% vegetable opportunity segment)

It was hypothesised that changing the options offered may cannibalise other vegetables. However the increase in demand depicted was found to be in addition to what is usually purchased

Base: All respondents; Population Study (n=1522); Carrots (n=766), Pumpkin (n=768), Cabbage (n=760), Cauliflower (n=763), Broccoli (n=757), Celery (n=753).
Source: Population Study Q2.6. Assuming the options you selected previously were available, overall do you think you would purchase more or less of this vegetable than you do now? Q2.7 You mentioned earlier that you would purchase more of the following vegetables. Would you purchase more: "no change' not graphed

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The findings support five implications for implementation by industry

1. Retailers will benefit from offering more fairly basic portion options
2. Removing "extraneous elements" will enhance perceived value
3. Smaller versions of larger vegetables should be offered
4. Industry should provide greater inspiration about how to store and prepare
5. Proposed changes should be given time before success is assessed

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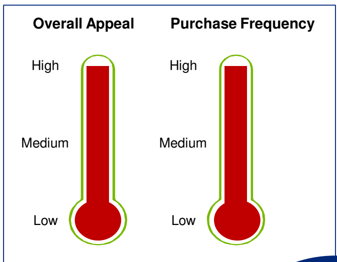
Carrot overview

Image

- Popular
- Versatile



Factors liked

- ✓ Taste
- ✓ Liked by whole family
- ✓ Versatile
- ✓ Good for you (vision)
- ✓ Easy to prepare
- ✓ Can eat raw or cooked
- ✓ Good value

Factors disliked

- ✗ Sometimes quality/freshness issues
- ✗ Inconsistent sizing within pre-packaged bags
- ✗ Often only available in a bag

"My daughter loves carrots. She'll have it in anything so I just use it in whatever I'm making"

"You can cook them in a variety of ways: bakes, stews, all sorts"

How to reduce wastage

- Offer loose (consistently)
- Provide advice on storage

"When my kids were younger a big bag of those baby carrots was always a staple as a snack – kids love raw carrots"

"My mother always said "eat your carrots, it will help you, you won't need to wear glasses"

"Sometimes in those pre packaged bags they are all different sizes and thicknesses which I don't like"

"Those orange tinged plastic bags they sell them in seem to keep them fresher longer"

Opportunities to increase consumption

- Sell in bite size/kids size ready to eat
- Offer in julienne strips for salads and stir-fry's
- Sell pre-packaged with other vegetable mixes ready to use
- Merchandise with dips

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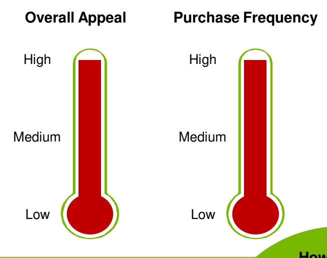
Broccoli overview

Image

- Family favourite
- Modern



Factors liked

- ✓ Taste
- ✓ Versatility
- ✓ Family friendly

Factors disliked

- ✗ Fragile (florets)
- ✗ Stalks can be long and thick
- ✗ Stalks increase cost given weight
- ✗ Stalk taste and lack of uses

Opportunities to increase consumption

- Sell as florets (loose by the kilo or pre-packaged in a punnet)
- Sell pre-packaged with cauliflower
- Develop new variant with less stalk (or remove stalk at point of sale)

How to reduce wastage

- Educate consumers on how to use all components (e.g. stalks)
- Educate consumers on proper storage to maintain freshness

"When I buy broccoli I will feel the weight of it, and I look at what, like the head and I feel the weight, and if the stalk is really heavy I won't buy it for that simple reason, because you're chopping it off and you're not using it"

"I would buy it more if I could buy a smaller piece. Even the smallest pieces that I've found are still too big for what I need it for"

"Broccoli is multi-purpose. People use it for lots of things, whereas cabbage we have one dish, that's all it's used for"

"As far as available sizes go, broccoli is very versatile. The only thing I get annoyed with are the long stalks which you pay for (by weight) but don't eat"

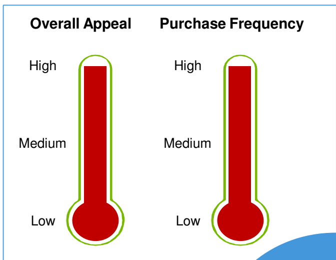
"Broccoli is a firm favourite with the kids. The whole family loves it steamed or in stir frys"

Source: Consumer Workshops

Pumpkin overview

Image

- Popular
- Family friendly



Factors liked

- ✓ Taste
- ✓ Liked by whole family
- ✓ Range of types
- ✓ Long shelf life

Factors disliked

- ✗ Portion sizes too large
- ✗ Heavy to carry
- ✗ Difficult to peel
- ✗ Too many seeds
- ✗ Time taken to cook

Opportunities to increase consumption

- Make available in smaller portion sizes (halves and quarters)
- Develop and make available an easy-peel version with fewer seeds
- Offer pre-cut and pre-peeled in serving size portions
- Offer via deli-counter cut and prepared to order after selection

How to reduce wastage

- Sell in smaller portion sizes
- Educate consumer on additional ways to prepare
- Make consumers aware that skin can be eaten on some variants

"There is a lot of variety of pumpkins I find. You can get big pieces and whole ones and then you get little baby ones and there's a lot of different types of variety. It keeps well"

"I love pumpkin. It's one of those vegetables where you can get as much or as little as you want. "

"You know what I'd love? I'd absolutely love a greengrocer to do what some of the butchers do. You can say here's my pumpkin can you chop it for me?"

"My wife won't peel the pumpkin, she's afraid she'll lose her fingers"

"Because people know what to use it for. It has a better taste I think. You can put it in more recipes and actually it will flavour things. It's more versatile"

"I cook it with the skin on if I'm roasting it – my Mum thinks you should eat the skin but I'm not sure"

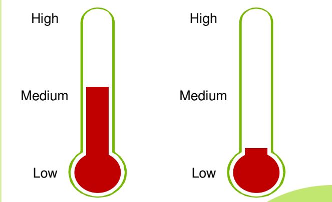
Source: Consumer Workshops

Celery overview

Image

- For snacking
- Non-essential

Overall Appeal | **Purchase Frequency**



Factors liked

- ✓ Low calorie
- ✓ Good snack food
- ✓ Good for parties

Factors disliked

- ✗ Usually sold in large bunches
- ✗ Half bunch too big for most households
- ✗ Can go limp quickly if not stored correctly
- ✗ Stringy
- ✗ Bland flavour
- ✗ Too big for shopping bag
- ✗ Too big for crisper

How to reduce wastage

- Sell in smaller portion sizes (quarter bunch or by the stick)
- Educate consumer on how to use all components (e.g. leaves)
- Educate consumer on how to store to prolong freshness

Opportunities to increase consumption

- Offer smaller (shorter) whole celery
- Make available a less stringy, cleaner-bite version
- Promote nutritional value
- Promote versatility

"The thing is with celery is I find that you can buy it in a full bunch or half bunch but even a half bunch is massive. In a soup I'll put one stalk or sometimes two stalks but then what do you do with the rest?"

"If you're trying to tempt me to eat more celery you would cut everything off, cut the base and offer it to me in a nice little container already cut into sticks about that long without having to wash and I would want to eat it"

"Stringiness is definitely a problem for me, strings annoy me…They get stuck in your teeth as well. It's like flossing with massive floss"

"Celery would be better if it was sold in a zip bag or a sold in a re-sealable bag that was made for storage/freshness"

"I don't eat my celery because I'm too lazy, I've got to chop it to make it fit in the fridge crisper"

"I'd probably buy a half bunch or something, if there was dip with it. The equivalent of a half bunch if it was already cut up in stalks"

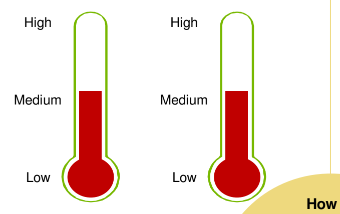
Source: Consumer Workshops

Cauliflower overview

Image

- Old-fashioned
- Outdated

Overall Appeal | **Purchase Frequency**



Factors liked

- ✓ Easy to cook
- ✓ Traditional (cauliflower cheese)
- ✓ Adds variety to vegetable selection

Factors disliked

- ✗ Portion sizes too large
- ✗ Heavy to carry
- ✗ Space needed to store
- ✗ Limited shelf life (goes brown)
- ✗ Not versatile (limited uses when cooking)
- ✗ Taste quite bland

How to reduce wastage

- Make available in smaller portion sizes (half and quarter)
- Promote alternative ways of preparing/serving

Opportunities to increase consumption

- Promote nutritional value
- Make available in smaller portion sizes
- Educate consumer on range of ways to prepare
- Build perceptions of versatility
- Offer smaller whole cauliflower (one quarter current size)
- Sell packaged with broccoli
- Sell as florets – loose or in punnet

"I think (cauliflower) is one of those vegetables that are not really on my radar. I don't really pay attention to it"

"I would buy a small one or florets that have already been prepared. For me because there's only two of us that eat it I could buy a small handful for one meal and then I wouldn't be wasting it"

"Things like cauliflower, for example, I like it but I don't overly like it and there's not that many things I can do with it, so I don't want to buy a whole one, and quite often they haven't got it in half, so I just don't buy it"

"I associate them (cauliflower and cabbage) with something that old people would eat or I don't know how to cook them"

"Beyond Cauliflower Cheese what do I do with it?"

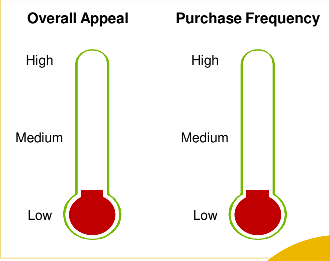
"I'd buy more (cauliflower) if it was in smaller sizes for sure"

Source: Consumer Workshops

Cabbage overview

Image

- Old school
- Bland



Factors liked

- ✓ Can eat cooked or raw
- ✓ Easy to prepare-cook

Factors disliked

- ✗ Portion sizes too large
- ✗ Heavy to carry
- ✗ Space needed to store
- ✗ Bland flavour
- ✗ Limited versatility

Opportunities to increase consumption

- Promote nutritional value
- Promote versatility
- Offer smaller whole cabbages (one quarter current size)
- Offer pre-shredded for coleslaw or stir-fry
- Offer pre-shredded and packed with other stir-fry or salad vegetables
- Offer via deli-counter – cut and prepared to order after selection

How to reduce wastage

- Sell in smaller portion sizes (half or quarter)
- Educate on additional/alternative uses
- Educate consumers on proper storage to maintain freshness

"For me (cabbage) is an old man's vegetable. I don't know if that's a horrible thing to say but I don't know, not that there's anything wrong with that but it seems like something they would have eaten in the old days"

"I'd buy little whole ones if they were available....all the goodness and minimal wastage"

"They're so massive. There's no need for them to be that big. They're bigger than a soccer ball sometimes"

"There seems to be a lot of cooking stuff going on and advertisements with how to cook things. I think out of all these vegetables whenever I have cabbage in my fridge it's like what do I do with it?"

"When I was growing up my parents would serve cabbage every now and again, but it is quite bitter and flavourless so I'd want to know how to cook it"

Source: Consumer Workshops