

# Sweetpotato Consumer Research

Insights to increasing consumption



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## Summary

This report provides an evaluation of the behaviours and purchasing drivers of key sweetpotato consumers defined by Nielsen consumer research as Established Couples (two or more adults with no children 17 and under, and head of house 35-59), Senior Couples (two or more adults with no children 17 or under, and head of house 60 or over), and Independent Singles (one person household 35 or over, no children 17 or under). Research was qualitative in nature. Methods used included focus groups, depth interviews and shop-a-longs.

The report found that preferences for sweetpotato amongst these groups were varied. In general a smaller torpedo shaped vegetable was valued for ease of preparation and the convenience of being of sufficient size for a meal for two. Satisfaction with sweetpotato was high with negative comments on quality exceedingly rare within discussions. However, shop-a-longs revealed that some quality issues were apparent at retail such as withered product, pitting and occasionally damage. A display with stock resting in any amount of water was a barrier to purchase for consumers and this was apparent on two out of 15 occasions. A high quality sweetpotato was of a deep orange/red colour, had a smooth skin and was extremely dense and hard. An inferior sweetpotato was wrinkly, spongy, pitted and damaged.

Awareness of sweetpotato was a relatively recent phenomenon amongst the respondents of this study with most recalling eating the vegetable in the last five to 10 years. Life-time eating patterns emerged as a consequence of childhood food experiences such as growing up with a 'meat and three' veg philosophy and traditional Australian meals. However, this was dependent on cultural background and those with ties to diverse cultures were more likely to have always known of the vegetable. Sweetpotato trial and consumption coincided with a breaking away from these traditional patterns, or was integrated into conventional meals such as a baked vegetable to accompany roasts. Increased health consciousness also led to awareness of the vegetable.

A primary catalyst for consumption within the Established and Senior Couples groups was the health benefits associated with sweetpotato. Consumers had very little knowledge of the specific health properties of the vegetable and were surprised at the number of benefits consumption provided. Sweetpotato was important for diabetics for its low Glycemic Index status. Top-of-the-mind awareness of the vegetable resulted from the onset of the disease. Increasing fibre was a key motive for this demographic and this provided a significant link between consumption and preventing bowel cancer. For those on a weight loss regime, sweetpotato was perceived as a tasty, satisfying food that was low in carbohydrates. Swapping behaviours where white potato was replaced by sweetpotato was often a response to these health concerns. Other health properties mentioned by participants through the course of the research included the precursor  $\beta$ -carotene and Vitamins A & C.

The sweetpotato was appreciated for its hedonic and timesaving qualities. For consumers with a high involvement in food, the vegetable was valued for its versatility in meals. These consumers took pride in cooking and the flavour and texture of sweetpotato lent itself to a variety of meals such as soups, salads, roasts, curries, tagines and so on. Participants who had little time or desire to prepare and cook meals valued sweetpotato because it was an easy way to add colour and variety to the plate and because including an orange vegetable to meals is a shortcut to ensuring vitamin intake.

Several recommendations are made to the sweetpotato industry.

- Vigorously promote the distinct nutritional and health properties of sweetpotatoes, particularly if they can be favourably compared to other vegetables or foods
- Promote the salient properties to specific targets such as diabetics, those that are at risk to bowel cancer, and those embarking on a weight-loss regime. Utilise specialist channels of communication such as diabetic magazines and websites
- Promote styles of cooking of sweetpotato that would appeal to traditionalists such as roasts and BBQs
- Promote the vegetable as a low maintenance vegetable, easy to store, easy to cook and particularly focusing on it as a simple way to boost the appearance and nutritional value of meals.
- Promote the vegetable to high food involvement consumers through exotic recipes and linking it to feelings of accomplishment with cooking
- Promote the versatility of the vegetable
- Devise promotions that link images and tone of communications with enjoying life to the fullest, having time to enjoy family and grandchildren, and of partaking in social activities
- Educate retailers on consumer perceptions of quality and ensuring moisture and mould is not present at displays

Qualitative information while providing a wealth of detail cannot be extrapolated to the overall target population and this may be considered a limitation to the research. However, within research theory, effective quantitative design is believed to stem from the insights developed from qualitative studies.

- Develop and implement a quantitative study on sweetpotato attitudes and behaviours based on the results of this study.

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## Background

Sweetpotato as an industry has defied general trends. Both per capita consumption and prices received in the value chain have increased in the past decade. The industry is organisationally particularly pro-active. The Australian Sweetpotato Growers Inc. (ASPG) has the majority of Australia's growers as members, has an active R&D portfolio, has regular industry engagement activities, and is also agri-politically strategic. They have invested time and effort in the last ten years investigating segments of the industry value chain, including surveys of consumer issues, shopping patterns, and desirable sweetpotato characteristics within the value chain.

Although the industry has conducted some value chain investigations, perusal of that information suggests there are still gaps worth investigating. In particular, the consumer insights material is nearly ten years old, and is probably dated. The more recent work has focussed on shopping patterns, as well as work with agents around what types of sweetpotatoes they perceive as warranting development.

An opportunity arose to engage with the ASPG in exploring consumer behaviour and drivers in a key purchasing demographic. Over 90% of current consumption is of one gold sweetpotato variety; the bulk of purchases coming through the major supermarket chains. The industry wants to find out what prospects there are of generating an increase in volume purchase by this key demographic. A small increment in per capita consumption by current buyers could lead to substantial immediate increase in demand.

## Overall Aim & Reasoning

- To support knowledge flow and innovation in the Sweetpotato industry.
- To highlight the benefits (i.e. increased consumption) of focusing on the consumer and adapting the whole-of-chain (value chain approach) to meet consumer needs.
- To increase frequency & average weight of purchase by at least 5% by 2015, whilst maintaining or improving price and value chain profitability.
- If the benefits can be demonstrated then other vegetable industries can use the pilot study findings as an example to follow and/or investigate further.

## Approach & Project Objectives

To engage with the Australian Sweetpotato industry and identify one specific channel/chain within the industry; to conduct initial consumer research as a case study with the objective of;

- Enhancing Australian Sweetpotato industry insights into consumer desires for sweetpotato products in the short-medium future
- Identifying how the Australian Sweetpotato industry might deliver on these desires through their value chains, and how the chains can improve their ability to do this
- Communicating results to other vegetable industries to demonstrate the benefits of engaging in a 'value chain approach' with the consumer as the focus.

## Research Objective

### **Consumer Research**

- Characterise behaviour and purchasing drivers of a key sweetpotato consumer demographic
- Compile report for sweetpotato industry on consumer insights, and promote to funders, industry and wider stakeholders.
- Develop strategies to incorporate insights into sweetpotato production and marketing systems, future RDE activities, and as an engagement tool with other vegetable industries.

## Method

The use of focus groups in consumer studies is a common method, in part because of their flexibility, but also as an appropriate means to understand consumer attitudes, behaviours and motivations (Flick, 1998; Schindler, 1992). Although focus groups cannot be extrapolated to the general population, they can provide a holistic view of the context under study when used in a triangulation of methods in data collection (Denzin & Lincoln, 1998). Using more than one source of data gathering enhances the validity of qualitative results. Focus group results of this study are complimented by in-depth interviews that feature a means-end chain questioning technique and accompanied shopping or shop-a-longs.

Means-end chain theory posits that 'product meaning' encompasses the physical attributes of products as well as abstract attributes and benefits that are perceived to fulfil important personal values that in turn inform purchase and consumption behaviours. Means-end chain method entails a laddering method of interview. Soft laddering - through personal interviews - was chosen for this study due to the low involvement nature of vegetables (Kirchhoff et al., 2011). Soft laddering is based on a series of progressive and iterative questions that help the researcher understand the links or ladders between a product's attributes, benefits and values. Shop-a-longs, where the researcher accompanies the consumer on their shopping, was also undertaken to understand the decision making process when purchasing sweetpotatoes.

## Focus Groups

### Participants

Three group discussions were conducted in Brisbane, Sydney and Melbourne with a total of 25 people recruited by market research company I-View. Participants were regular buyers of sweetpotatoes and were either the main grocery buyer of the household or shopping was a shared activity. Participants were Established Couples (defined as two or more adults with no children  $\leq 17$  and the head of house 35-59); Senior Couples (defined as two or more adults with no children  $\leq 17$  and the head of house 60 or over) and one Independent Singles (defined as one person adult household with no children  $\leq 17$  and head of house  $\geq 35$ ). The decision to target these three groups was based on discussions held at Coopers Plains with the project team, and the results of Nielsen research into sweetpotato consumption (The Nielsen Company, 2012).

A moderator and an observer were present at each focus group. The duration of the groups were 1h and each session was audio taped and transcribed. Demographics of participants are summarised in Table 1.

**Table 1 Summary of focus group demographics and income**

		Brisbane	Sydney	Melbourne
<i>Gender</i>	Female	5	5	6
	Male	3	3	3
<i>Mean Age</i>		55	61	57
<i>Mean Income</i>		>\$70K	=\$70K	>\$70k

## Interview Structure

Interview questions for the focus groups were developed to understand the attributes that consumers identified with sweetpotatoes, attitudes to sweetpotato quality, shopping and consuming behaviours, and motivations behind the consumption of the vegetable. A selection of sweetpotatoes was presented for discussion of purchase preferences. The guided discussion was developed with the objective of providing insight into increasing the consumption of sweetpotato amongst present consumers.

## Interviews

### Participants

Depth interviews and shop-a-longs were conducted in Brisbane, Sydney and Melbourne with a total of 16 participants recruited by market research company I-View. Participants were regular buyers of sweetpotatoes and were either the main grocery buyer of the household or shopping was a shared activity. Participants were Established Couples or Senior Couples as defined previously. Demographics of participants are summarised in Table 2.

### Interview Structure

Depth interviews were conducted in the interviewee's home and were of between 45-75 minutes duration. Wherever possible, shop-a-longs were conducted in the usual place of purchase for sweetpotatoes and lasted approximately 20 minutes. However, due to retailer restrictions, the majority of shop-a-longs were conducted at Coles or the usual green grocer. Interviews and shop-a-longs were taped and transcribed.

Interview questions included attitudes to sweetpotato quality, shopping and consuming behaviours, and motivations behind the consumption of the vegetable. A means-end chain of questions were asked to gain insight into the values related to consumption. Participants in shop-a-longs were instructed to follow a 'stream of consciousness' style of speaking into the recorder. This required participants to say aloud their thoughts as they related to the sweetpotato and hard vegetable display and the quality of product. Participants were asked to bag sweetpotatoes they would consider purchasing and those that they would not.

**Table 2 Summary of shop-a-long demographics and income**

		Brisbane	Sydney	Melbourne
<i>Gender</i>	Female	4	3	5
	Male	1	2	2
<i>Mean Age</i>		56	59	53
<i>Mean Income</i>		>\$70K	=\$70K	>\$70k

## Analysis

This research was guided by the philosophical perspective of Grounded Theory (Glaser & Strauss, 1967). Grounded theory is concerned with the generation of theory from research. With grounded theory the researcher approaches the data with no preformed opinions, and instead seeks to uncover patterns and contradictions through intuition and feelings. The process has been considered a complex and personal one (Strauss, 1987).

Unlike quantitative analysis, qualitative research enables the researcher to understand and explain in detail the personal experiences of individuals and allows the researcher to experience issues from a participant's perspective. There is no uniform approach to qualitative analysis. However, the



qualitative data analysis process can be described as a breaking up, separating, or disassembling of research materials into pieces, parts, elements, or units. Once broken into manageable pieces, the researcher sorts them into types, classes, sequences, processes, patterns or wholes. The aim of this process is to reconstruct the data in a meaningful or comprehensible fashion (Jorgensen, 1989). A similar idea is expressed by Charmaz (1983) who used the term coding.

“Codes serve to summarise, synthesise, and sort many observations made of the data....coding becomes the fundamental means of developing the analysis....Researchers use codes to pull together and categorise a series of otherwise discrete events, statements, and observations which they identify in the data “ (Charmaz, 1983: 112).

Transcripts were downloaded to the NVivo program (QSR international). Focus groups and interviews were content analysed for salient and recurring themes. Related concepts were coded into tree nodes within the program. Tree nodes can be understood as a thematic umbrella which includes several sub-sets of factors that together comprise a particular theme. Sub-set factors were considered relevant if they were included in the discussion in at least two of the three focus groups and at least five of the interviews. This was exceeded in almost all cases. However, it is important to note that solitary or infrequent but notable turns of discussion may also be included in this analysis, particularly with relation to the Independent Singles segment which had only slight representation and only within focus groups.

## Results and Discussion

### Awareness

Awareness relates to whether a product or brand name comes to mind when a consumer thinks about a particular product category such as vegetables. Awareness of sweetpotato was a relatively recent phenomenon for the majority of participants. A significant relationship has been found in childhood food experiences and adulthood eating behaviours (Birch, 1999; Hilbran & Peterson, 2009). In general, childhood experiences with sweetpotato were rare for this demographic. Those that could remember eating the vegetable as a child were from a Mediterranean background or those whose families had personal associations with a vegetable retailer. A large proportion of people interviewed or included in the focus group discussions described their childhood eating patterns as ‘meat and three veg’ and this seemed to influence their preferences for vegetables and vegetable cooking for much of their lives. This is particularly true for the male partners of those interviewed for whom white potato is a staple and sweetpotato is included in their diet primarily as a consequence of their partner preparing it for them.

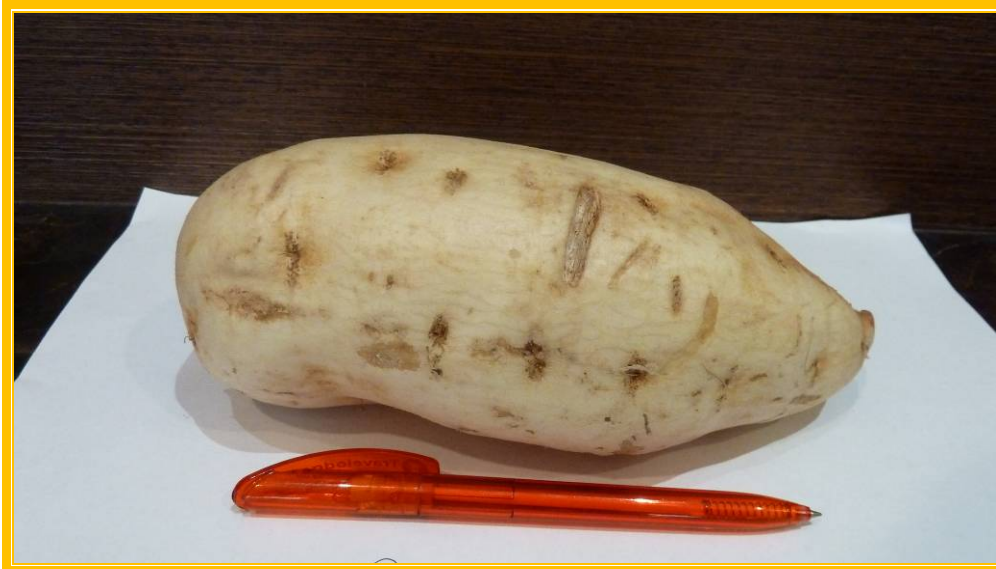
Participants believed they had started to eat sweetpotato around five to ten years ago. Due to this, the majority of consumers were uncertain as to when and why they started purchasing and consuming sweetpotato. An exception to this is those that started eating the vegetable as a consequence of the onset of diabetes (discussed further in the report). Respondents that could recall their first experience were introduced to it through a family member or at a social function, or because it was included in a recipe. Sweetpotato was particularly associated with the Maori Hangi event.

There was little awareness of other varieties of sweetpotato. A select few could remember white sweetpotato in their childhood and they believed that the marketing of ‘Golds’ is a recent development. There was some awareness of ‘Hawaiian Purples’ (see Image 1) and this seemed to be due to the availability of this variety in the stores at the time of the consumer research.

The origin of the sweetpotato was a subject of some conjecture. Due to knowledge of the Maori name Kumara, and the experiences of the vegetable at Hangis, participants were of the opinion it

originated in the Pacific Islands and New Zealand. Focus group participants expressed an interest in knowing the country or region of origin of the sweetpotato.

**Image 1 Hawaiian purple, Coles Maroubra, Sydney**



## Preferences

### Shape, size, colour and taste

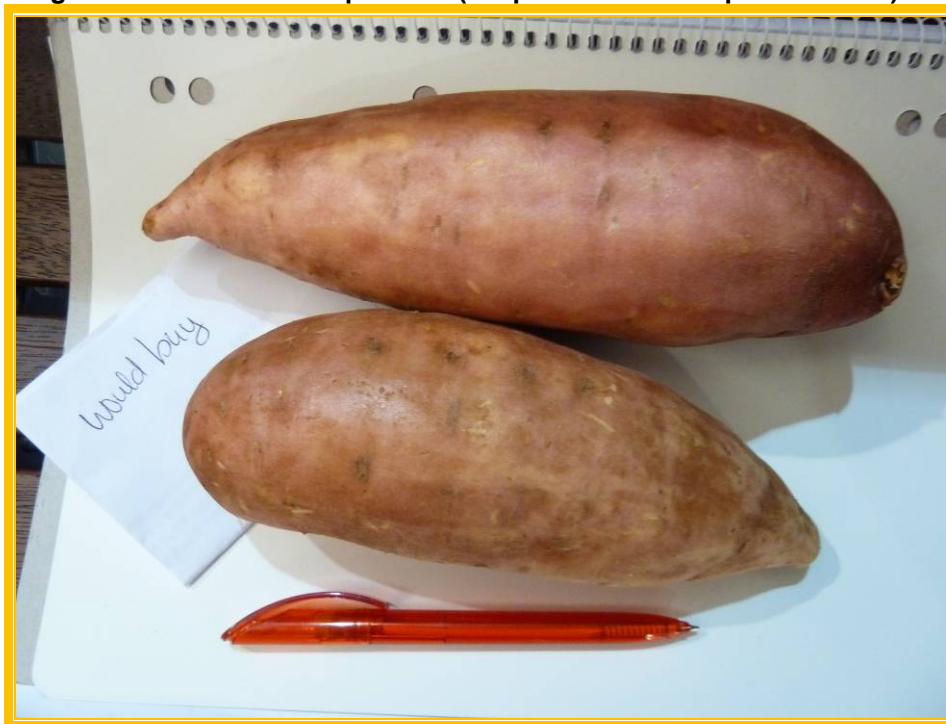
Individual preferences for shape, size and colour were diverse. Shape was related to ease of peeling with uniform 'torpedo' shaped sweetpotatoes preferred. Consumers' commented that historically, they had not always been so consistent in shape and this promoted some speculation as to current growing practices. A few respondents had developed individual perspectives on the meaning of shape and size:

- Irregular 'twisty' sweetpotatoes were woody,
- fat sweetpotatoes were starchy,
- fat sweetpotatoes and very large sweetpotatoes were not as tasty.

Preference for size was dependent on end-use with large vegetables favoured for meals such as soups and chips. Small sweetpotatoes were preferred for roasts as these were often roasted whole and unpeeled.

External colour as a reference for purchase was referred to during shop-a-longs. Participants interviewed sometimes showed a preference for a deep orange, almost red/purple coloured vegetable (see image 2) and this was perceived to be fresher and tastier, and superior nutritionally. Despite some misgivings on the taste of large sweetpotatoes, the flavour of the vegetable was considered consistent and of a high quality.

**Image 2 Preference for deep colour (deeper colour sweetpotato above)**



## Quality

“A bad sweetpotato? I don’t think I’ve ever had one...No it doesn’t ring a bell with me.” (Sydney, Interview, male).

Satisfaction with sweetpotato as a product was high with almost no participants reporting disappointment with a sweetpotato purchase. Satisfaction was related to a high quality consistent product which included uniformity in taste and appearance. A high quality product was described as firm (almost rock hard) with a smooth skin and no ‘pitting’ or eyes. A series of high quality sweetpotatoes can be found in Appendix A. The term ‘eyes’ was borrowed from white potato but was not used to describe the same defect. This defect was described as small holes that look like pitting (see Image 3). These were not thought to affect the eating quality of the product, but did affect preparation effort due to the need to peel more of the vegetable. For this reason they were avoided.

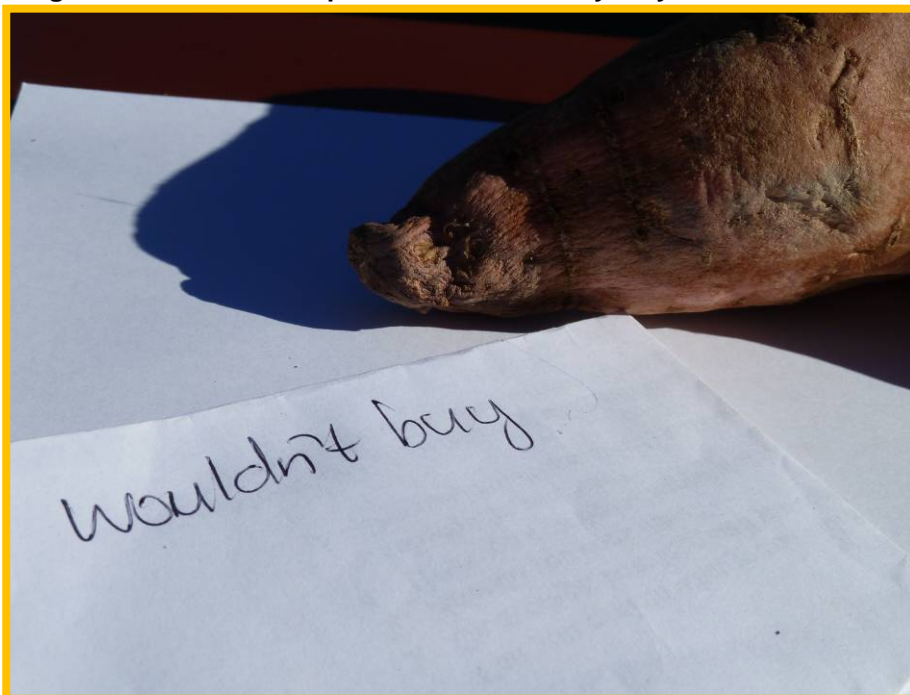
A lesser quality sweetpotato was associated with not being fresh, rubbery, not firm, withered in appearance (see Image 4) and having ‘sprouts’. However, this was usually a result of consumer neglect - having left them in storage for too long, rather than something they could recall experiencing at the point of sale. A series of shop-a-long photos of unacceptable sweetpotatoes are provided in Appendix B. Sweetpotato was always available and was valued for its shelf life.

Some consumers mentioned that peeled and cut sweetpotatoes discoloured easily. This was not a barrier to purchase and consumers used strategies to overcome the discolouration such as leaving peeled vegetables in water or peeling the sweetpotatoes last when preparing vegetables.

**Image 3 'Pitting' in sweetpotato Coles Sydney**



**Image 4 – Withered sweetpotato Woolworths Sydney**



## **Storage**

Consumers stored sweetpotatoes in either the refrigerator or the cupboard. When asked, consumers had no rationale for their storage habits. However those who ate sweetpotato less often or not soon after purchase tended to keep theirs in cold storage. Once cut, surplus sweetpotato was kept in the fridge.



## Cost

“It’s not very expensive very often that I can remember, but sometime it’s incredibly cheap”.  
(Sydney, focus group, female).

Sweetpotato price was positively viewed by participants. It was described as reasonably priced as a vegetable but more expensive than white potato. It was perceived to be ‘cheap’ in Summertime.

## Benefits

Consumers felt there were several benefits in including sweetpotato in their diet. These include those related to the eating and cooking experience and health benefits.

### Eating and Cooking experience

The benefits associated with eating and cooking include:

- Versatility – important for those with high involvement in food
- Flavour
- Variety in meals
- Easy to cook – important for those with low involvement in food

Versatile was a common descriptor for sweetpotatoes. This included versatility associated with cooking styles and that linked to the complimentary nature of sweetpotato. Participants valued the vegetable because it could be mashed, baked, included in salads, curries and tagines, and could be made into soup amongst others. Sweetpotato was also thought to compliment rather than clash with other foods in taste and colour and was thought to be interchangeable in recipes with pumpkin and potato.

Variety in meals was important with a range of vegetable tastes, colours and textures adding to the aesthetics of a meal. The benefits of adding sweetpotato to meals included adding colour to the plate and extended to providing diversity within the orange colour ‘class’ of vegetables. Providing enough colour on a plate was a shortcut for those with low involvement in cooking as it provided visual appeal with little effort. Vegetable colour was also an important heuristic for nutrition (a discussion on perceptions of nutrition is provided later in the report).

Sweetpotato was perceived as being easy to cook particularly for independent singles. One focus group participant liked sweetpotato because it took only six minutes to microwave. Another who rarely cooks mentioned it was one of the only things she could cook.

### Health benefits

A myriad of health benefits were associated with sweetpotato over the course of the research:

- Vitamin C
- Vitamin A / Beta-carotene
- Protein
- Low GI
- Fibre
- Low carbohydrate

People know intrinsically that sweetpotato consumption provides health benefits. However, the knowledge that most participants had was patchy and uncertain.

“There are health reasons (for eating sweetpotato), and I’ve read them. But I can’t think – you know, I know that it is high in vitamins, but there are other reasons,...I just feel it’s a lot better for you” (Brisbane, interview, female).

Sweetpotatoes were thought to be better nutritionally than potatoes:

“Why is it better for you than potato?” (Melbourne, focus group moderator)  
“Carotene isn’t it?” (female 1)  
“Isn’t it low GI?” (female 2)  
“fewer carbs” (female 3)  
“I think it’s got better food value in it too hasn’t it?” (female 4)  
“That’s the only thing I know, that there’s less carbs than potato”. (male 1)

For those with little knowledge on the specifics, the mere fact that it was a vegetable, and an orange one, was the reason they gave for the healthy properties of the vegetable.

“beta-carotene at a guess”. (Brisbane, focus group, female 1)  
“That’s carrots, yeah”. (male)  
“Doesn’t it cover all orange?” (female 2)

And...

“It looks healthier than the potato doesn’t it?” (Melbourne, focus group, male 1)  
“In what way?” (moderator)  
“I guess the colour”. (female 1)  
“Coloured food is better than white food supposedly”. (female 2)  
“Greens and yellows and oranges always look more healthy”. (female 3)

It was important for many participants to consume a variety of vegetable colours, of which a yellow or orange colour was specifically referred to. This often stemmed from a culture of ‘meat and three veg’. This meal philosophy was closely related to nutritional content. Colour was a heuristic or shortcut to ensure a variety of vitamins was consumed.

“it might go back to my childhood of having steak and three veg. I don’t know why, but usually if I make a steak there will be something green, something yellow...” (Sydney, interview, male)

And...

“I think it’s probably just the way you’re brought up. That you have to have a variety of things and you must have some green for this and coloured for that...(Brisbane, interview, female)  
“Why must you?” (interviewer).  
“I don’t know but I like it like that.”

But more specifically...

“Because the colour indicates different vitamins. So with a meal – or during a week at least you try to have – well, your green leafy vegetables and orange vegetables, purple vegetables, white vegetables, to get a variety of vitamins. That’s how I plan meals to make sure you’ve got all that.” (Sydney, focus group, female)

Having colour on the plate was intuitive for around half the participants. For these consumers coloured vegetables were part of a staple diet. Vitamins were associated with sweetpotato, but little thought went into its consumption. In stark contrast, sweetpotatoes were somewhat of a miracle food for a few:

“It also has a range of vitamins and the low GI and the beta-carotene that you don’t get in many other foods. So it’s unique”. (Sydney, focus group, male)

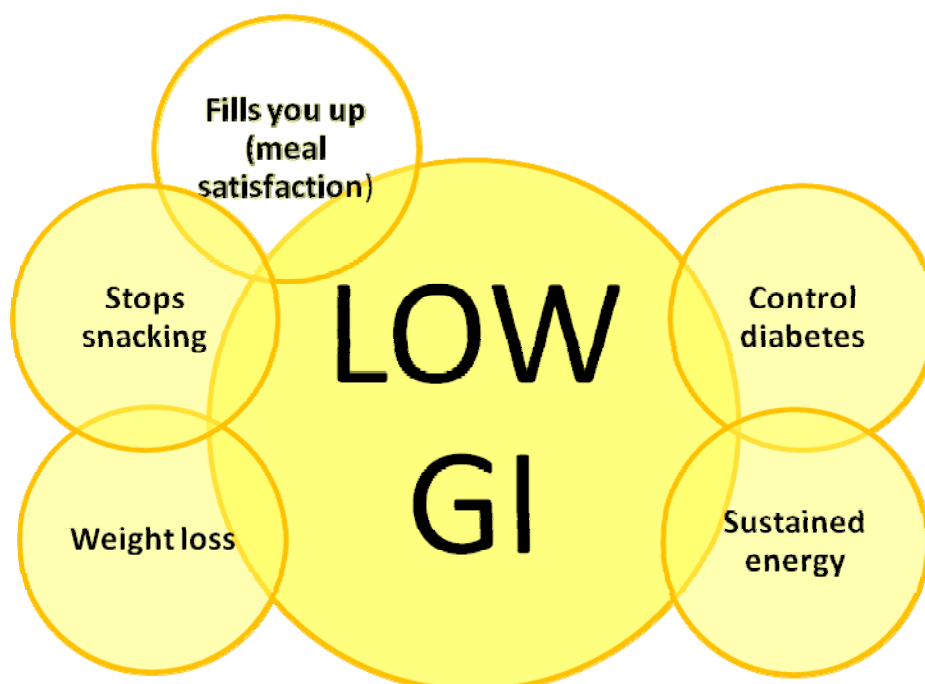
“I can’t think of another vegetable that has the same range, the versatility and vitamins...”  
(Sydney, focus group, female).

Sweetpotato was included in the vegetable repertoire as a way of ‘eating well’ and ‘taking care of yourself’ and to assuage guilt associated with ‘having a treat’.

### **Low GI**

As mentioned, a recurrent health theme for sweetpotatoes is the perception of it as a low Glycemic Index food. This would seem to be the single most important association with the vegetable as it was an attractive feature for all age groups and segments within this study for a variety of reasons. Figure 1 provides a graphical representation of the associated benefits of the low GI of the vegetable. The low GI aspect of sweetpotato was thought to contribute to a feeling of satisfaction with a meal both in a feeling of fullness as well as feeling good about ones meal and as a consequence with oneself. Meal satisfaction was also linked with less snacking on inappropriate foods and losing weight. Sustaining energy was attributed to low GI either as a way of complimenting exercise and to get through the day, but also with controlling diabetes (discussed further in the report).

**Figure 1 Associations with the Low Glycemic Index of sweetpotato**



## **Weight control**

The lower carbohydrate image of sweetpotato was also associated with weight control, primarily for women and for a younger demographic. Women were consciously cooking with low or no fat, and sweetpotato was well placed in the weight loss repertoire of food.

“I’d have it with salads in summer...I’m trying not to have too many carbs...” (Melbourne focus group, female).

And...

“Well a lot of meals now are coming out of the Weight Watchers cookbooks, so we’re using all the ingredients, but obviously they’re supposed to be better for you (sweetpotato) and my two girls (wife and adult daughter) are very conscious of their weight”. (Melbourne, interview, male).

“I mean potato is heavy in carbs so if you don’t exercise it off and you’re storing carbs it’s going to turn to fat. So I’m conscious of that.” (Melbourne focus group, male).

Carbohydrate consumption was a particular issue for older participants.

“Well because I’m conscious as I get older that the carbohydrates sit there. It doesn’t matter how much exercise you do, they don’t go. So if I want something – and I do like to have roast vegies, I feel better eating the sweetpotato and I still get the vegie, whereas I’ll leave the potato, I won’t eat the potato” (Brisbane, interview, female).

## **Fibre**

Fibre was associated with sweetpotato for many people interviewed and it invariably came up during focus groups and means-end chain interviews. A source of fibre was important to consumers for digestion, as a lighter way to ‘fill up’ and avoid snacking and junk food, for meal satisfaction and as a way of staving off bowel cancer. Ultimately the higher order values linked to the fibre content was longer life and quality of life.

“I have to eat a lot of fibre so I would rather use sweetpotato than potato. I just feel that it’s more healthier.” (Melbourne, focus group, female – has a family history of bowel cancer)

## **Motivation**

Two primary motivations led to the consumption of sweetpotato amongst these target groups. These are involvement in health, and involvement in food. Involvement has been shown to have robust effects on explaining consumers’ purchase and eating decisions (Marshall and Bell, 2004; Verbeke & Vackier 2004).

Health involvement refers to the personal relevance and importance attached to health issues, based on inherent needs, values and interests (Zaichkowsky, 1985). Health issues directly influenced health involvement and this impacted sweetpotato consumption through an increase in healthful eating.

Food involvement includes enthusiasm for meal preparation, the sharing of food in a family and social context and routine food shopping and purchase involvement (Candell, 2001; Beharal & Dennison, 1995; Marshall & Bell, 2004). Levels of food involvement have been shown to influence food choice (Marshall & Bell, 2004).

## **Health Involvement**

The physical changes associated with these age groups meant that for the few that were not experiencing health issues, health consciousness was still high. Sweetpotato was connected to generally good eating behaviours for those eating for health. Health involvement was considerable for Senior Couples and Established Couples with many of the participants experiencing various



health problems. Health issues had a wide impact on lives and consequently the consumption of sweetpotato due its health associations. Health issues ranged from heart conditions, reflux, obesity and lap bands, intolerance to certain foods, the removal of organs, hip replacements and other major surgery and arthritis.

“So is your health important to you now (since experiencing major surgery)?”

“Yeah, absolutely. I’ve lost 28 kilos...I mean I’ve actually been eating more of that now since (dieting), I’ve been eating more sweetpotato and pumpkin...” (Sydney, interview, female).

Very few people interviewed had not experienced some form of life changing health issues, either personally or through a spouse or significant other. Of particular note was the onset of diabetes.

### **Diabetes**

A sizable number of focus group attendees and people interviewed, their partners or someone close to them had diabetes. The advent of diabetes was a catalyst for increasing vegetable consumption in general, and sweetpotato specifically. Shopping, cooking and eating involvement increased significantly and managing the diets of diabetics was seen as a balancing act and something that required regular vigilance.

“I’m a diabetic so I have to be careful what I eat....A lot of fruit, a lot of fish, a lot of vegetables. I work out a lot, so there’s tricky element of balancing carbs as a diabetic”. (Brisbane, focus group, male).

Sweetpotato increased in importance for diabetics with many engaging in swapping behaviours where potato was replaced with sweetpotato:

“So sweetpotato is a staple for you and not so much potato?” (interviewer)

“it’s because of my diabetes. It’s actually low GI and it fits in with what I can and can’t have...and white potato is not good for that whereas sweetpotato is, so we tend to use that a lot”. (Brisbane, male).

One couple (one with diabetes, the other with a significant physical disability and other health problems) had been advised by their nutritionist that including sweetpotato in their diet had the effect of ‘cancelling out’ the high GI of white potato.

“Dieticians say that you can make a potato more healthy by having a sweetpotato with it. The sweetpotato counteracts the carbs et cetera of a potato”.

Another couple believed that engaging in healthful behaviours such as consuming sweetpotato allowed them to have treats like desserts without feeling guilty. In this instance it would seem that the Gold sweet potato is the ‘white knight’ of diabetes sufferers.

The onset of diabetes led to an awareness of the properties of different foods. Consumers educated themselves and consequently adjusted their cooking and consumption behaviours. This consciousness raising is an important step in the process of change toward healthful eating (Green et al., 2004). Sweetpotato use increased because of this.

“In the last 18 months, I’ve been diagnosed as type 2 diabetic. So I’ve had a big lifestyle change – foods you eat and things you do – and shed 22 kilos and feeling pretty good for it.” (Brisbane interview, male)

“Has your sweetpotato consumption increased since you found out you had diabetes?” (interviewer)

“Oh, absolutely, yeah. Yeah definitely. It’s probably more than doubled. I would say, the amount we use. Previously we might have had sweetpotato but we might go a week or two without it. These days we probably – yeah, I can’t think of a time at least in the last six to 12 months where we’ve not had sweetpotato in the house or planned to go and get some more to replace the fact we’d run out.”

An increase in health involvement invariably led to an increase in the involvement with food.

## **Food Involvement**

Food involvement was strongly linked to sweetpotato consumption. Figure 3 provides a diagram of the factors leading to degrees of food involvement. Low food involvement is defined as little enjoyment in the cooking process and limited effort in shopping and cooking.

Low to medium food involvement was indicative of an evening meal repertoire. This repertoire had been built up over the years and consisted of repeating meal 'hits' and avoiding meal 'misses'. Family favourites were the mainstay and experimenting with meals and menus was not a focus. These consumers described themselves as 'reluctant cooks': meals should be 'quick and easy', 'nothing too elaborate' and 'not overly complicated'. Sweetpotato soup was mentioned in this way.

For those with mid to high involvement in food, vegetables were an essential element in meals, and sweetpotato was used in a number of inventive ways. As previously discussed, sweetpotato was valued for its versatility amongst those with a high involvement in food and was seen as an colourful staple with participants keen to talk of the various ways in which they include the vegetable in their diet.

High involvement in food was defined by a heightened information search for recipes and an increased need for knowledge of food benefits. These consumers derived a measure of self-esteem from cooking well.

## ***Family life-cycle, gender roles and social cues***

Systems of relationships of individuals, whether family or social, can limit or facilitate involvement in food. Independent singles were invariably low in food involvement. They expressed little desire to 'cook for one'. Similarly, some older Retired Couples favoured simple fare. As previously discussed, sweetpotato for these groups was valued for ease of cooking and as a simple way to provide colour to a evening meal. It is important to note that only three Independent Singles took part in this research. However, their relationships with food were consistent across the three focus groups.

The level of involvement and food choices of families with children living at home was frequently impacted by catering to partner and children preferences. For women whose partners had traditional tastes in evening meals and children with neophobic tendencies, meal preparation was a chore. In other families, cooking was shared amongst couples, particularly Established Families where strategies were used to distribute home duties when both partners were working. Traditional gender roles were only apparent within the Retired Couple targets, and this too was changing with men taking on shopping duties. Couples had different approaches to cooking and shopping and this was a source of amusement to them. High involvement women were often messy and inventive in the kitchen and men tended to be methodical, used recipes and 'cleaned as they went'. Couples also shared cooking duties according to different strengths such as abilities to cook Asian or traditional fare, or prepare BBQs and curries. Women were more likely to 'throw things together' and this was a source of pride, as was cooking for social occasions. Reinforcement through the esteem acquired through successful cooking during social occasions should not be undervalued here (Greene, 2004). Sweetpotato information and promotion likely to appeal might reflect this.

## ***Lifestyle change***

Lifestyle change affected food involvement and hence sweetpotato consumption. Particularly for males in this demographic, retirement was the catalyst for change in attitude to food, principally the health-food connection. Recently retired males had discovered cooking and had experienced an increased involvement in food. This was described as 'living life'. They were highly invested, often taking over the majority of cooking duties for their partners who were still working. They enjoyed the kudos they received from cooking. As previously discussed they tended to be methodical, used

shopping lists (and even a phone app in one instance) and recipes for meals. Shopping was a process with little deviation from shopping lists. Sweetpotato was an attractive option for them to spice up their dishes and to be 'adventurous'.

### ***Childhood and cultural food experiences***

"My mother's generation and all her generations before generally cooked what their mothers' cooked. Passed recipes down. Access to printed media was limited, in terms of cookbooks.

Whereas these days your access to every other influence is so vast as well as the influence of people coming in and influencing your community... It's great." (Brisbane focus group, male).

Early family cuisine and food preferences provide "food roots" and "food upbringing" that lead people to develop food roles and eating identities that lead to persistent patterns of food choices over time (Devine et al., 1998). Early preferences for many respondents tended to run toward a traditional Australian evening meal of meat and three vegetables. Sweetpotato was relegated to roasts and was rarely consumed outside of this.

Cultural background was often a precursor to food involvement and hence vegetable and sweetpotato consumption. Families with a variety of cultural influences tended to have higher involvement in food and were greater consumers of vegetables overall and therefore sweetpotato. Sweetpotato was also more likely to have been a feature of childhood, and family and food were inextricable linked with family dinners taking on great significance.

### ***Time***

For people with low food involvement sweetpotato represents a vegetable which required little investment in time and energy.

"Why would (people) eat it? Because it's a filling vegetable, easy to prepare. Reasonable size to buy, you don't have to buy a whole lot, you can just buy one or two, by the kilo". (Sydney, interview, female).

Economically driven senior couples were likely to be in this category as were independent singles. One independent single liked sweetpotato because she could put a small one in the microwave for six minutes and it would be cooked and 'all fluffy inside'. Working mothers with children still at home were the most time-poor. Quick sweetpotato recipes would appeal here.

### ***Significant others***

In a family situation, food choice is seldom a personal decision. Significant others and the wider social context are likely to influence a person's decisions about what to eat (Polivy et al., 1986; Herman et al., 2003). These influences can negatively or positively affect the consumption of sweetpotato.

Negative effect primarily came from the food preferences of partners and children. Australian males had a predilection for white potato and this tended to reduce the consumption of sweetpotato. "Because my wife likes it so I'm quite happy to eat sweet potato...I might have it two, maybe three times a month. But we'll have potato a hell of a lot more." (Melbourne, focus group, male). This was also true of fussy children. It was not unusual for women to cook separate meals for partners and children.

"So you said that the two girls in your life are trying to get you to eat right..."

"I'm a meat and three veg. Have been all my life. Mum always cooked potatoes, peas and meat and maybe some carrots...All these years, my wife has basically sat down to two different meals. She cooked a meal for me and she would cook a meal for herself...But as I said, since I've basically retired, it's starting to hit home and getting older. You tend to think more of what is going into your body." (Melbourne semi-retired male, interview).

Conversely, children can be the catalyst for increased sweetpotato consumption.

“Why do you make sure you have it (sweetpotato) at least a couple of times a week?”

“Our daughter’s an athlete and she rows for Australia so she’s got to have a variety of food and we try and give her all the different colours. You know, we make sure we have the yellow, the greens, the whole works. All the different colours give you something of a variety and benefits”. (Brisbane focus group, female).

“So what was it that got you eating sweetpotato?”

“Well my son did actually”. (Melbourne focus group, female)

“Yeah my daughter”. (female).

And...

“Our daughter thinks it’s healthier” (Brisbane, interview, couple)

The influence of wives and daughters on the eating behaviours of males interviewed was wide ranging. Women strived to shop, cook and eat healthy. The impact of this on the behaviours of males seemed to increase when they retired, with men becoming more conscious of what they ate as a result. This was correlated with increased sweetpotato consumption.

“How often would you buy (sweetpotato)?”

“Nearly every shop because it’s a healthier alternative to potato. I wish she (his wife) was here because she would ramble on all this stuff about sweetpotato. She knows. She’s into all this GI and all that sort of thing, whereas I’m just happy to eat it because she’s put us on a CSIRO diet which lessens carbs in your diet. Sweetpotato is supposed to be a lot healthier for you because it’s got less carbohydrates in it and it’s much more healthier. We replaced a lot of ordinary potato with sweetpotato for that reasons. (Sydney retired male, interview).

The influence of significant others on food choices extends to learning from their mistakes.

“Both my father-in-law and my late father were diagnosed at about the same age as I was with crook blood sugar and type two diabetes and both of them well, my father passed away in 2008, but he was on insulin and my father-in-law’s on insulin as well. It’s all because they didn’t do the right thing...My mum got misinformation and my father-in-law thinks he knows better than everyone else..So yeah...I’ve seen the downside of it and I don’t want to go there if at all I can help it” (Brisbane Male, interview).

The influence of others also extended to that of health professionals with sweetpotato recommended by dieticians for those with diabetes. A graphical representation of the influence of others is provided in Figure 2.

### **Information search**

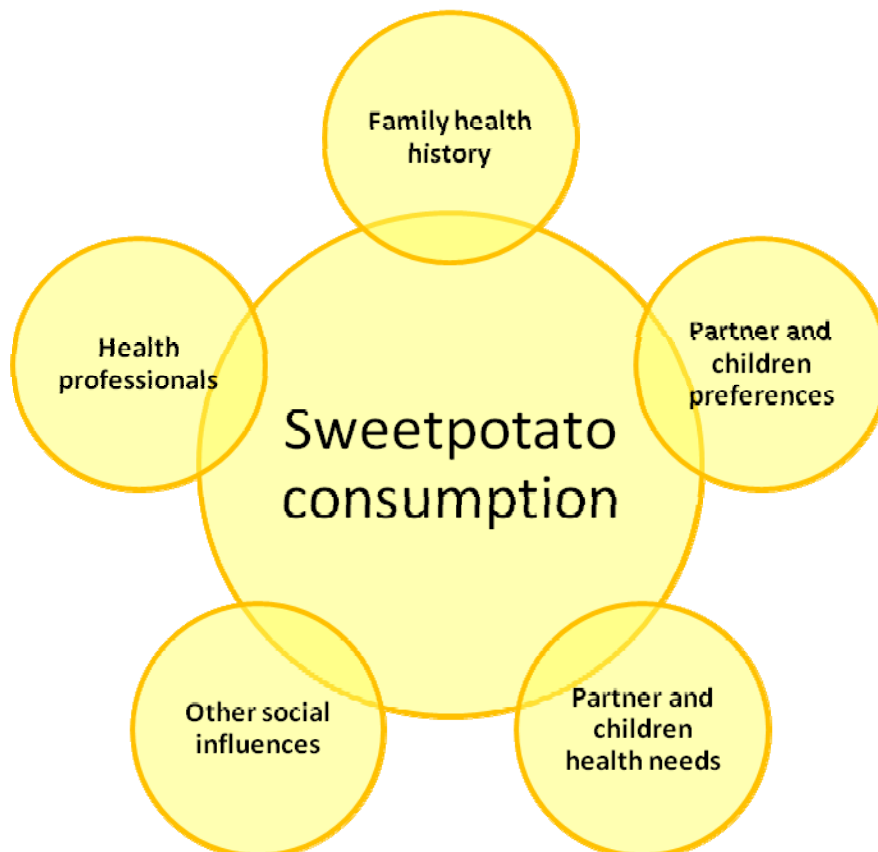
An increase in food involvement was related to this generation’s access to information. Information search behaviours of high food involvement consumers had increased considerably with the discovery of the internet and the advent of reality television food programs. This increase in available information influenced what people ate, how they cooked and served as inspiration. Information sources included:

- Online sources including blogs and recipe sites
- Magazines
- Grocery retail recipe cards and pamphlets

- Television cooking shows, particularly reality television and celebrity chefs
- Ethnic restaurants

Interestingly, every focus group and almost every interviewee mentioned the McCains sweetpotato chips advertisement. Participants' interest was piqued because of the attitude of the main character, the father who is reluctant to try something new. This concept rang true for the respondents.

**Figure 2 Impact of significant others on sweetpotato consumption**

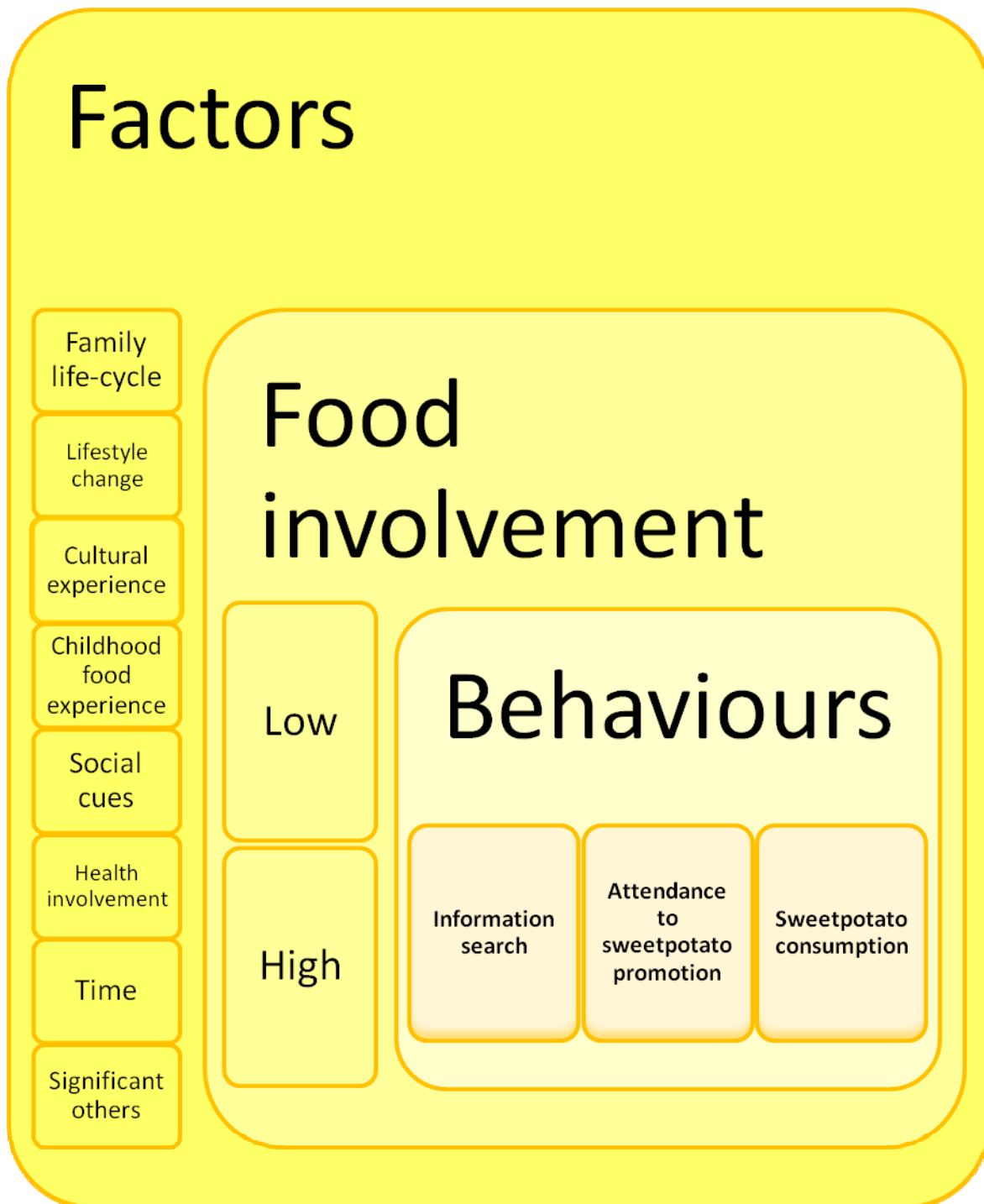


## Promoting consumption of Sweetpotato

### A Model for Increasing Sweetpotato Consumption

A model was developed based on the analysis of motivations for sweetpotato consumption (see Figure 3). This model posits that communications and promotions might effectively increase consumption by considering both the factors that contribute to low or high food involvement, as well as what that particular group finds attractive about the sweetpotato. Emotional appeals that reflect the relevant factors for that target are likely to increase involvement. Classic marketing theory states that when consumer's are sufficiently motivated they are more likely to process the logical arguments in the communications directed at them (Chitty et al., 2005). An unsophisticated example using the model might be: a time poor but health conscious working mother worried about a teenager who hates vegetables and with a husband who eschews all meals but meat and three veg might attend a message that includes how to bump up the nutritional value of quick traditional meals by topping cottage pie with half and half mashed white potato/sweetpotato (this was an actual strategy by a working mother).

Figure 3 A model for increasing sweetpotato consumption



### Three Big Ideas for the Promotion of Sweetpotato

Three topics were so frequently expressed by participants that they deserve reiteration. These are the opportunity to:

1. Promote the health benefits of the vegetable
2. Encourage swapping behaviours
3. Promote its versatility



## ***Health Promotions***

Health motivators were associated with living a longer life, and having quality of life. Quality of life for Established Families meant being able to pursue new interests in retirement and having the health and energy to keep up with changing family demands, particularly in their roles as parents and grandparents. This could inform the graphics and tone of sweetpotato communications directed toward this demographic in a persuasive manner.

Promotions around the health properties of sweetpotato are essential. Very few people interviewed had good or correct information on the nutritional and caloric impact of the vegetable. Focus group participants in particular expressed surprise at the number of benefits they could associate as a group with sweetpotatoes. This led to a considerable increase in positive attitudes amongst group members. One group described it as a hard worker.

“Are you interested in knowing more about the health benefits of sweetpotato?” (Brisbane focus group, moderator).

“The health benefits plus the vitamins and minerals that come specifically from the (sweet) potato.” (female1)

“Particularly if there’s a strong difference between that (a sweetpotato) and another vegetable. I’d like to know that” (male)

“Yeah – like blueberries, you know. High-antioxidant. So you associate that when you buy blueberries – oh it’s high-antioxidant as well as tasting terrific. With me, sweetpotato is low GI and it must be a good veg...If you buy sweetpotato, oh it’s also got high vitamin whatever...so it reinforces what you’re doing is the right thing”. (female2).

## ***Sweetpotato versus white potato***

A continuous theme throughout the groups and interviews was of sweetpotato as a healthy alternative to potato. As previously discussed, sweetpotato was thought of as superior to white potato because of low GI, an association with weight loss, perceptions of higher nutritional value and fibre. Participants believed positioning the vegetable against white potato would be advantageous and would promote consumption.

“I first discovered sweetpotatoes in a diabetic magazine. It was saying it was a realistic alternative carbohydrate source to potatoes”. (Male Brisbane).

And ...

“It’s something that I eat and I’m not going to get the guilt’s about it the same as I do if I eat a roast potato”

“why don’t you feel quite so guilty?” (moderator)

“because it’s low GI”. (Brisbane focus group, female).

It was also added to white potato in mash and in specific meals such as the topping of shepherd’s pie to ‘bump up’ the nutritional value of meals.

## ***Sweetpotato – the allrounder***

It is suggested that an appeal be made to those with varying degrees of food involvement and to those with particular food preferences. The McCain sweetpotato chip advertisement resonated with many of the participants, particularly the manner in which it portrayed the male/father figure and their resistance to new foods. Appeals to male preferences can be made by packaging the food in familiar forms or ways: “If someone said they use it on the BBQ, I’d throw it on the BBQ.” (Brisbane, focus group, male ).

Promoting the versatility of the vegetable, linking it to perceptions of gourmet food and marketing it out of its traditional season would appeal to high food involvement consumers: “Also how to cook it...you can roast it, steam it, make it into soups, mash it...”(Melbourne, focus group, female) and “It is fabulous in salads isn’t it? Like promote it as a winter and a summer (food).” (Melbourne, focus group, female).

Low involvement consumers would be best connected by promoting the low maintenance of the vegetable, particularly focusing on easy recipes and as a simple way to boost the appearance and nutritional value of meals.

### ***Consumer suggestions of promotions***

Suggestions by participants of how to promote increased consumption of sweetpotato were sometimes naïve and oblivious to industry constraints such as budgets, timing, return on investment etc. However, they have been included here as a point of interest.

1. The name sweetpotato was thought to be a barrier to purchase due to connotations associated with the word sweet, and there were suggestions that the label Kumara be adopted.
2. Participants were influenced by the past promotional campaigns of other products. They believed changing the perception of sweetpotato from a ‘casual’ vegetable to a staple one, would entail employing a high profile ambassador such as those used in lamb advertisements, or using a celebrity chef.

“Like they’ve got Stephanie Rice doing rice. Get Gary Sweet to do sweetpotato”.

3. Increasing the profile of the vegetable through primary school garden initiatives
4. Providing easy meal solutions in supermarkets such as stuffed sweetpotato
5. Promoting trial through recipe cards and taste booths in supermarkets
6. Employing reality television shows such as Master Chef for promotions ie. including challenges using sweetpotato

### **Barriers to consumption**

Participants felt that unfamiliarity was the greatest barrier to consumption for those not already purchasing and eating sweetpotato. Traditional vegetable eating habits, reliance on ‘staple’ vegetables and the relative ‘newness’ of sweetpotato was thought to contribute. The majority of participants could not remember sweetpotato being included in their diet during their youth. It was felt that not having exposure to the vegetable during childhood was a key reason for others not trialling the vegetable. It was thought that selected people were mired in repetitive eating patterns and that they were hesitant to try different products. “Didn’t grow up eating it, and they’ve just never tried it.” (Melbourne, focus group, male)

A lack of knowledge of how to prepare and cook sweetpotato was also thought to contribute to people not trialling the vegetable, or in the case of grown children leaving home, not continuing to eat it. “They probably don’t think about it, they’re not sure what to do with it, they haven’t had it,” (Melbourne focus group, male)

“People aren’t adventurous” (Sydney, focus group, male)

“They see it only as a roast vegetable”. (Sydney, focus group, female)

“It’s not a staple thing so I guess that’s why people don’t automatically go for it. They go for safe, what they know I guess.” (Sydney, focus group, male)



There was some discussion of misconceptions surrounding sweetpotato.

“I think when we were growing up we considered them to be unhealthy because they were sweeter and so we thought you know, they’re sugary so they must be unhealthy. We didn’t know that they had a low GI and were actually healthy.” (Sydney focus group, female).

And...

“The only thing is diabetics might say they have a lot of sugar in them ...”(Sydney interview, male).

“Do sweetpotatoes have a lot of sugar in them?” (interviewer)

“Well they taste sweet; I’m not sure whether they would actually have a lot of sugar. I’m certain that they have some type of sugars in them. It’s not probably cane sugar; it’s probably different sugars, fructose and things like that.” (Sydney interview, male).

During two visits to supermarkets moisture was found within the sweetpotato display. A few vegetables were also found to have mould at the cut ends, there was evidence of older and damaged product. These were a barrier to purchase for consumers.

## Recommendations

This research was undertaken to characterise the behaviour and purchasing drivers of key sweetpotato consumer demographics. Participants were regular buyers of sweetpotatoes and were either the main grocery buyer of the household or shopping was a shared activity. Participants were Established Couples (defined as two or more adults with no children  $\leq 17$  and the head of house 35-59); Senior Couples (defined as two or more adults with no children  $\leq 17$  and the head of house 60 or over) or Independent Singles (defined as one person adult household with no children  $\leq 17$  and head of house  $\geq 35$ ). Three focus group discussions were conducted in Brisbane, Sydney and Melbourne with a total of 25 people. Interviews were also completed in the home of 16 people in Brisbane, Sydney and Melbourne. Interviews included accompanied shopping trips to the usual place of purchase for sweetpotatoes.

Childhood experience of the consumption of sweetpotato was linked to meal preferences such as a reliance on traditional dinner forms and this influenced consumption.

### Recommendation 1

- Promote styles of cooking of sweetpotato that would appeal to traditionalists such as roasts and BBQs

Preferences for size were varied according to end-use. This is being well catered for by retailers with small packaged sweetpotatoes and large loose vegetables consistently available. There was a slight preference for deeper skin colour. However, this was not repeated enough to warrant further investigation. Moisture in displays and mould on sweetpotatoes was a barrier to purchase for consumers. These were found several times during shop-a-longs and may be a cause for concern.

### Recommendation 2

- Educate retailers on ensuring moisture and mould is not present at displays.

The health benefits of sweetpotatoes are a major point of differentiation for the vegetable. However consumer knowledge of the nutritional and other benefits associated with it were inadequate and a great opportunity is being missed.

### **Recommendation 3**

- Vigorously promote the distinct nutritional and health properties of sweetpotatoes, particularly if they can be favourably compared to other vegetables or foods.
- Promote the salient properties to specific targets such as diabetics, those that are at risk to bowel cancer, and those embarking on a weight-loss regime. Utilise specialist channels of communication such as diabetic magazines and websites.

The higher order values of longer life and quality of life were important motivators behind the consumption of sweetpotato. Health concerns were highly relevant for these targets.

### **Recommendations 4**

- Devise promotions that link images and tone of communications with enjoying life to the fullest, having time to enjoy family and grandchildren, and of partaking in social activities.

Sweetpotato provides a quick solution for busy people. The colour is valued as a quick way to add appeal to meals and as a heuristic for nutritional value.

### **Recommendation 5**

- Promote the vegetable as low maintenance, easy to store, easy to cook and particularly focus on it as a simple way to boost the appearance and nutritional value of meals.

People who love to cook and to eat value the vegetable for its versatility. Being a good cook is related to self-esteem for this target, particularly retired men who had discovered cooking and were almost 'competing' with their wives.

### **Recommendation 6**

- Promotions that link feelings of accomplishment with cooking sweetpotato may resonate with this target
- Promote the versatility of the vegetable.

Qualitative information while providing a wealth of detail cannot be extrapolated to the target population and this may be considered a limitation to the research. However, within research theory, effective quantitative design is believed to stem from the insights developed from qualitative studies.

### **Recommendation 7**

- Develop and implement a quantitative study on sweetpotato attitudes and behaviours based on the results of this study.

## References

- ABS 4802.0 - National Nutrition Survey: Selected Highlights, Australia, 1995) Vegetable consumption is lowest in men 18-44 years and women 18-24 years (ABS 4802.0, 1995)
- Baranowski T. Beliefs as motivational influences at stages in behavior change. *Int Q Community Health, Educ.* 1992;13:3-29.
- Beharrall, W.O. & Dennison, T.J., 1995, Involvement in a routine shopping context, *British Food Journal*, Vol. 97(4), pp. 24-29.
- Birch LL. Development of food preferences. *Ann Rev Nutr.* 1999;19:41-62.
- Candall, M., 2001, Consumer's convenience orientation towards meal preparation, conceptualisation, and measurement, *Appetite*, 36, pp. 15-28.
- Charmaz, K., 1983, *Constructing Grounded Theory: A practical guide through qualitative analysis*, Sage Publications, Calif.
- Denzin, N.K. & Lincoln, Y.S., 1998. *Collecting and Interpreting Qualitative Materials*, Sage Publications, Calif.
- Devine C.M., Connors, M., Bisogni, C. & Sobal, J. (1998). Life course influences on fruit and vegetable trajectories: Qualitative analysis of food choices. *Journal of Nutritional Education*. 30, pp. 361–370.
- Flick, U, 1998., *An Introduction to Qualitative Research*, Sage Publications, London.
- Greene, G. W., Fey-Yensen, N., Padula, C., Rossi, J.S. & Clark, P.G., 2004, Differences in psychosocial variables by stage of change for fruits and vegetables in older adults, *Journal of the American Dietetics Association*, 104, pp.1236–1243.
- Glaser, B.G. & Strauss, A.L., 1965, *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Rutgers, NJ.
- Herman, C., Polivy, J. & Roth, D., 2003, Effects of the presence of others on food intake: A normative interpretation, *Psychological Bulletin*, Vol. 129, pp. 873-886.
- Hilbran, A. M. ,& Peterson, S., 2009, *Childhood Weight Status and Food Experiences Impact Adult Food Behaviors*, Animal Science, Food & Nutrition, Southern Illinois University Carbondale, Carbondale, IL.
- Jorgensen, D.L., 1989, *Participant Observation: A methodology for human studies*, Sage Publications, Calif.
- Marshall, D., & Bell, R., 2004, Relating the food involvement scale to demographic variables to food choice and other constructs" *Food Quality and Preferences*, Vol. 15 (7/8), pp. 871-879.
- Petty RE, Cacioppo JT. *Attitudes and Persuasion: Classic and Contemporary Approaches*. Dubuque, IA: W. C. Brown Co Publishers; 1981.

Polivy, J., Herman, C., Hackett, R & Kuleshnyk, I., 1986, 'The effects of self-attention and public attention on eating in restrained and unrestrained subjects', *Journal of Personality and Social Psychology*, Vol. 50, pp. 1253-1260.

QSR International, NVivo 10, [http://www.qsrinternational.com/products\\_nvivo.aspx](http://www.qsrinternational.com/products_nvivo.aspx)

Schindler, R. M. 1992. The real lesson of new Coke: the value of focus groups for predicting effects of social influence. *Marketing research*. 4(4). pp. 22

The Nielsen Company, 2012, Sweetpotato report: Brand health and demographics, Horticulture Australia Limited.

Verbeke, W & Vackier, I., 2004, "Profile and effects of consumer involvement in fresh meat", *Meat Science*, Vol. 67 (1), pp. 159-168.

Zaichkowsky, J.L., 1985, "Measuring the involvement construct", *Journal of Consumer Research*, Vol. 12, pp. 341-352.

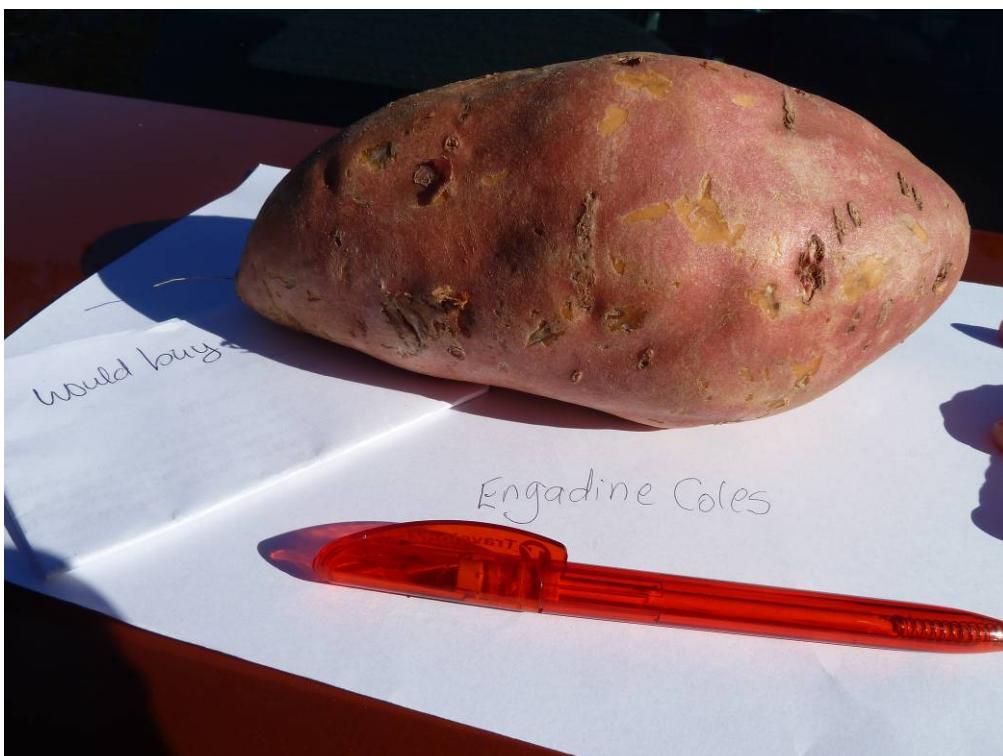
## Appendices

### Appendix A

Images 5 - 10 Acceptable sweetpotatoes chosen during shop-a-longs



These sweetpotatoes were small, pre-packaged and easy to peel





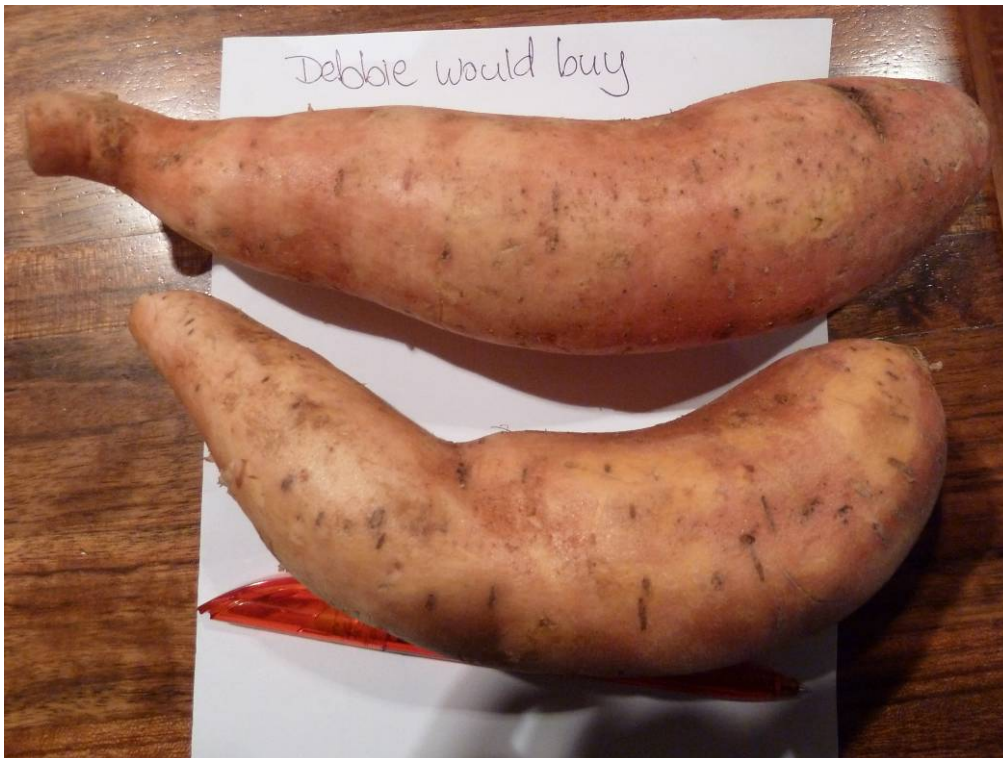
This sweet potato was easy to peel and was enough for one meal for a couple



The sweet potato at the top was a more vibrant colour and was thought to be better nutritionally. The smaller vegetable was an acceptable size for two people. Both vegetables were smooth.



This vegetable was easy to peel



The longer vegetables were perceived to be less woody

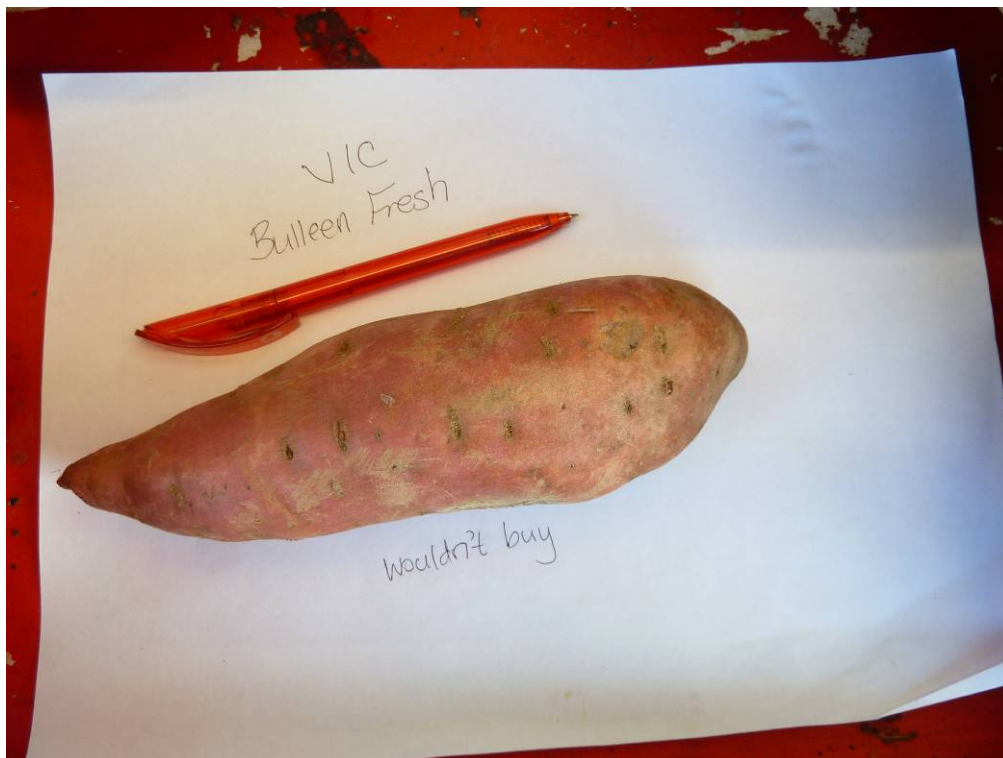


The sweetpotato on the right was perceived to be fresher as it was exceedingly hard.

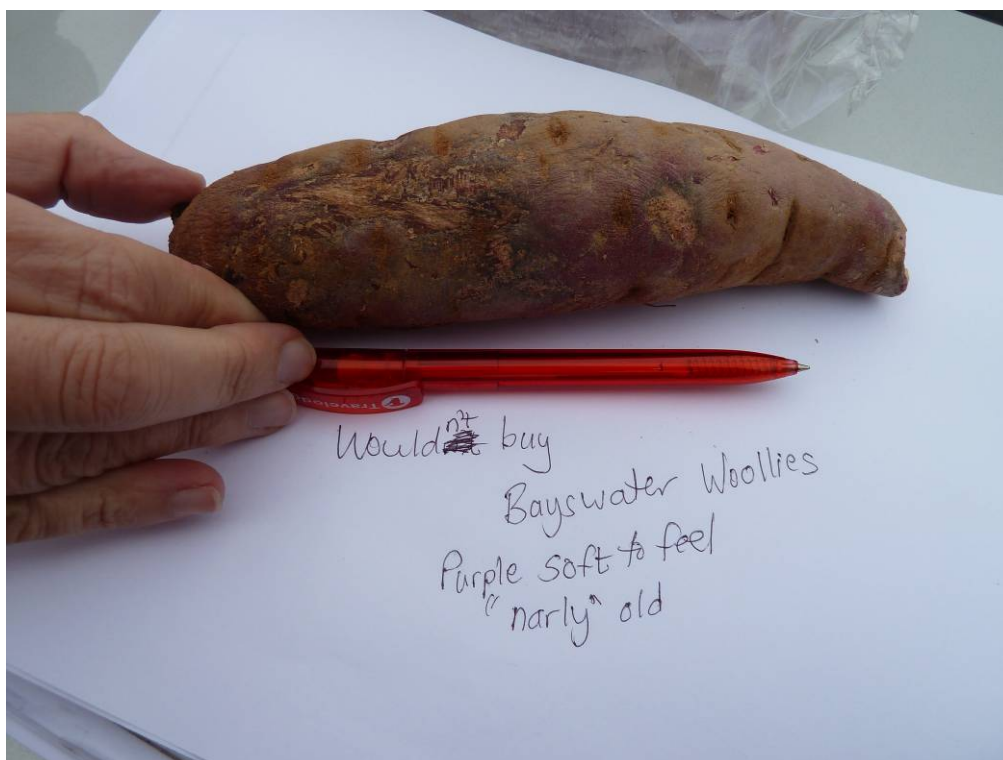


## Appendix B

### Images 11- 15 Unacceptable sweetpotatoes chosen during shop-a-longs

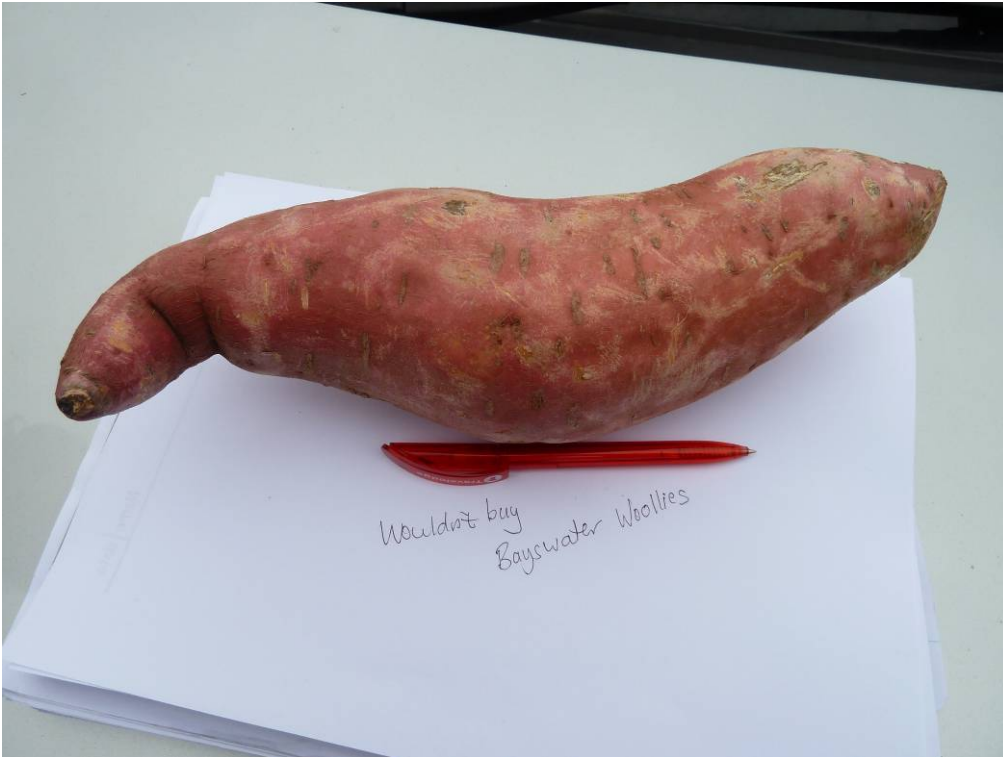


Flesh was a little spongy

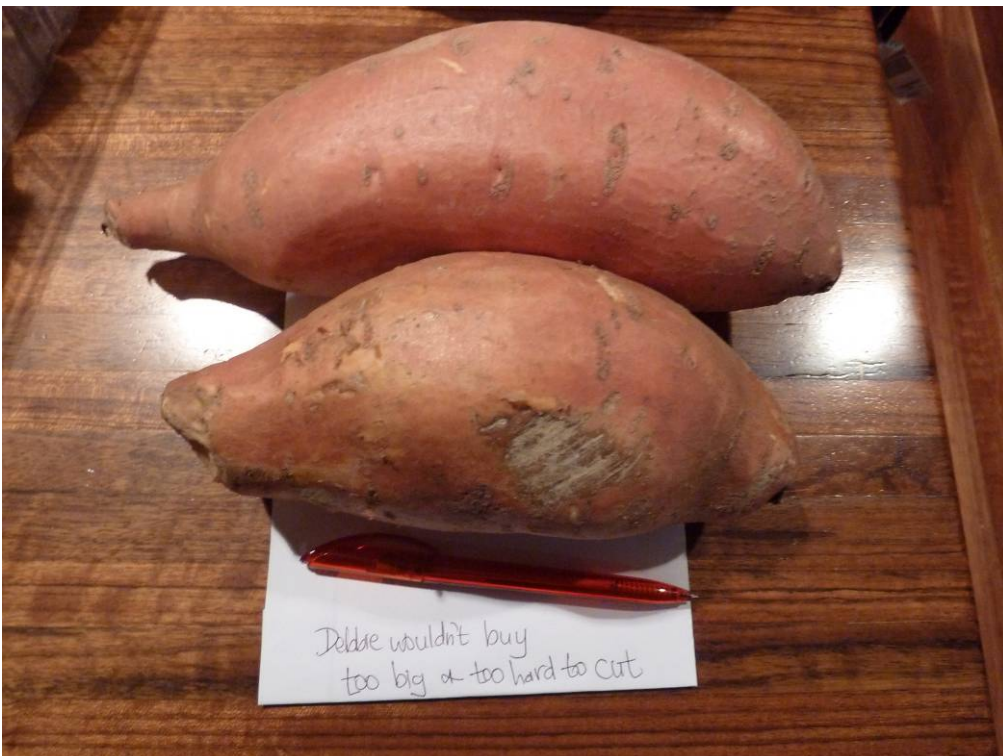


Too soft, wrinkly and generally very tired looking

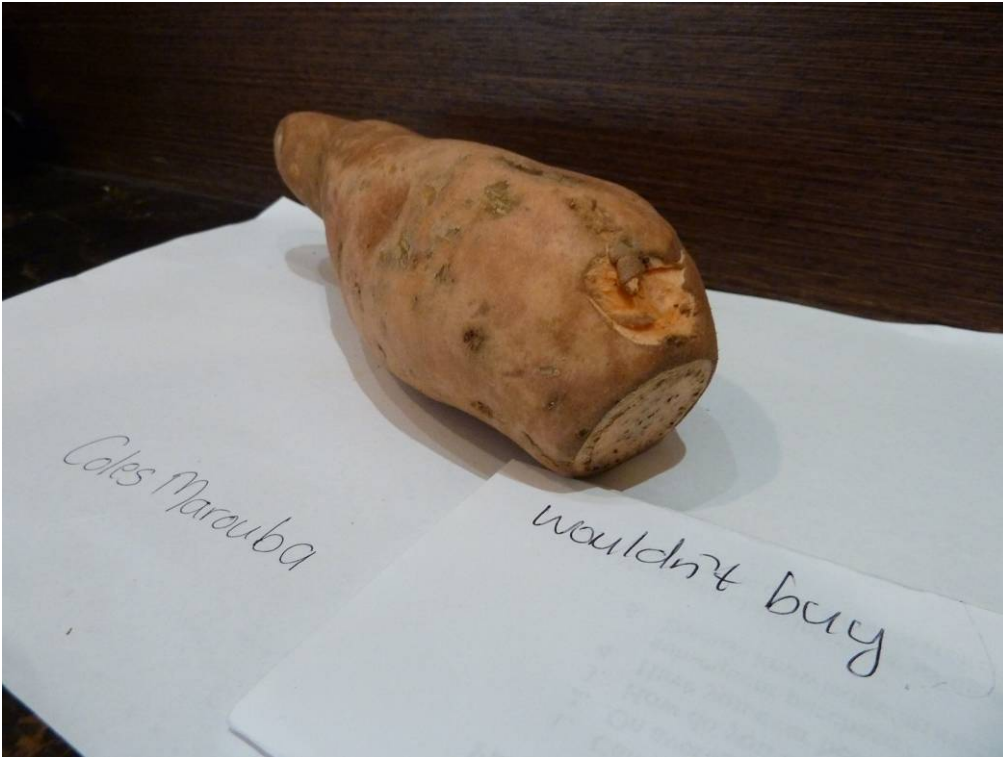




Too 'twisty'



These sweetpotatoes were very large and were considered too difficult to cut



This vegetable was soft, damaged and had some mould at the cut end.