Food waste avoidance tracking study 2011



Published by:
Department of Environment, Climate Change and Water NSW
59-61 Goulburn St
PO Box A290
Sydney South 1232
Ph: (02) 9995 5000 (switchboard)
Ph: 131 500 (environment information and publications requests)
Ph: 1300 361 967 (national parks information and publication requests)
Fax: (02) 9995 5999
TTY: (02) 9211 4723
Email: info@environment.nsw.gov.au
Website: www.environment.nsw.gov.au

OEH 11/XXXX

Table of contents

List of figures

List of tables

Executive summary

Food waste is a complex environmental, social and economic problem. In NSW, households are throwing away $2.5 billion dollars' worth of edible food each year. This amounts to over 800,000 tonnes across the State. To better understand community knowledge, attitudes and behaviours about household food waste 1,200 NSW households were surveyed as part of the *Food Waste Avoidance Benchmark Study 2009.* This report outlines the findings from the subsequent study, the *Food Waste Avoidance Follow up Study 2011*. This study was implemented 15 months after the launch of the Love Food Hate Waste program.

Research background

Both the Benchmark and Follow up studies were conducted online, and each was completed by 1,200 NSW residents. All respondents were aged 16 years and older, and were mainly or equally responsible for the purchasing and management of food within their household. The Follow up study was designed to monitor the food waste related knowledge, attitudes and behaviours of the NSW community. More specifically, the objectives of this Follow up study were to:

- track/monitor changes in community knowledge, attitudes and behaviour relating to food purchasing, management and wastage (e.g. levels of household food wastage, financial cost to households for food that is uneaten, level of concern about the issue etc.)
- track/monitor the effectiveness of educational activities and messages in the *Love Food Hate Waste* program.

Research results

Environmental concerns and importance of food waste

Over nine in ten respondents in both the Benchmark and Follow up studies indicated at least some concern for environmental problems. However, the main environmental concern shifted significantly in the Follow up study with quality of life being the number one concern (28%), as opposed to concern for future generations in the Benchmark (23%). It is believed that this response could have been influenced by the increasing media attention about the cost of living and electricity price rises.

In regards to food waste, a significantly lower proportion of respondents in the Follow up study indicated that they spent money on food that was rarely or never used compared to the Benchmark. In addition there was a significant decrease in the proportion of respondents that indicated they threw out 'more' or 'much more' food than they should (8% in the Follow up study, down from 16% in the Benchmark). Respondents in the Follow up study were also more likely to believe that food was the largest type of waste in the average household garbage bin (18% in the Follow up, compared to 13% in the Benchmark). However, packaging was still believed to be the number one type of waste (70% in the Follow up, and 73% in the Benchmark).

Knowledge of food waste

Two thirds (67%) of respondents in the Follow up study correctly understood that food must be eaten or thrown out by the use by date, which was consistent with the findings from the Benchmark study. There was a shift in knowledge relating to best before dates from the Benchmark to the Follow up study. 78% of respondents in the Follow up indicated they believed that foods are still safe to eat after the best before date as long as they are not damaged, deteriorated or perished (compared to 70% in the Benchmark).

Attitudes towards food waste

Consistent with the Benchmark study, slightly more than two thirds of respondents in the Follow up study recognised that in general, Australians do waste food. However, significantly fewer respondents in the Follow up study believed that wasting food contributes to climate change (38%, compared to 46% in the Benchmark).

In terms of cooking and storing food, there was a significant decrease in the proportion of respondents that felt that it was easy to make meals from assorted ingredients (71% in the Follow up, compared to 76% in the Benchmark). Over one in four respondents in both the Follow up and Benchmark studies believed that cooked items could be stored for a year or more in the freezer. Additionally, almost one in five respondents in both studies felt that cooked leftovers that have been in the fridge for more than one day were unsafe to eat (19% in the Follow up, and 22% in the Benchmark).

Food wasting behaviour

One in three respondents in the Follow up survey stated that they spent money on food that was rarely or never used compared to almost one in two in the Benchmark survey, indicating a shift towards food waste avoidance. However, when reporting actual behaviour, respondents felt that they threw out on average 2.9L of leftovers, 2.6L of fresh food and 2.1L of packaged and long life food per week. Respondents also estimated the value of their food waste per week to be, on average, $63.80. This figure is not directly comparable to the benchmark due to a change in the questionnaire.

The segments that reported that they wasted a large amount of food were those living outside the Primary LFHW program areas, those aged 18-24 years, those aged 25-39 years, families with children, males and those from culturally and linguistically diverse backgrounds (CALD).

Reasons for food waste

The reasons given for food waste remained largely consistent with the Benchmark. The most commonly reported main reason for wasting food was leaving food too long in the fridge or freezer, followed by household members not always finishing their meals. While most were indicated by around one in five respondents, the latter decreased significantly from the Benchmark to the Follow up (19% and 14% respectively).

Information sources

Incidence of having sought information in relation to food issues in the past six months remained relatively stable, with slightly less than half of the respondents doing so. The majority of those that did seek information in both the Benchmark and the Follow up studies used the internet to do so.

Fewer respondents in the Follow up study indicated that they thought that the NSW State Government should have a role to play in assisting people to reduce the amount of food wasted (61%, compared to 73% in the Benchmark).

Love Food Hate Waste program evaluation

Just over one in six respondents (17%) had seen or heard advertising or promotion about the general issue of food waste in the last 12 months. However, only 4% of all respondents indicated that they had specifically heard of Love Food Hate Waste (LFHW) previously and 2% had seen the LFHW logo before. Of the small proportion of respondents that had seen LFHW, one in two did not know what the main message of the program was without prompting, and over four in five did not recall any taglines or slogans from the adverting or promotion that they recalled. When prompted however the vast majority of respondents aware of LFHW did recognise the main messages – suggesting that they had retained the information at some level (95% of those aware of LFHW indicated ‘waste less food, save money and our environment’, and 92% indicated that ‘wasting food wastes water, energy and natural resources’ was a program message).

Despite low visibility, it seems that the advertising has created some consideration of behavioural change amongst those who were aware of it. The majority (85%) of the respondents who had seen or heard the LFHW advertising or promotion suggested the materials motivated them to at least think about acting in ways to waste less food.

Conclusions

While a number of knowledge, attitude, and behavioural measures have shifted (particularly in the Primary target areas) between the Benchmark and Follow up, given the low awareness of the LFHW program amongst respondents, these changes can not be attributed to the LFHW initiatives themselves, and may be a consequence of external factors.

Regardless, the research results still suggest that there may be benefit in increasing awareness of the Love Food Hate Waste program, as the majority of respondents (though small in number) who had seen or heard of the program recognised its main messages and were considering changing their behaviours as a result.

If the program is to go forward, it should continue to aim to close the knowledge gap between the amount of food people think they are throwing away and the amount they are actually throwing away.

There is still a need to educate consumers about:

- food waste being the largest component of household waste
- the quantity and monetary value of food that is thrown away
- the environmental impacts of food waste
- how long cooked food can remain in the fridge and freezer
- the distinction between best before and use by dates
- food waste including any uneaten food that is fed to animals and pets.

To reduce household food waste in NSW, the program should also continue to focus on encouraging consumers to do the following:

- save leftovers in the freezer rather than the fridge
- plan meals in advance
- consider portion sizes when cooking and shopping
- write a shopping list.

As mentioned in the Benchmark conclusions, there are still some consumer segments who seem to be wasting larger volumes of food and so will need to be specifically targeted. These include CALD consumers, families with children and younger consumers (primarily those aged 18 to 24 years old).

Highlighting the link between food waste and climate change may also help to produce an attitude shift in households and therefore encourage people to avoid food waste behaviours.

Introduction

Background to the research

The Office of Environment and Heritage NSW (OEH) has developed a Food Waste Avoidance program for the NSW community to raise awareness of the environmental, social and economic impacts of wasting food. The key message is '*Love Food Hate Waste*' (LFHW). In 2009, a quantitative study was undertaken to better understand community knowledge, attitudes and behaviours in relation to household food waste. This study, entitled the *Food Waste Avoidance Benchmark Study 2009* involved 1,200 NSW households and assisted in the development of the Love Food Hate Waste program which aims to minimise food wastage at the household level.

In 2011 another quantitative study was completed to monitor the food waste-related knowledge, attitudes and behaviours of the NSW community. Similarly to the *Food Waste Avoidance Benchmark Study 2009*, this study (entitled the *Food Waste Avoidance Follow up Study 2011)* included 1,200 NSW households. The 2011 study also included a number of measures designed to evaluate the *Love Food Hate Waste* program activities to date. Both the Benchmark and the Follow up studies were delivered online and completed by NSW residents aged 16 and older, who were mainly or equally responsible for the purchasing and management of food within their household.

The objectives of the Follow up study were to:

- track/monitor changes in community knowledge, attitudes and behaviour relating to food purchasing, management and wastage (e.g. levels of household food wastage, financial cost to households for food that is uneaten, level of concern about the issue etc.)
- track/monitor the effectiveness of educational activities and messages in the *Love Food Hate Waste* program.

This research will provide the indications of any changes to food related behaviour in NSW since the benchmark study. It will also serve to assist in developing additional components of the *Love Food Hate Waste* Program and in evaluating the effectiveness of the program.

The survey was undertaken by Woolcott Research and this report presents the findings of the Follow up component of the research.

Key project tasks

The research covered each of the main areas outlined below.

Awareness and knowledge of food waste

This study provided updated figures of the current level of awareness about the issue of food waste. It has also assessed current knowledge of the impact of food waste, and measured these changes from the Benchmark study.

Attitudinal shifts

This study incorporated measures that allowed for the tracking of attitudes towards food waste, other areas of waste, and environmental concerns.

Changes in behaviour

Accurate measurement of true behaviour regarding food waste avoidance activities is extremely difficult to achieve via self reporting, particularly given the propensity for respondents to generally overestimate 'good' behaviours and underestimate 'bad' behaviours. This study, along with the Benchmark study used questionnaire techniques that allowed for more considered estimates rather than simply claimed behaviours.
Specifically, the measures incorporated included:

- current household measures undertaken including menu planning, shopping to a list, food storage practices and use of leftovers
- perceptions of the behaviours of other 'typical' households
- reasons for throwing away food.

Current volume and financial value of food waste
The volume of food wasted at a household level was sought to estimate the volume/dollar amount of food wasted by NSW residents, and to identify those segments that are throwing away larger amounts of food. This average dollar amount was expected to be an area that respondents may have difficulty in reporting accurately. Using visual cues to aid in the estimation process, respondents were asked to estimate how much they threw out in an average week, first in a volume sense (e.g. a lot, a little) and then in an approximate volume (L) and dollar amount ($).

Due to changes to the questionnaire direct comparisons regarding the amounts of food wasted were unable to be made to the Benchmark study.

Awareness and source of information/communication
To track the sources of information used in NSW in regards to food wastage, this study and the Benchmark study ascertained where people were getting food related information (e.g. TV, magazines and websites) and which sources they would use if they required information of this nature.

Awareness of Love Food Hate Waste advertising, and message take out
To assess the effectiveness and reach of the Love Food Hate Waste program, a series of unprompted and prompted questions regarding advertising materials were asked of respondents. Visuals of some of the program materials were also shown to respondents to gauge recall and message take out.

Research methods

This quantitative research comprised an initial population definition study followed by the core research component of the Benchmark and Follow up studies.

While telephone and online interviewing methods both have their strengths and weaknesses, it is thought that telephone interviewing can still offer the most accurate results (depending on the type of study). However, telephone interviewing was seen to have two key limitations for this research. Telephone interviewing tends to under represent younger respondents (who were believed to be a key priority for the study), and it completely excludes those in households without a fixed landline telephone (an increasing proportion). Finally, telephone interviewing does not allow for the visual display of program material and relies instead on descriptions of material being read out to respondents.

For this research study, it was decided that an online approach would be most suitable. To enhance the accuracy and representativeness of this online approach, a population definition study that involved telephone interviewing (primarily) with a small top-up of households without landlines (via an online approach) was completed. This provided the most accurate measure of who the true food decision makers were.

Population definition study
Prior to the Benchmark study, a population definition study was conducted to define the food purchasing market in NSW. This involved a telephone study supplemented with a specified number of online interviews with respondents who did not have a fixed landline. The steps involved are outlined below.

Telephone interviewing via the Woolcott Research national omnibus – Omni Access
Several questions were included over two rounds of telephone interviewing in NSW (n=665). These questions determined whether respondents were responsible for food purchasing, preparation, and/or storage within their household.

Online top-up
A series of online interviews were conducted among individuals from NSW households without a fixed landline telephone. Online respondents were sourced from the Research Now panel; an international online data collection and panel specialist. Research Now panels are compiled through multiple source recruitment, including a wide range of personalised email activities, affiliate networks and targeted website advertising. Members are constantly recruited to ensure new respondents are available for tracking projects. In addition, panels are only used for market research purposes and panellists are given low level incentives for participation. Research Now also carefully manages the panels by having personal contact with panellists, carefully selecting members to take part in specific surveys to ensure they are not over-contacted and monitoring panellist behaviour and satisfaction.

Table 1: Total sample for population definition study (n=number of participants)

Age range	Phone – Omni Access n=	Online – Research Now panel n=	Total n=
16–24	71	27	98
25–39	175	37	212
40–54	200	11	211
55+	234	-	234
Total	680	75	755

The population definition study allowed for the accurate definition of household decision makers in terms of age, sex, location, income and household type. Once the population was defined, this definition was used to properly 'weight' the core research component (conducted exclusively online).

Core research – Benchmark and Follow up studies

The core research for each of the Benchmark and Follow up studies involved an online study with a sample of 1,200 interviews sourced from the Research Now panel, with quotas applied for some demographic variables. Respondents were screened to ensure that they satisfied the food purchasing, preparation or storage decision making criteria (see Appendix 1 and 2 for Benchmark and Follow up questionnaires).

The online methodology allowed for robust and cost effective implementation for the survey instrument. This method also has the clear advantage of allowing for the inclusion of program materials, such as creative collateral including print advertisements and posters during the tracking survey.

The population definition results were used to 'post-weight' the results in the Benchmark and Follow up studies to ensure that each of the total samples for these studies were representative of the NSW population for food purchasing, preparation and storage decision makers aged 16 years and older.

The Benchmark and Follow up questionnaires were designed to address three key areas of enquiry:

- *attitudes* towards the environment, waste and food waste
- *knowledge* of food waste in NSW
- *behaviours* regarding food and food management at the household level.

Copies of the Benchmark and the Follow up questionnaires are in Appendix 1 and Appendix 2.

Inclusion of Primary Love Food Hate Waste program areas

A key objective of this Follow up study was to understand the impact of the LFHW program. After launching the program in May 2010, many councils have been involved in activities aimed at reducing the amount of food that is wasted in their communities. Therefore, to be able to gauge the impact of these activities, specific areas were targeted in the Follow up study.

The sample was split to include n=600 respondents in *Primary LFHW program areas* ('Primary areas'), and n=600 from other areas of NSW. Results were then post-weighted to ensure that the total sample for the Follow up study was representative of the NSW population in terms of location, therefore allowing comparisons to be made to the Benchmark study.

The Primary areas, where councils had engaged in LFHW program activities were made up of the following Local Government Areas:

- Mosman
- City of Sydney
- Willoughby
- Bega
- Sutherland
- Burwood
- Ryde
- Canada Bay
- The Hills (Baulkham Hills)
- Hornsby
- Lake Macquarie/Newcastle

Throughout this report, significant differences between the Primary areas and Other areas of NSW have been highlighted.

Respondent profile

Key measures were compared to the NSW population (as measured by the Australian Bureau of Statistics) to ensure a representative sample. The online study was closely matched to the NSW population (Table 2).

Table 2: Respondent profile from Benchmark and Follow up studies compared to the NSW population

	NSW population* %	Benchmark study %	Follow up study %
Age			
18–24	15	13	13
25–39	27	28	28
40–54	26	28	29
55+	31	31	29
Gender			
Male	49	50	50
Female	51	50	50
Work status			
Paid work/employed	60	53	55
Retired	*	16	17
Student	*	10	8
Home duties	9	10	10
Unemployed	4	6	5
Other	*	4	0
Education			
Some secondary school	28	16	16
Completed secondary school	16	23	28
Trade/technical qualification	23	30	29
University/college diploma, degree or higher	33	30	27
Household income			
Less than $20,000		6	4
$20,000 to $39,999		8	10
$40,000 to $59,999		17	17
$60,000 to $79,999		11	11
$80,000 to $99,999		12	12
$100,000 to $149,999		6	6
$150,000 to $199,999		2	3
$200,000 or more		1	-
Prefer not to indicate		38	38

*Based on 2006 Australian Bureau of Statistics Census

Background to the issue of food waste

Food waste – a complex environmental problem

Recent waste audits conducted by councils indicate that food is the single largest component of the domestic kerbside waste stream in NSW (40.2% by weight). Approximately 800,000 tonnes of food waste (or 315 kg/household/year) is now disposed to landfill across NSW every year (DECC, 2009).

The decomposition of food waste (together with other organic materials) in landfill is a major contributor of greenhouse gas emission across the state. National greenhouse inventory data suggests that landfills contribute to 2% (or ~11MT CO_2-e/annum, after gas capture) of Australia's total greenhouse gas emissions (Department of Climate Change, 2009). For every tonne of food waste diverted from landfill, 0.9 tonnes of CO_2-e is saved (Recycled Organics Unit, 2008).

Food waste can also have a major impact on landfill and how these sites affect the surrounding environment. The breakdown of food waste in landfill releases nutrients, which can migrate out of landfill sites and impact on groundwater reserves and waterways.

In addition, wasteful consumption of food increases greenhouse and environmental impact of Australia's food supply system. Soils, water, natural resources and energy inputs are used to produce, harvest, transport, process, package, distribute and market food products. When food is wasted, the energy and resources invested by the supply chain to deliver food to consumers is lost.

In Australia, the food system is estimated to be responsible for approximately 23% of Australia's total greenhouse gas emissions, making it the second largest emissions-generating activity after power stations (Garnaut, 2008). This includes direct emissions from agriculture and those attributed to energy, transport, food production, processing and distribution. Agriculture is the biggest component of the food system accounting for about 16% of total national emissions (NGGI, 2009).

In 2005, the Australia Institute released a report detailing the national figures for wasteful consumption across Australia (Hamilton, Denniss and Baker, 2005). This report was updated in late 2009 with results indicating that Australians are throwing away $5.2 billion dollars' worth of food each year (Baker, Fear and Denniss, 2009). Additionally, The University of Western Sydney reported that Sydney residents throw away in value as much as Sydney farmers receive in income (O'Neil, James and Crabtree, 2009).

Given the data above, more sustainable practices around purchasing, preparation and consumption of food will provide major environmental and greenhouse benefits to the NSW and Australian communities.

Love Food Hate Waste

The Office of Environment and Heritage (OEH) has developed a Food Waste Avoidance program for the NSW community that focuses on decreasing the $2.5 billion worth of edible food sent to landfill each year from NSW households. The key message is 'Love Food Hate Waste'. The Love Food Hate Waste (LFHW) program aims to raise awareness about the environmental and financial impacts of food waste in NSW and the amount of 'good' food being sent to landfill. By promoting easy and practical solutions for buying, cooking and storing food, Love Food Hate Waste will help the NSW community to avoid food waste, save time and money, and reduce our impact on the environment.

This household program will focus on making it easier for consumers to avoid food waste by:

- engaging directly with consumers
- developing clever and engaging marketing
- providing accessible help and encouragement to the target audiences.

Love Food Hate Waste program objectives

The main objectives of this household-level program are to:

- reduce the volume of food waste generated and disposed of at the household level
- influence and support new habits and behavioural norms with a shift towards more efficient approaches to food purchase, storage, preparation and consumption (and thus avoidance of food wastage).

The program aims to achieve these objectives through:

- increased community knowledge about the environmental, social and economic impacts of food wastage
- increased community concern about food wastage and awareness that urgent action is needed to reduce the amount of food waste generated and sent to landfill
- increased knowledge and skills in best household practices in food purchasing, storage, preparation and use of leftovers
- promotion of a range of simple, benefit-driven, behaviours for individuals that support avoidance of food wastage in the home. A secondary message will address what to do with unavoidable food waste through home composting and worm farming
- support for institutional and inter-generational transfer of knowledge and skills in more efficient food purchasing, preparation and consumption
- providing a platform for increased knowledge and awareness of food wastage in business
- gaining commitments from business to reduce and recover food waste.

OEH's program in NSW will focus on five key areas of behaviour change. These areas include:

- menu planning
- shopping to a list
- correct storage
- portion control
- using leftovers.

Since the program launched in May 2010 a range of LFHW activities have been implemented in the community including:

- a partnership program with community organisations, local and state government agencies and business and industry
- a community grants program to support our program partners to deliver on-ground LFHW education programs within their community
- attendance at food and wine festivals and
- features, editorial and advertising in a range of local, state and national media publications.

For more information on the Love Food Hate Waste program please visit http://www.lovefoodhatewaste.nsw.gov.au

Research notes

Total sample size

In figures with subgroup differences, the individual groups may not sum to the total sample size. Some groups do not fit into pre-defined categories. For example, some respondents preferred not to answer questions about income or did not know their household income. Additionally with household type, there were a range of other, smaller household types into which respondents had classified themselves that were not large enough to report on as individual groups (such as single parent with children, de facto, retired couple, couple with no children and couple who have children that have moved out). Given that this group of 'others' is not homogenous, they are not reported on in the figures. However, this data does form part of the broader analysis.

Rounding

Percentages are given to the nearest whole number. In some charts and tables, this may result in totals adding to slightly more or less than 100%, due to rounding. This also means that combined figures reported in the text may differ slightly from the sum of the rounded figures shown in charts.

Changes to questionnaire

As has been indicated, the focus of the Follow up questionnaire was somewhat different to that of the Benchmark. A number of knowledge, attitude, and behavioural questions that were applied in the Benchmark were not repeated in the Follow up. In their place, a new set of questions was included to specifically measure awareness and effectiveness of the LFHW program.

In addition, some minor changes were made to a few of the benchmark questions that were repeated in the Follow up study. These changes prevent any direct comparisons being drawn between the two studies. The questions affected by these changes were Q6 of the Follow up (where an extended pre-coded value list was presented in the Follow-up, allowing respondents to select higher values than they could in the Benchmark), and Q10/Q11 of the Follow up (where a skip was introduced for respondents who indicated that they did not waste food at Q5 – thereby eliminating irrelevant questions to this small group).

Significant differences

As there are a number of subgroups of interest in the food waste avoidance studies, various significance testing has been applied where appropriate.

Independent samples t tests have been used (at the 95% confidence interval) to measure any differences between the Benchmark and Follow up studies. Similarly, to show significant differences between the Primary areas and Other areas of NSW, independent sample t tests have been applied.

When testing for significance with subgroups of interest in the Follow up study (such as demographic subgroups including age, gender and income), results that were significantly different to the total sample have been reported.

Throughout the report, results presented in tables that are significantly higher (at the 95% confidence level) are denoted in bold red and underlined, and those results that are significantly lower are denoted in bold blue and underlined.

Throughout this report, certain demographic segments are referred to. One segment of particular interest is:

Culturally and linguistically diverse (CALD) respondents
This segment is made up of those respondents who identified that they spoke a language other than English (as a main or second language).

61% of the CALD respondents in the Follow up study spoke English as their main language at home (compared to 68% of those in the Benchmark, Table 4), while one third (30%) indicated that English was the second language spoken at home (compared to 31% in the Benchmark, Table 5).

In both the Benchmark and Follow up studies Cantonese was the most common main language amongst CALD respondents (11% and 16% respectively). Mandarin was the second most common main language (10% and 4% respectively).

Table 3: Main language spoken at home

Language	Benchmark study CALD respondents (n=263) %	Follow up study CALD respondents (n=266) %
English	68	61
Cantonese	11	16
Mandarin	3	4
Arabic	2	0
Italian	2	0
Greek	2	1
Vietnamese	1	3
Spanish	0	1
Hindi	1	1
Tagalog	0	1
Gujarati	1	0
Indonesian	2	0
Polish	0	0
Tamil	0	6

Table 4: Second language spoken at home

Language	Benchmark study CALD respondents (n=263) %	Follow up study CALD respondents (n=266) %
No other language	1	3
English	31	30
Cantonese	5	3
Mandarin	10	10
Arabic	8	4
Italian	2	6
Greek	5	12
Vietnamese	0	0
Spanish	2	2
Hindi	1	6
Tagalog	2	3
Gujarati	5	0
Indonesian	1	0
Polish	6	3
Tamil	0	0

Survey findings

Environmental concerns and importance of food waste

To assist OEH in evaluating the *Love Food Hate Waste* program, and any changes in perceptions towards food wastage, it was necessary to investigate:

- general levels of concern about environmental problems
- current perceived levels of general garbage, and in particular food waste (in relation to other types of household waste)
- perceived value of food wasted for an 'average NSW household'.

These measures were asked in both the Benchmark and the Follow up studies and where possible, comparisons to the Benchmark have been made.

Section snapshot

The environment

As in the Benchmark, more than nine in ten respondents (93%) indicated at least some concern for environmental problems in the Follow up survey.

In the Follow up study the main concern was for the effect on 'quality of life' (28%) followed by the concern most cited in the Benchmark study 'concern for future generations' (23%).

Household waste

The proportion of respondents who indicated that they spent money on 'food' that was rarely or never used decreased significantly in the Follow up study (32%) compared to the Benchmark (49%). Two other types of waste, 'interest on credit card purchases' and 'books/magazines/CDs/DVDs' were both cited more frequently than food as items that are purchased but rarely or never used (36% and 35% respectively).

A similar proportion of respondents in the Follow up study stated that they were concerned (either a great deal or a fair amount) about buying food that is rarely or never used (47% in the Benchmark and 51% in the Follow up). Respondents were much more likely to say that they were concerned about electricity that could be saved (71%), a potential reflection of the recent focus on electricity price rises.

Despite a higher proportion of respondents in the Follow up survey thinking that food was the largest waste item in an average garbage bin (18% compared to 13% in the Benchmark), only 8% of respondents indicated that they threw out 'more' or 'much more' food than they should, compared to 16% in the Benchmark study. Nearly 3 in 5 indicated that they threw out 'very little', a significant rise from the Benchmark (59% and 30% respectively).

When asked to give an estimate of how much the average NSW household spends on food that is purchased but not eaten each year, the mean value of these estimates was $724.20. Due to questionnaire changes, this figure is not directly comparable to that of the Benchmark.

Detailed section findings

Concern about environmental problems

Overall concern about environmental problems

Q1. In general, how concerned would you say that you are about environmental problems?

Respondents in the Benchmark and Follow up studies were asked to indicate their level of concern regarding environmental problems on a five-point scale. In both the Benchmark and Follow up waves the vast majority (93% in both studies) of respondents expressed at least some concern for environmental problems. In the Follow up wave, a significantly higher proportion of respondents indicated that they were 'not concerned at all' about environmental problems (3% in the Follow up study compared to 1% in the Benchmark); however this was still a very small minority of respondents.

In the Follow up males were significantly more likely than the total sample of the Follow up study to be 'not concerned at all' about environmental problems (5%, compared to 3% of the total sample), as were those

aged 55 years or more (7%) and CALD respondents (6%). Respondents with an income of $20,000 to $59,999 per annum were significantly more likely to indicate that they were concerned about the environment 'a great deal' (24%, compared to 17% of the total sample).

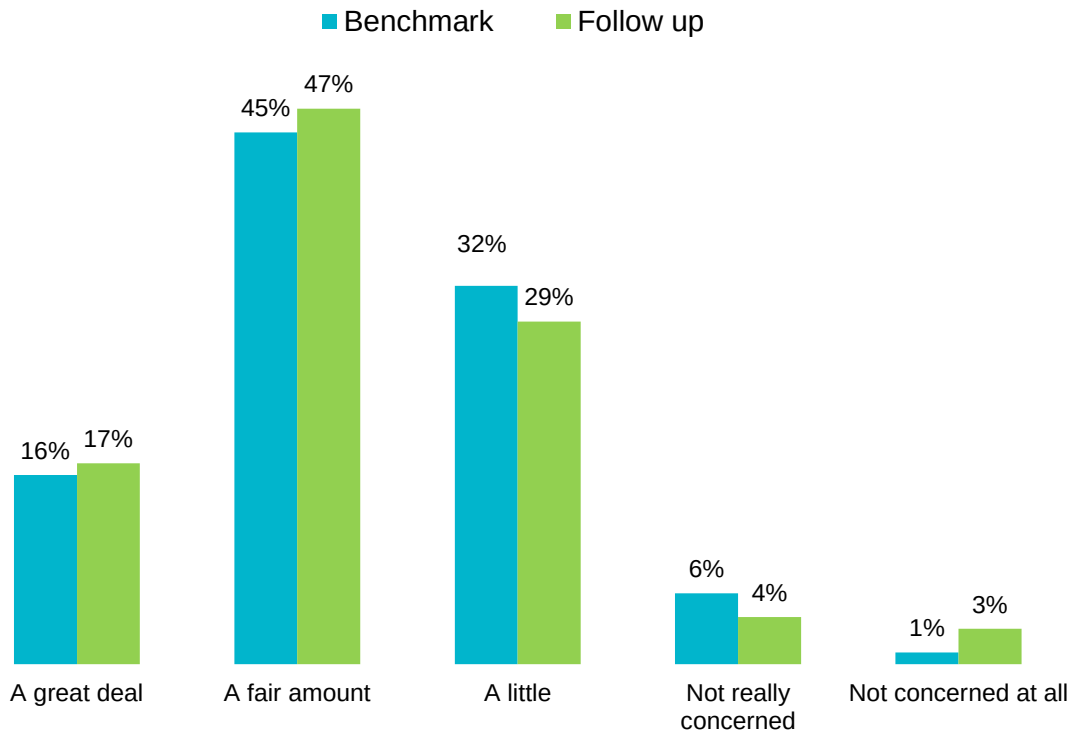

Figure 1: Level of concern about environmental problems
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Major reason for concern about environmental problems
Q2. Please indicate which one (1) of the following you are most concerned about? (Six categories presented).

Respondents were asked to indicate which of six possible reasons best explained what they were concerned about.

In the Benchmark study, the number one concern amongst respondents was 'concern for future generations' (with 23% of respondents in the Benchmark study indicating that this was the category they were most concerned about). However, in the Follow up study, concern for 'quality of life' was the most common response (28%), showing a significant increase from the Benchmark study (18%). The second most frequent response in the Follow up wave was 'concern for future generations' (23%), with 'maintaining ecosystems' third (20%).

Respondents in the Follow up study were significantly less likely than those in the Benchmark study to cite the 'health effects of pollution' as the category they were most concerned about (7%, compared to 16% in the Benchmark study).

Those living in Primary areas were significantly more likely than those in other areas of NSW to indicate that they were most concerned about 'quality of life' (29% and 22% respectively).

Respondents living in Newcastle or Wollongong were also significantly more likely than the total sample of Follow up respondents to indicate they were concerned about 'quality of life' (45%, compared to 28% of the total sample). In addition, these Newcastle/Wollongong respondents were significantly less likely to be concerned about availability of resources (6%, compared to 12% of the total sample), and long-term economic sustainability (3%, compared to 12%). Those in large country towns however indicated significantly more concern for future generations (39%, compared to 23% of the total sample), and were significantly less

concerned about ‘quality of life’ (14%, compared to 28%) and ‘availability of resources’ (7%, compared to 12%).

Major reasons for concern about environmental problems varied with age. Respondents aged 25-39 were significantly more likely to indicate concern over ‘quality of life’ (38%, compared to 28% of the total sample), whereas those aged 45-54 years were significantly more concerned about ‘maintaining ecosystems, nature, plants and animals’ (28%, compared to 19% of the total sample). Interestingly respondents aged 55 years or more were significantly more likely to show concern for ‘long-term economic sustainability’ (17%, compared to 12%).

Respondents from households consisting of families with children were significantly more likely to show concern for future generations (40%, compared to 23% of the total sample), whereas a significantly higher proportion of those in single person households were likely to indicate they were concerned about ‘quality of life’ (43%, compared to 28%). Those living in shared households on the other hand were most concerned with ‘maintaining ecosystems, nature, plants and animals’ (30%, compared to 19% of the total sample).

Some significant differences also emerged by education levels, with those who had not completed secondary school showing significantly more concern than the total sample for ‘quality of life’ (54%, compared to 28%). Those whose highest level of education was secondary school however were significantly less likely to be concerned about ‘quality of life’ (15%), and were significantly more concerned than the total sample for future generation’s (29%, compared to 23% of the total sample), as well as ‘maintaining ecosystems, nature, plants and animals (27%, compared to 19%). Respondents who had completed a university degree showed significantly higher concern over the ‘availability of resources we consume’ (17%, compared to 12% of the total sample).

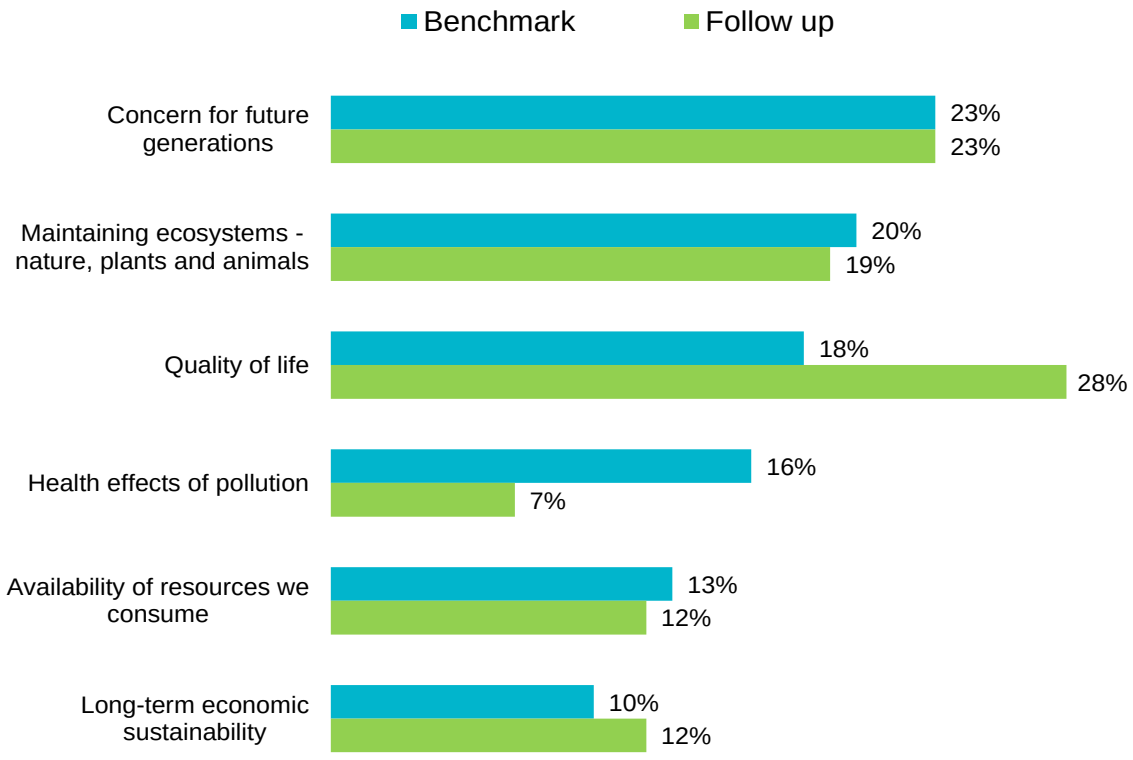

Figure 2: Major reason for concern about environmental problems
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Areas of household wastage

Claimed areas of household wastage

Q3a. People sometimes spend money on household goods and services that are never or rarely used. Please indicate whether or not your household ever does any of the following (Five categories presented).

Respondents were asked which goods and services their households spent money on that were rarely or never used. Encouragingly, whilst 'food' was the most frequent response in the Benchmark study (with 49% indicating they buy food that gets thrown away before being eaten) a significantly lower proportion (32%) indicated they wasted food in the Follow up study. Additionally, there was a significant decrease in the proportion of respondents in NSW that indicated they wasted 'electricity' in the Follow up study (29%, compared to 42% in the Benchmark study).

In the Follow up study, paying 'interest on credit card purchases' was the most common response (36%), followed closely by buying 'books, magazines, CDs and/or DVDs' that are rarely or never used (35%). Interestingly, a significantly higher proportion of respondents indicated they bought these type of goods and did not use them in the Follow up study than did so in the Benchmark (35%, compared to 28%).

The proportion of respondents that indicated they bought 'clothes and other personal items' that were rarely or never used remained stable in the Follow up study (30%, compared to 29% in the Benchmark study).

For the Follow up, respondents living in Primary areas were significantly more likely than those in other areas of NSW to indicate they used more electricity than necessary (34% and 27% respectively), however they were significantly less likely to pay interest on credit card purchases (30%, compared to 37% of those in other areas of NSW).

Respondents from Sydney were significantly more likely than the total sample to waste electricity (35%, compared to 29% of the total sample). Those living in Newcastle or Wollongong were significantly less likely to indicate they waste electricity (9%) and food (20%, compared to the total of 32%) but were more likely to indicate they waste books and magazines (49%, compared to 35% of the total sample) and to pay interest on credit card purchases (57%, compared to 36% of the total sample).

Younger respondents aged 18 to 24 years were significantly more likely than the total sample to waste:

- Electricity (38%, compared to 29% of the total sample)
- Food (50%, compared to 32%)
- Books, magazines, CDs or DVDs (50%, compared to 35%)
- Clothes and other personal items (46%, compared to 30%).

Those aged 25-39 were also significantly more likely than the total sample to indicate that they bought books, magazines, CDs or DVDs that were rarely or never used (43%, compared to 35% of the total sample). They were also more likely to indicate that they paid interest on credit cards (47%, compared to 36% of the total sample).

CALD respondents were significantly more likely to indicate that they used more electricity than was necessary (41%, compared to 29% of the total sample), and also were more likely to purchase books, magazines, CDs or DVDs that were rarely or never used (42%, compared to 35%).

Respondents from households that consisted of families with children were significantly more likely to indicate that they bought food that was thrown away before being eaten (38%, compared to 32% of the total sample). Those that lived alone on the other hand were significantly more likely to buy books, magazines, CDs or DVDs that were rarely or never used (43%, compared to 35% of the total sample) and to pay interest on credit cards purchases (45%, compared to 36%). Similarly, respondents who did not complete secondary school were also significantly more likely to buy books, magazines, CDs or DVDs that were rarely or never used (56%, compared to 35% of the total sample) and to pay interest on credit card purchases (58%, compared to 36%).

Respondents who had a household income of $100,000 or more were also more likely to purchase some goods that were rarely or never used. These respondents were significantly more likely to indicate they wasted food (52%, compared to 32% of the total sample), bought books, magazines, CDs and DVDs that were rarely or never used (46%, compared to 35%) and bought clothes and other personal items that were unlikely to have been used (46%, compared to 30%).

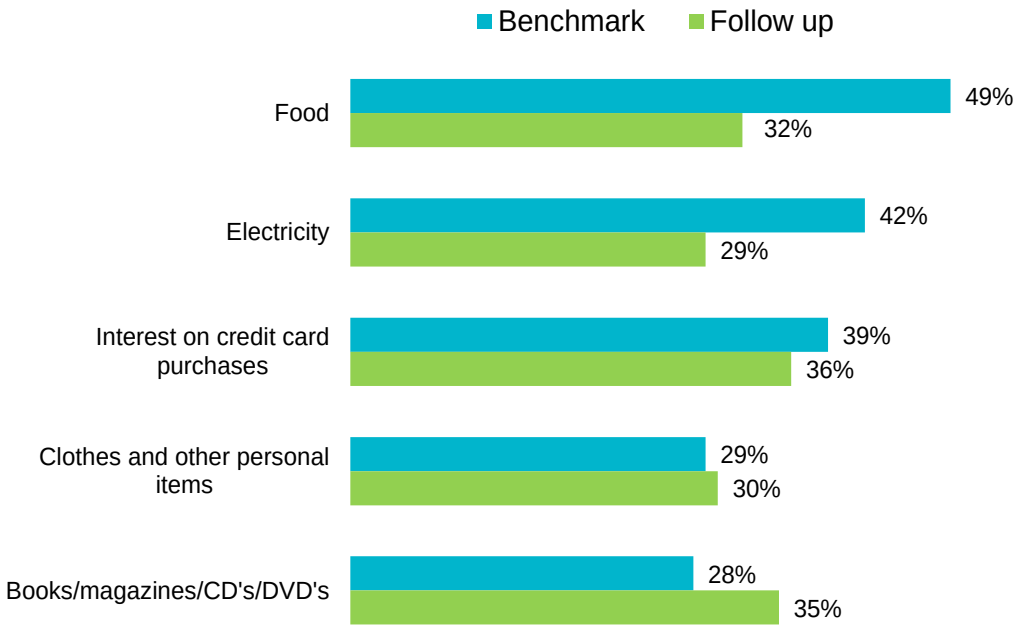

Figure 3: Goods purchased but rarely or never used
Base: all respondents Benchmark (n= 1,200), Follow up (n=1,200).

Levels of concern over areas of household wastage
Q3b. How concerned would you say that you are about each of the following? (Five categories presented).

Respondents who indicated that they did purchase items but then rarely or never used them (within the specified categories) were then asked how concerned they were about the areas of wastage.

Interestingly, despite seeing a significant decrease in the proportion of respondents who wasted electricity in NSW from the Benchmark to the Follow up study, respondents were significantly more likely to indicate they were concerned about electricity wastage in the Follow up study (with 71% of respondents being concerned 'a great deal' or 'a fair amount' about electricity wastage, compared to 63% in the Benchmark).

Over one half of respondents who wasted food (51%) in the Follow up study indicated they were concerned 'a great deal' or 'a fair amount' about the amount of food that gets thrown away before being eaten. This was not significantly different to the proportion of those in the Benchmark who showed concern (47%).

Money spent on interest on credit card purchases appeared to be significantly less concerning in the Follow up study than in the Benchmark (with 47% and 66% respectively having indicated 'a great deal' or 'a fair amount' of concern). Similarly, respondents in the Follow up study were significantly less concerned than those in the Benchmark study about the amount of clothes and other personal items that are rarely or never used (35%, compared to 50% in the Benchmark).

Respondents living in Primary areas were significantly less likely to indicate they were concerned 'a great deal' or 'a fair amount' about electricity (58%, compared to 75% for those in other areas of NSW), and books/magazines/CDs/DVDs (20%, compared to 46%). However, they were significantly more concerned about the amount of money their household spends on interest for credit card purchases (56%) than those in other areas of NSW (45%).

Younger respondents (aged 18 to 24) were significantly more likely to indicate they were concerned 'a great deal' or 'a fair amount' about the amount their household spends on interest for credit card purchases (79% compared to 47% of the total sample). Respondents in Sydney were also significantly more likely to be concerned about this issue (55%), as were those in shared households (75%), respondents who have

completed secondary education (69%) or university (64%) and those with a household income of $60,000 to $100,000 per annum (60%).

Respondents living in Wollongong or Newcastle and small country or rural areas were significantly less likely to be concerned about the amount their household spends on interest for credit card purchases (27% and 15% respectively). This was also the case with respondents aged 25 to 34, those living in single person households and respondents who have not completed secondary education (33%, 30% and 17% respectively).

Respondents aged 18 to 24 were significantly more likely to indicate they were concerned 'a great deal' or 'a fair amount' about the amount of electricity that could be saved (85% compared to 71% of the total sample). Respondents with a completed secondary education or trade qualifications were also significantly more likely to be concerned about electricity wastage (82% and 83% respectively).

Contrastingly, respondents aged 25 to 39 were significantly less likely to indicate they were concerned 'a great deal' or 'a fair amount' about the amount of electricity that could be saved (52% compared to 71% of the total sample). Those who have not completed secondary education were also significantly less likely to be concerned about electricity wastage (48%), as were CALD respondents (60%).

CALD respondents were significantly more likely to indicate they were concerned 'a great deal' or 'a fair amount' about the amount of food they throw away in their household without being eaten (69% compared to 51% of the total sample). This was also evident among those aged 25 to 39, with 62% indicating they were concerned about the amount of food they waste. However, respondents from small country or rural areas were significantly less likely to indicate they were concerned about the amount of food that is wasted in their household.

Although concern regarding the amount of clothes and other personal items that are rarely or never used was relatively low in comparison to other issues, CALD respondents were significantly more likely to indicate they were concerned 'a great deal' or 'a fair amount' (49% compared to 34% of the total sample). Respondents with a household income of $20,000 to $60,000 per annum were also significantly more likely to indicate they were concerned with this issue (48%). Contrastingly, respondents living in small country or rural areas and respondents in a family with children were significantly less likely to indicate they were concerned about this issue (10% and 24% respectively).

The level of concern regarding the number of books, magazines, CDs and/or DVDs that are rarely or never used varied amongst a number of demographics. Females were significantly more likely to indicate they were concerned 'a great deal' or 'a fair amount' about this issue (49% compared to 41% of the total sample), as were respondents from Newcastle or Wollongong (71%). Respondents aged 25 to 39 were also significantly more concerned (53%), as were those in single person households, respondents who have not completed secondary education and respondents with a household income of $20,000 to $60,000 per annum (66%, 51% and 53% respectively).

However, a number of demographics also showed significantly less levels of concern about the number of books, magazines, CDs and magazines that are rarely or ever used in their household. Although females showed high levels of concern for this issue, males were significantly less likely to indicate they were concerned (32% compared to 41% of the total sample). Respondents living in Sydney and those living in small country or rural areas were also significantly less likely to be concerned (33% and 22% respectively), as were respondents aged 40 to 54 (30%) and those with a household income of over $100,000 per annum (20%).

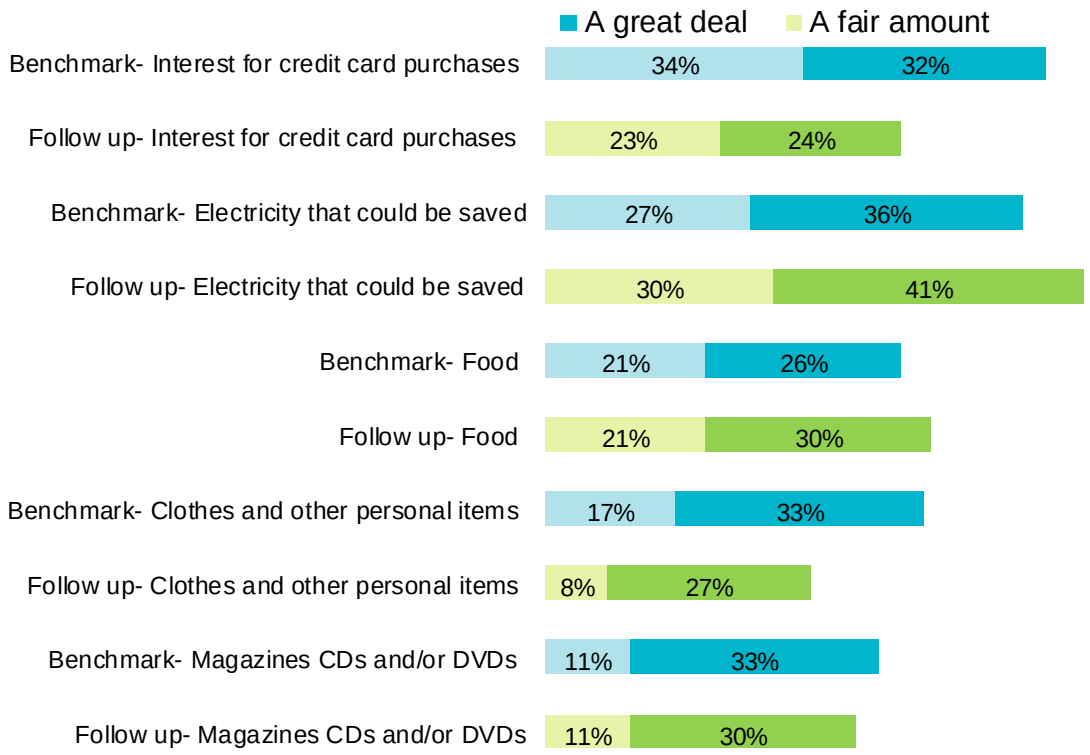

Figure 4: Level of concern about goods that are rarely or never used
Base: those that wasted money on interest - Benchmark (n=470), Follow up (n=433); those that wasted electricity – Benchmark (n=503), Follow up (n=350); those that wasted food – Benchmark (n=586), Follow up (n=382); those that wasted clothes and other personal items – Benchmark (n=351), Follow up (n=362); those that wasted magazines etc. – Benchmark (n=333), Follow up (n=418).

Perception of the average household garbage bin
Q5. What do you think is the largest type of waste in the average household garbage bin? (Five categories presented.)

Respondents were asked to identify the largest type of waste in the average NSW household garbage bin (by weight). The majority of respondents in both the Benchmark and Follow up studies indicated that they believed 'packaging' was the largest type of waste in their households (73% and 70% respectively).

Despite the proportion of respondents that indicated they wasted food decreasing from the Benchmark study to the Follow up, a significantly larger proportion of respondents in the Follow up study indicated they believed that food was the largest waste item in an average garbage bin (18%, compared to 13% in the Benchmark). This indicates an increases in knowledge between the Benchmark and the Follow up.

Those in Primary areas were significantly more likely than those in other areas of NSW to indicate they believed food was the largest type of waste in the average household garbage bin (21%, compared to 17% for all other areas of NSW).

So too, respondents in Sydney were significantly more likely to indicate they believed food was the largest type of waste in the garbage bin (23% compared to 18% of all respondents), as were 25 to 34 year old and CALD respondents (29% and 32% respectively).

Females were significantly more likely to indicate they believed packaging was the largest type of waste in the garbage bin (78% compared to 70% of all respondents). Respondents living in Newcastle of Wollongong and small country or rural areas were also significantly more likely to indicate this (82% and 79% respectively), as were respondents aged 40 to 54 and over 55 (both 79%) and those in a family with no children (75%).

Interestingly, younger respondents (aged 18 to 24) were significantly more likely to indicate they believed paper was the largest type of waste in the garbage bin, with 23% indicating this (compared to 7% of all respondents). Respondents in a family with children and those who have completed secondary education were also significantly more likely to indicate this (14% and 15% respectively).

Respondents from large country areas were significantly more likely to indicate they believed grass clippings were the largest waste in the garbage bin (18% compared to 4% of all respondents), as were males (6%), respondents aged 25 to 39 (9%), respondents in a family with children (8%), those who have completed secondary education (9%) and respondents with a household income of $60,000 to $100,000 per annum (11%).

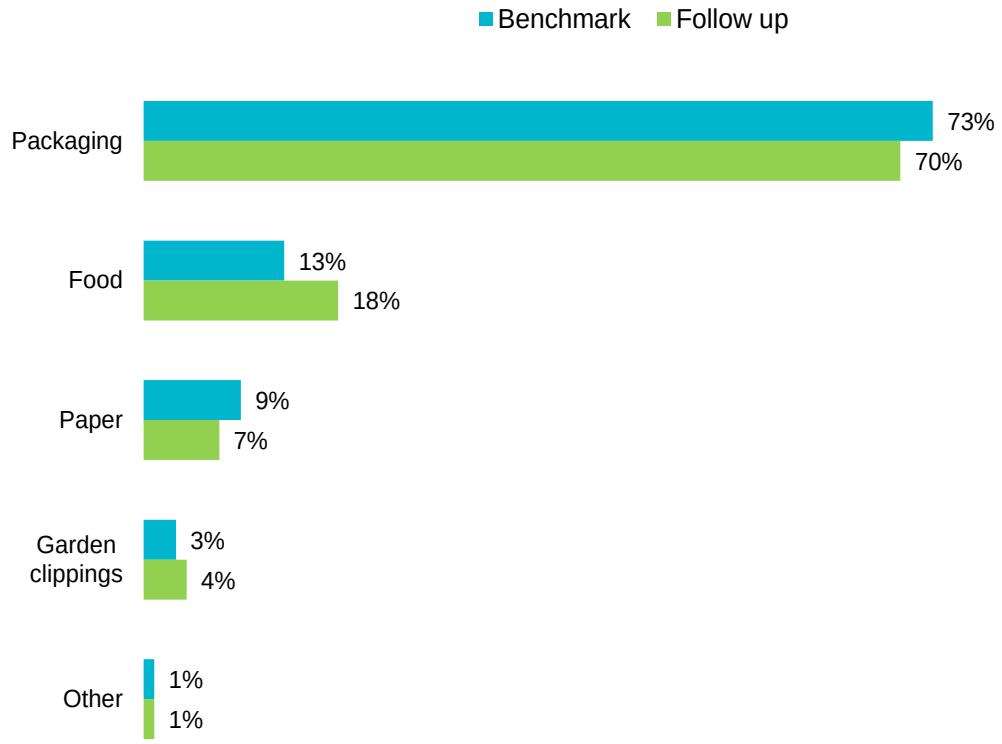

Figure 5: Perceptions of the average household garbage bin
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Amount of food claimed to be thrown away

Q4. How much uneaten food would you say that your household usually throws away?

Using a five-point scale from 'much more than you should' to 'none', respondents were asked how much food was thrown away in their household (Figure 7).

The perceived amount of food thrown out was significantly lower amongst respondents in the Follow up study compared to the Benchmark study (with only 8% of Follow up respondents indicating they threw out 'more' or 'much more' food than they should, compared to 16% of those in the Benchmark study). There was also a significant decrease in the proportion of respondents that indicated they threw out 'a reasonable amount' of food (from 52% in the Benchmark to 23% in the Follow up study), and a complimentary significant increase in the proportion that indicated they threw out 'very little' (30% to 59%).

Overall, those in Primary locations were significantly less likely to indicate they wasted 'more' or 'much more' food than they should (6%, compared to 10% in other areas of NSW). These respondents appeared to be more vigilant in regards to food waste, with almost three in four respondents (74%) from Primary areas indicating they wasted 'very little' food – significantly less than those from other areas in NSW (55%).

Respondents living in large country areas were significantly more likely to indicate they wasted 'more' or 'much more' than they should (22% compared with 8% of all respondents). Families with no children were also significantly more likely to indicate this (17%), as were respondents aged 25 to 39, those who have completed secondary education and respondents with a household income of $60,000 to $100,000 per annum (18%, 15% and 18% respectively).

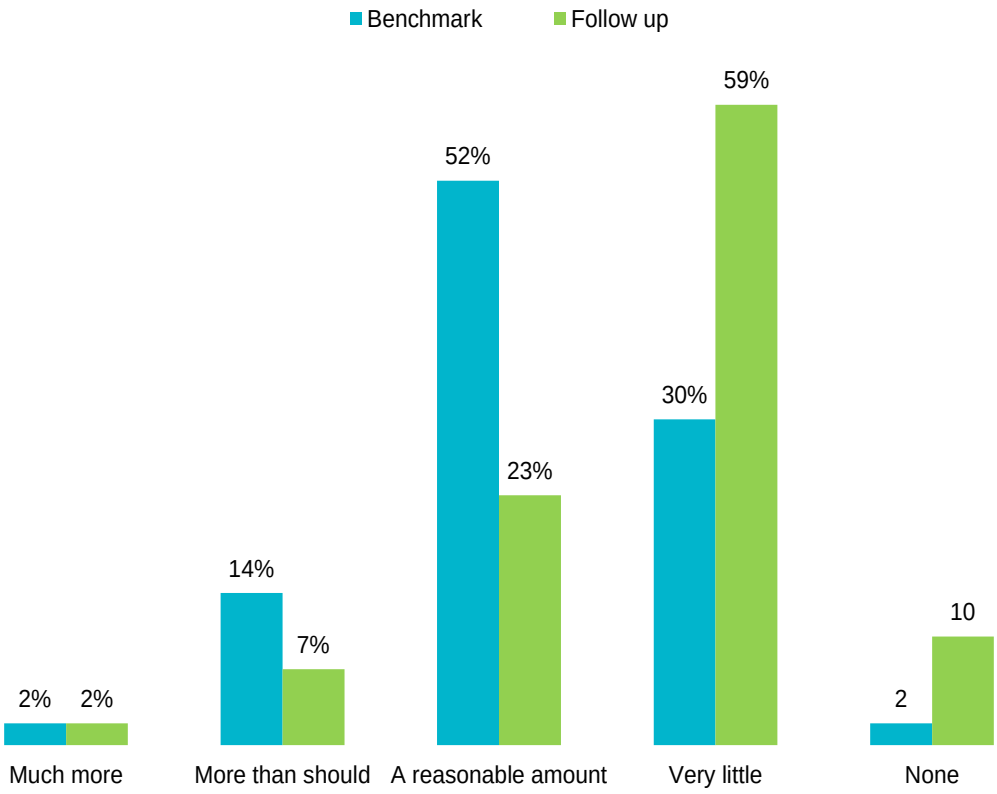

Figure 6: Level of household food waste
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200)

Estimated financial value of food wasted by NSW households

Q6. Approximately how much would you estimate that the average NSW household spends on food that is purchased but never eaten each year?

Respondents were asked to give an estimate of how much they felt that the average NSW household spends, on an annual basis, on food that is purchased but never eaten. The mean value of these estimates in the Follow up study was $724.20 per household per year (Figure 8). Due to a change in the questionnaire, this is not directly comparable with the Benchmark figure.

For the Follow up, estimated yearly expenditure on food that is never eaten was significantly higher among respondents living in large country areas ($929.10 compared to the average of $724.20). Estimates were also significantly higher among respondents aged 18 to 24 ($827.00), as well as those in shared households ($884.20), respondents who have completed secondary education ($838.00) and respondents with a household income of $60,000 to $100,000 per annum ($818.10).

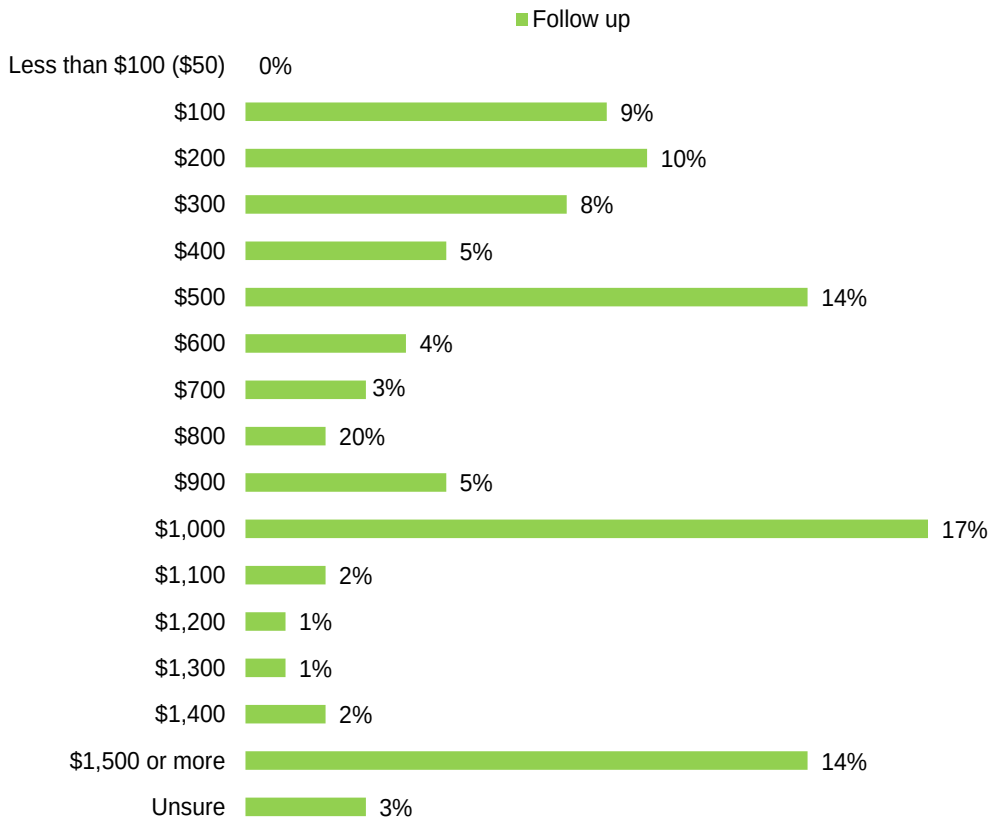

Figure 7: Estimated financial value of food wasted by NSW households
Base: all respondents Follow up (n=1,200).

Knowledge of food waste

To track levels of knowledge about food storage and wastage, respondents in the Benchmark and Follow up studies were asked a series of questions in relation to food labels (e.g. 'use by' and 'best before' dates).In this section, benchmark levels of knowledge were compared to the knowledge levels after the *Love Food Hate Waste* program was implemented.

Section snapshot

Knowledge of food waste

Similarly to the Benchmark survey findings, most respondents in the Follow up survey (67%) correctly understood that food must be eaten or thrown out by the use by date. However, as in the Benchmark study, there was still a proportion of respondents who believed that foods are still safe to eat after this date (28%).

A higher number of respondents in the Follow up than in the Benchmark believed that foods are still safe to eat after the best before date as long as they are not damaged, deteriorated or perished (78% compared to 70% in the Benchmark). Correspondingly, a lower proportion of respondents believed that foods must be eaten or thrown away by the best before date (16%, compared to 23% in the Benchmark).

Detailed section findings

Knowledge relating to food labels

Q7a.In regard to food labels, which of the following do you think best describes what is meant by the 'use by' date?
Q7b.And which of the following do you think best describes what is meant by the 'best before' date?

To investigate knowledge of 'best before' and 'use by' dates, respondents were shown four statements and asked to indicate which statement best described each date type. In regard to 'use by' dates, two thirds of respondents (67%) correctly understood that food must be eaten or thrown out by this date in the Follow up study (Table 6). This was a slight, however not statistically significant increase, from the Benchmark (64%). Almost 1 in 3 respondents in both the Benchmark and Follow up studies (29% and 28%) indicated that they believed 'foods are still safe to eat after this [use by] date as long as they are not damaged deteriorated or perished'.

In the Follow up, respondents living in Primary areas were significantly more likely than those living in other areas of NSW to correctly identify that use by dates stipulate that food must be either eaten or thrown out prior to this date (with 71% correctly identifying this, compared to 65% of those in other areas of NSW).

Respondents in Newcastle or Wollongong were significantly more likely to indicate they believed use by dates stipulate that 'foods must be eaten or thrown away by this date' (83%, compared to 67% of all respondents). Respondents aged 18 to 24 were also significantly more likely to side with this definition (89%), as were those in shared households and respondents who had not completed secondary education (81% and 77% respectively).

Respondents in large country areas were significantly more likely to indicate they believed use by dates meant that 'foods are still safe to eat after this date as long as they are not damaged, deteriorated or perished' (37% compared to 28% of all respondents). Older respondents (over 55) were also significantly more likely to indicate this (38%), as were families with no children (33%) and those with a secondary school level education (37%).

Older respondents (over 55) were also significantly more likely to indicate they believed 'use by' dates meant that 'foods must be sold at a discount after this date' (6% compared to 3% of all respondents). CALD respondents were also significantly more likely to indicate this, as were those who had completed a trade education and those with a household income of $20,000 to $60,000 per annum (% and 7% respectively).

Respondents from small country or rural areas were significantly more likely to believe 'use by' dates meant that 'food must be sold by this date' (8% compared to 1% of all respondents).

Table 5: Description of 'use by' dates

Response	Benchmark %	Follow up %
Foods must be eaten or thrown away by this date	64	67
Foods are still safe to eat after this date as long as they are not damaged, deteriorated or perished	29	28
Foods must be sold at a discount after this date	4	3
Food tastes best before this date	-	-
Other	3	0

Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

In relation to 'best before' dates, respondents in the Follow up study showed greater knowledge on the subject. Nearly 4 in 5 respondents in the Follow up (78%) correctly indicated that 'foods are still safe to eat after this [best before] date as long as they are not damaged, deteriorated or perished' (compared to 70% in the Benchmark study). Conversely, a significantly lower proportion of respondents in the Follow up wave

indicated they believed that best before dates specified that 'foods must be eaten or thrown away by this date' (16%, compared to 23% in the Benchmark).

Older respondents (over 55) and those living in small country or rural areas were significantly more likely to correctly indicate that 'best before' dates mean 'foods are still safe to eat after this date as long as they are not damaged, deteriorated or perished' (83% and 87% respectively).

CALD respondents and those living in shared households were significantly more likely to indicate they believed 'best before' dates mean that 'foods must be eaten or thrown away by this date' (25% and 32% respectively).

The CALD respondents were also significantly more likely to indicate they thought the 'best before' dates meant 'foods must be sold at a discount after this date' (13% compared to 4% of all respondents). Families with no children were also significantly more likely to indicate this, as were respondents who had not completed secondary education (7% and 12% respectively).

Table 6: Description of 'best before' dates

Response	Benchmark %	Follow up %
Foods are still safe to eat after this date as long as they are not damaged, deteriorated or perished	70	78
Foods must be eaten or thrown away by this date	23	16
Foods must be sold at a discount after this date	4	4
Food tastes best before this date	1	-
Other	2	0

Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Attitudes towards food waste

To track any changes in attitudes towards food waste, it was important to measure attitudes towards food related issues, such as giving food to pets and animals, the environmental impacts of food waste, who wastes food and why and their attitudes towards food cooking and storage.

Section snapshot

Food wasters

Most respondents disagreed with the statement 'Australians don't waste much food', thus recognising the problem (69% compared to 70% in the Benchmark).

However, there was confusion evident in terms of what was considered to be food waste. Although a significantly lower proportion of respondents in the Follow up survey agreed that food which could have been eaten by people is not wasted if it is fed to pets or composted, there were still 63% who believed this.

The environment

There was a significant decrease in the proportion of respondents who agreed that 'wasting food contributes to climate change' (38%, compared to 46% in the Benchmark). A similar proportion agreed with the statement 'the energy, water and nutrients that are used to grow, process and transport food are lost if the food is purchased but not eaten' (64% in the Follow up, compared to 67% in the Benchmark).

Cooking and storage

A slightly lower proportion of respondents believed that it was 'easy to make meals from assorted ingredients that need using up' than in the Benchmark (71%, compared to 76% in the Benchmark). There was also some confusion about the safe use and storage of leftovers. There were still over one in four respondents who thought that as long as cooked items remain frozen they can be stored for a year or more in the freezer (26%,

compared to 28% in the Benchmark). In addition, almost one in five respondents thought that cooked leftovers which have been in the fridge for more than one day are unsafe to eat (19% compared to 22% in the Benchmark). Overall, this shows that there is still a need for education on the proper use and storage of food.

Detailed section findings

General attitudes towards food waste

Q9. Below is a list of statements about food. Please indicate the extent to which you agree or disagree with each of them (eight categories presented).

All respondents in both the Benchmark and Follow up studies were shown eight statements (in random order), and were asked to what extent they agreed or disagreed with each, one using a five-point scale from 'agree strongly' through to 'disagree strongly'.

Food waste and disposal

The majority of respondents (63%) in the Follow up wave agreed that food which could have been eaten by people is not wasted if it is fed to pets or composted. However, this was a significantly lower proportion than in the Benchmark study (75%). Those living in Primary areas were significantly more likely than those in other areas of NSW to hold this belief (70% and 62% respectively).

Females in the Follow up were significantly more likely to indicate they believed food was not wasted if it was fed to pets or composted (69% compared to 63% of all respondents). Respondents aged 18 to 24 and 40 to 54 were also both significantly more likely to believe this (73% and 70% respectively), as were those in shared households (76%), respondents who had completed secondary education (71%) and those with a household income of $20,000 to $60,000 per annum (74%).

In the Follow up study there was a significant decrease in the proportion of respondents that indicated they agreed that 'Australians don't waste much food' when compared to the Benchmark study (9% and 14% respectively). The majority of respondents in both studies (69% in the Follow up and 70% in the Benchmark) however disagreed with this statement. Those in Primary areas were significantly more likely to indicate they disagreed with 'Australians don't waste much food', compared with those in other areas of NSW (76% and 68% respectively).

In addition to this, respondents in small country or rural towns were also significantly more likely to disagree with this statement (79%, compared to 70% of the total), as were families with no children, those who had completed secondary education and respondents with a household income of $20,000 to $60,000 per annum (78%, 76% and 78% respectively).

The proportion of respondents who attributed food waste to busy lifestyles decreased significantly in the Follow up study, with slightly more than one third of respondents (34%) indicating they believed that 'busy lifestyles make it hard to avoid wasting food'. Younger respondents (aged 18 to 24) were significantly more likely to agree with this statement in the Follow up (44% compared to 34% of all respondents), as were families with children, those who had completed a trade and those with a household income of over $100,000 per annum (45%, 43% and 53% respectively).

Attitudes towards food waste and the environment

There was a significant decrease in the proportion of respondents indicating that they agree slightly or agree strongly with the statement 'wasting food contributes to climate change' from the Benchmark to the Follow up study (46% and 38% respectively). Those living in Primary areas in the Follow up study were significantly more likely than those in other areas of NSW to believe this statement, with 44% indicating their agreement (compared to 36% of those in other areas of NSW).

Younger respondents (aged 18 to 24) were significantly more likely to slightly or strongly agree that 'wasting food contributes to climate change' (56%, compared to 38% of all respondents). The CALD respondents were also significantly more likely to believe this statement (46%), as were respondents who had completed university and those with a household income of over $100,000 per annum (51% and 62% respectively).

When asked to indicate their level of agreement with the statement 'the energy, water and nutrients that are used to grow, process and transport food are lost if the food is purchased but not eaten', just under two thirds

of all respondents in the Follow up study agreed (64% indicated they agree or agree strongly). This was similar to the 67% that indicated their agreement in the Benchmark study. Interestingly, those in Primary areas were significantly more likely than those in other areas of NSW to believe that this energy is 'lost' if food is wasted (with 70% and 62% respectively in these areas indicating their agreement).

Respondents aged 40 to 54 and those over 55 were both significantly more likely to either slightly or strongly agree that 'the energy, water and nutrients that are used to grow, process and transport food are lost if the food is purchased but not eaten' (72% and 70% respectively). Families with children were also significantly more likely to agree with this statement (72%), as were respondents who had completed university (73%) and those with a household income of $20,000 to $60,000 per annum (72%).

Cooking and storing food

In the Benchmark study, more than three quarters of all respondents (76%) believed that it was 'easy to make meals from assorted ingredients that need using up'. However, this decreased in the Follow up wave, to 71% of respondents. Those in Primary areas were significantly more likely to make meals from ingredients that need to be used (82%, compared to 69% of the total sample).

Respondents in small country or rural areas were significantly more likely to agree slightly or strongly that it was 'easy to make meals from assorted ingredients that need using up' (90%, compared to 71% of all respondents). Older respondents (aged 40 to 54 and over 55) were also significantly more likely to agree with this statement (83% and 85% respectively), as were families with no children, those with a trade education and those with a household income of $20,000 to $60,000 per annum (77%, 82% and 83%).

In terms of storing food, there is still some confusion about the length of time that food can be kept appropriately. This was seen in the Benchmark study where 28% of respondents agreed that as long as cooked items remain frozen they can be stored for a year or more in the freezer, and this remained steady in the Follow up study (at 26%).

Respondents with a household income of under $20,000, between $20,000 and $60,000 and over $100,000 per annum were all significantly more likely to either slightly or strongly agree that as long as cooked items remain frozen, they can be stored for a year or more in the freezer (40%, 34% and 37% respectively).

Attitudes towards storing food in the fridge also remained relatively stable across the Benchmark and Follow up studies, with roughly one in five respondents (22% in the Benchmark and 19% in the Follow up) agreeing that cooked leftovers which have been in the fridge for more than one day are unsafe to eat.

Younger respondents (aged 18 to 24) were significantly more likely to either slightly or strongly agree that cooked leftovers that have been left in the fridge for more than one day are unsafe to eat (36% compared to 19% of all respondents), as were families with children (27%).

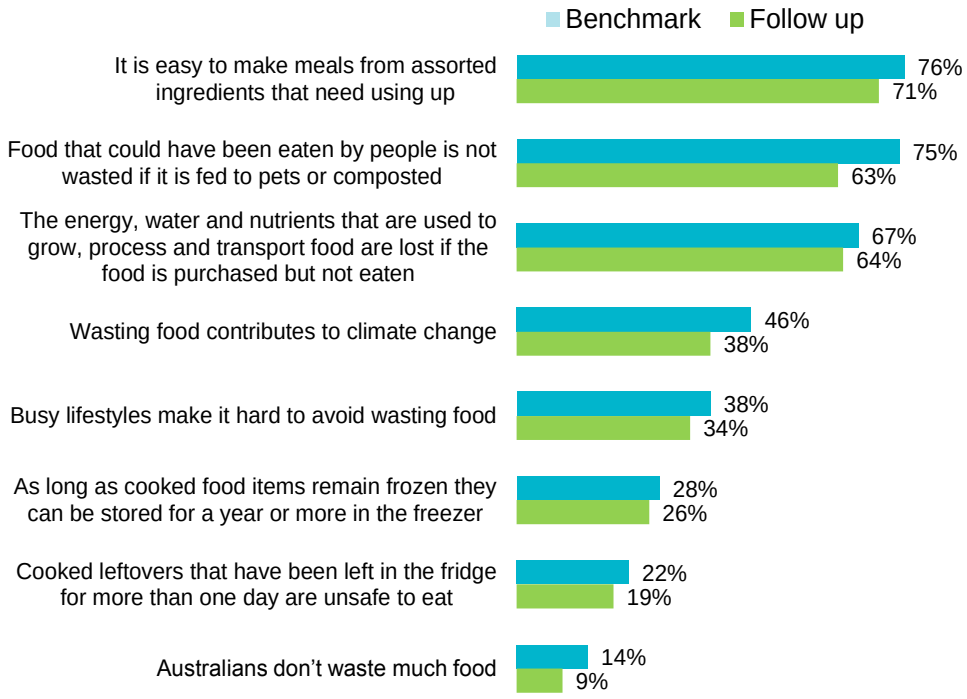

Figure 8: General attitudes towards food waste
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Food wasting behaviour

A key objective of the *Love Food Hate Waste* program was to support new behaviours around food management at the household level. Therefore, in both the Benchmark and Follow up studies, respondents' behaviour in relation to how they plan their shopping trip, how they go about purchasing food and their food preparation and storage habits were measured. Respondents then identified their estimated quantity of food wasted per week and the financial value of wasted food.

Section snapshot

Food shopping

There were mixed results regarding food purchasing behaviour, as a higher proportion of respondents in the Follow up than in the Benchmark indicated that 'I hardly ever find things that I've bought don't get used' (mean of 3.8) showing more food waste avoiding behaviour. However, a lower proportion indicated that 'I plan meals in advance and shop to a strict list' and 'when shopping I think carefully about how much I will use' showing more food waste behaviour (means of 2.8 and 2 respectively).

There were some other more positive results in terms of planning and shopping behaviours. A significantly higher proportion of respondents indicated that they always or mostly check the food they have in the house prior to going grocery shopping (72%, compared to 66% in the Benchmark), they write a list and stick to it as much as possible (60%, compared to 53% in the Benchmark), and they plan the meals to be cooked in the next few days (40%, compared to 35% in the Benchmark). Nearly three quarters of respondents (71%) indicated that they check the 'use by' or 'best before' dates before purchasing food items (compared to 66% in the Benchmark) and half indicated they buy food based on what is on special (50%, compared to 42% in the Benchmark).

Food preparation behaviour

There was a shift towards better food waste avoidance strategies in this section with over a third of respondents suggesting that they make extra for a future planned meal (34%, compared to 28% in the Benchmark). Fewer indicated that they make extra just in case it is needed (14%, compared to 20% in the Benchmark). A similar proportion of respondents as in the Benchmark (nearly a half) considered portion sizes and only made as much as needed (47%).

After meal behaviour

A significantly higher proportion of respondents saved leftovers in the fridge to consume afterwards (57%, compared with 52% in the Benchmark). Meanwhile less saved leftovers in the freezer (38%) to consume afterwards or throw them out.

Quantity of food wasted

Respondents in the Follow up survey estimated that they threw away 2.9L of leftovers, 2.6L of fresh food and 2.1L of packaged and long life food per week.

Value of food wasted

The total value of food items wasted was estimated to be an average of $63.80 per household per week. This included $14.50 of fresh food, $10.90 of packaged and long life food, $10.90 of frozen food, $10.60 of leftovers, $9.30 of drinks and $7.60 of home delivered/take away food.

Detailed section findings

Food purchasing behaviour

Q8. Please move each 'slider' to indicate where you personally feel that you fit between the two statements presented. If, for example, the statement on the left fully describes you, you would move the 'slider' as far to the left as possible. (Three paired categories presented).

Respondents were shown a five-point scale where a 1 represented a statement relating to a food wasting behaviour and 5 represented food waste avoidance behaviour. Respondents were asked to move a 'slider' to the position on the scale that best represented their behaviour. A mean score closer to 5.0 indicates that respondents are more likely to engage in food waste avoiding behaviour.

Buying food that doesn't get used

The majority of respondents indicated that they were unlikely to find food items that they have bought but that were not used. Over two thirds of respondents in the Follow up study (70%) chose positions 4 or 5, in agreement with the statement 'I hardly ever find things that I've bought don't get used'. The mean score for this behaviour was 3.7 in the Benchmark and 3.8 in the Follow up – a statistically significant shift towards food waste avoidance behaviour.

Residents of Newcastle and Wollongong were significantly more likely to indicate they often found food items that they had bought but that did not get used (mean of 3.6, compared to 3.8 for the total sample). Those living in small country towns and rural areas on the other hand, were more likely to indicate they were engaging in food waste avoidant behaviour in this sense (mean of 4.0).

Respondents aged 55 years or older were significantly less likely to find food items that they have bought but that were not used (mean of 4.0, compared to 3.8 for the total sample), as were those who had completed a trade qualification (4.1). Respondents aged 25 to 39 years on the other hand were significantly more likely to find food that had not been used (mean of 3.4). CALD respondents and those who did not complete secondary school were also more likely to buy food items that did not get used (means of 3.6 and 3.3 respectively).

Planning ahead and writing a list

Respondents in the Follow up study were quite polarised on their meal planning behaviour. With a mean of 2.7, more respondents were likely to indicate that they 'plan meals in advance and shop to a strict list' as opposed to 'I don't usually plan meals and decide what I need while shopping'. However, this was a significant shift from the Benchmark towards food waste behaviour (with the Benchmark mean being 3.0).

In the Follow up, families with children, those living in shared households and those aged 40 to 54 years were significantly less likely to plan meals in advance and shop to a strict list (means of 2.5, 2.3 and 2.4 respectively, compared to the total sample of 2.7). Respondents who were significantly more likely to plan their meals ahead of their shopping trip, and to use a list, were those in single person households (mean of 3.0, compared to 2.7), those who did not complete secondary school (3.0), and those aged 55 years or older (3.0).

The least frequent behaviour for respondents was thinking about how much food will be used whilst shopping. Similarly to list writing, respondents in the Follow up study were significantly more likely than those in the Benchmark study to engage in food wasting behaviour (means of 2.0 and 2.1 respectively).

Once again, residents of Newcastle and Wollongong appeared to be engaging in more food waste avoidance behaviour. These respondents were significantly more likely than the total sample to indicate that they carefully think about how much food they will use whilst shopping (mean of 1.8, compared to 2.0 for the total sample). Respondents aged 40 to 54 years, and those who had an annual household income less than $20,000 were also more likely to report that they thought about the amount of food they would use whilst shopping (means of 1.8 and 1.7 respectively).

Respondents aged 25 to 39 years were significantly more likely to indicate they did not think about how much food they would use whilst shopping (mean of 2.2, compared to 2.0 for the total sample). Those who did not complete secondary school, and who lived in shared households were also less likely to think carefully about how much food they would use whilst shopping (means of 2.3 and 2.4 respectively).

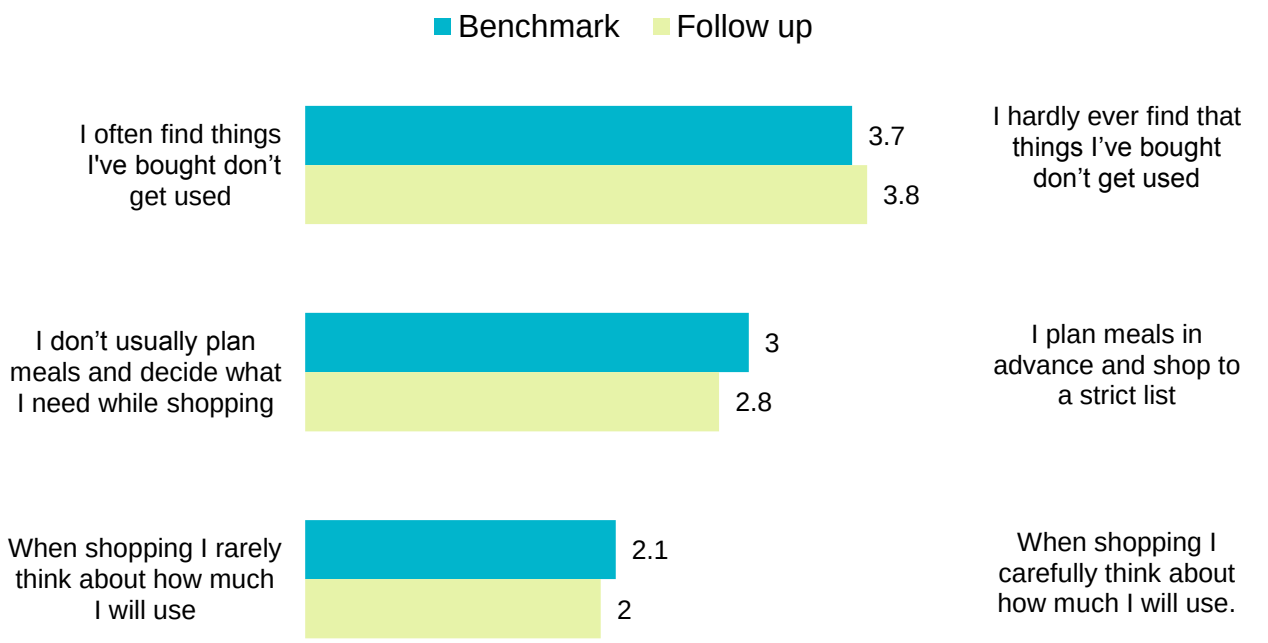

Figure 9: Food purchasing behaviour

Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Behaviour prior to food purchase

Q13. Before you or your household does your main food shopping, how regularly do you do the following? (Three categories presented).

To investigate whether respondents were planning their shopping trip, they were asked to indicate the frequency with which they conducted certain behaviours, on a five point frequency scale ranging from 'never' (position 1) to 'always' (position 5).

Almost three quarters of all respondents (72%) in the Follow up study indicated that they 'always' or 'mostly' check the food they have in the house prior to going grocery shopping. This was significantly more than the proportion that did so in the Benchmark study (66%). Similarly, the number of respondents that reported to 'always' or 'mostly' write a list and stick to it increased in the Follow up study, to 60% (from 53% in the Benchmark). Reported incidence of planning meals to be cooked in the coming days also increased in the Follow up study from 35% in the Benchmark to 40%.

Respondents in small country or rural areas were significantly more likely to indicate they always or mostly checked what food was already in the house before doing their main shopping (87%, compared to 72% of all respondents). Respondents aged over 55 were also significantly more likely to indicate this (83%), as were families with no children, those with a trade education, and respondents with a household income of $20,000 to $60,000 per annum (80%, 85% and 80% respectively).

Contrastingly, respondents from Newcastle or Wollongong were significantly less likely to indicate they always or mostly checked what food was in the house before shopping (55%). Younger respondents (under 40) were significantly less likely to do this, with 58% of those aged 18 to 24 and 60% of those aged 25 to 39 indicating they either always or mostly checked food in the house before shopping. Respondents in single person households were also significantly less likely to do this (60%), as were those who had not completed secondary education and those who had completed secondary education (58% and 61% respectively).

As well as being more likely to check the food in the house before doing their main shopping, respondents in small country or rural areas were also significantly more likely to write a list and stick to it as much as possible, with 75% indicating they always or mostly did this. Respondents aged 40 to 54 and over 55 were both significantly more likely to do this (both 70%), as were families with no children, those with a trade education and respondents with a household income of $20,000 to $60,000 per annum (66%, 75% and 73% respectively).

However, respondents in Newcastle or Wollongong indicated they were significantly less likely to always or mostly write a list and stick to it before they did their main shopping (50%). Younger respondents were significantly less likely to do this as well; with 42% of respondents aged 18 to 24 and 49% of respondents aged 25 to 39 indicating they did this. CALD respondents were also significantly less likely to indicate they always or mostly wrote a list before shopping (45%), as were those in single person households (52%) and those who had not completed secondary education (41%).

Respondents from small country or rural areas were again significantly more likely to indicate they always or mostly planned the meals to be cooked in the next few days (53%, compared to 40% of all respondents). Respondents aged 40 to 54 were also significantly more likely to indicate they did this (50%), as were respondents with a university education (50%). However, respondents who had not completed secondary education were significantly less likely to indicate they did this (21%).

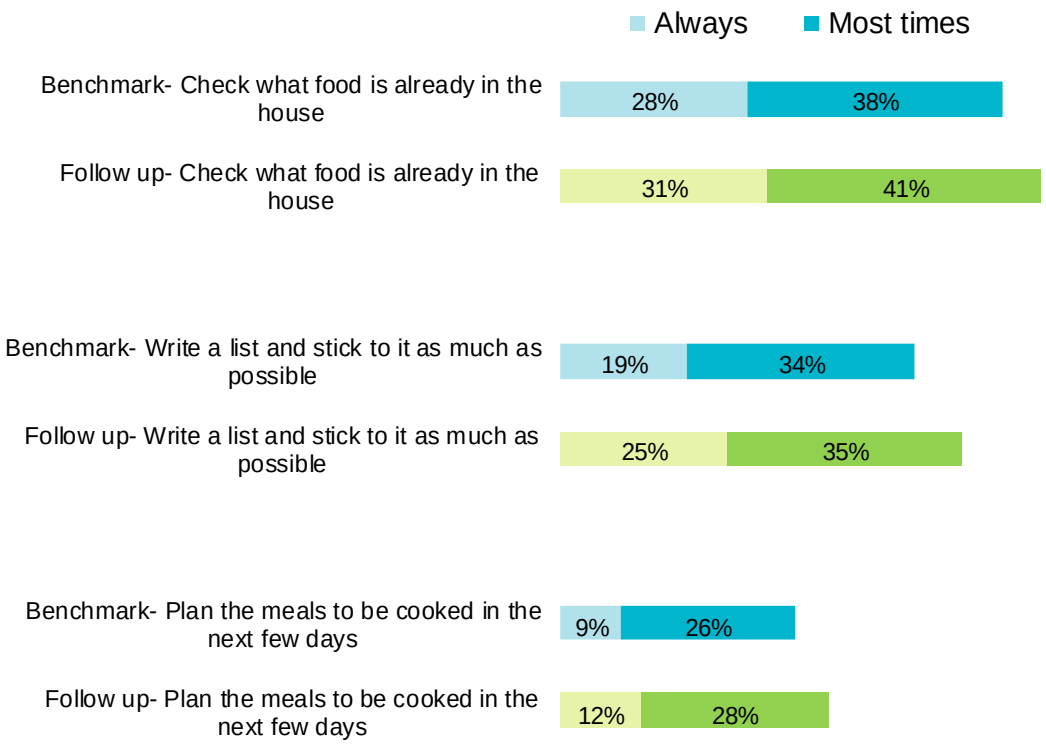

Figure 10: Behaviour prior to food shopping
Base: all respondents Benchmark (n=1200), Follow up (n=1,200).

Shopping behaviour
Q14. How regularly do you or your household do the following when you are doing the grocery shopping? (Four categories presented).

Respondents were asked to indicate the frequency of certain behaviours while food shopping on a five-point scale from 'never' (position 1) to 'always' (position 5).

In both the Benchmark and Follow up studies, the behaviour that the highest proportion of respondents were 'always' or 'mostly' likely to do was to check use by and best before dates when purchasing food. Respondents in the Follow up wave however were significantly more likely to indicate they did so (71%, compared to 66% in the Benchmark). Incidence of shopping for specials also increased significantly from the Benchmark to the Follow up study, with 42% of respondents indicating in the initial study that they 'always' or 'most times' buy food based on what is on special compared to 50% in the Follow up.

Respondents from Newcastle or Wollongong were significantly more likely to indicate they always or mostly bought food based on what was on special (66%, compared to 50% of all respondents). Younger respondents (aged 18 to 24) were also significantly more likely to indicate they did this, as were those who had not completed secondary education (60% and 68% respectively).

Older respondents (over 55) on the other hand were significantly less likely to indicate they always or mostly bought food based on what was on special (40%) as were respondents who had completed university (40%).

Although the proportion of respondents shopping for specials increased overall, the incidence of buying items in 'bulk', and buying food according to set budget remained steady across the two studies.

Almost a quarter (24%) of respondents from small country or rural areas indicated they always or mostly bought items in bulk, which was significantly higher than the overall total (17%). Younger respondents (aged 18 to 24) were also significantly more likely to indicate this (31%), as were CALD respondents (25%), those

with a household income of $60,000 to $100,000 per annum and respondents with a household income over $100,000 per annum (24% and 25% respectively).

However, older respondents (over 55) were significantly less likely to indicate they always or mostly bought items in bulk (6% compared to 17% of all respondents). This was also the case for respondents in Newcastle or Wollongong (6%) and those who had not completed secondary education (9%).

Respondents living in small country or rural areas were also significantly more likely to indicate they bought food according to a set budget, with 63% indicating they always or mostly did so (compared to 44% of all respondents). Respondents aged 40 to 54 were also significantly more likely to indicate this (53%), as were those in shared households (65%), respondents with a trade education (50%) and those with a household income of less than $20,000 per annum or $20,000 to $60,000 per annum (72% and 57% respectively).

Contrastingly, respondents in Sydney were significantly less likely to indicate they always or mostly bought food according to a set budget (39% compared to 44% of all respondents). Respondents aged 25 to 39 were also significantly less likely to indicate this (38%), as were those who had completed secondary education and those with a household income of over $100,000 per annum (38% and 30% respectively).

Respondents living in Primary areas were significantly more likely than those in other areas of NSW to check use by or best before dates when shopping (75% and 69% respectively). This is in line with their increased knowledge on what each of these dates stipulate, as mentioned earlier.

Older respondents (over 55) were significantly more likely to indicate they always or mostly checked use by or best before dates when shopping (78%, compared to 71% of all respondents). Respondents in Newcastle or Wollongong were also significantly more likely to indicate this (83%) as were those living in a single person household (83%).

Respondents living in large country areas were significantly less likely to check use by or best before dates when shopping, with 57% indicating they always or mostly did this compared to 71% of all respondents. Respondents aged 25 to 34 were also significantly less likely to indicate this (64%), as were families with children (62%) and those who had completed secondary education (65%).

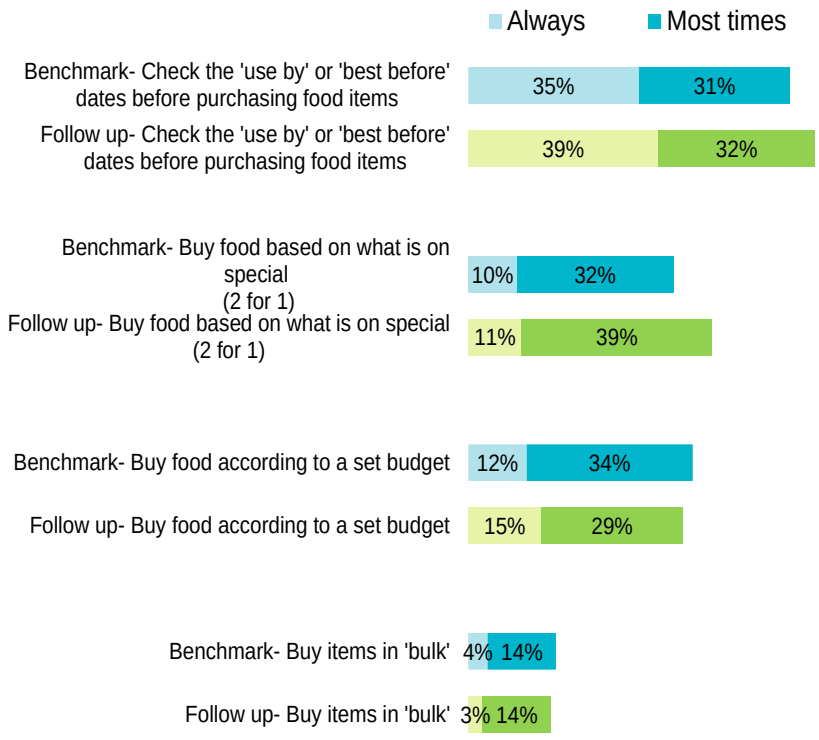

Figure 11: Food purchasing behaviour
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Food preparation behaviour

Q15. How regularly do you or your household do the following when preparing a main meal? (Three categories presented).

Respondents were asked to indicate the frequency with which they engage in certain food preparation behaviours on a five-point scale from 'never' (position 1) to 'always' (position 5). A higher mean score indicates a more frequent behaviour.

In both the Benchmark and the Follow up studies the most frequent of the listed behaviours was to consider portion sizes and only make as much as needed (with 47% in the Benchmark indicating they 'always' or 'mostly' did this, and 46% in the Follow up).

In the Follow up, older respondents (over 55) were significantly more likely to consider portion sizes and only make as much as they needed, with 3 in 5 (60%) indicating they always or mostly did this (compared to 46% of all respondents). Families with no children were also significantly more likely to indicate this (55%), as were those who had completed university and respondents with a household income of $20,000 to $60,000 per annum (53% and 54% respectively).

Contrastingly, younger respondents were significantly less likely to consider portion sizes; with 34% of respondents aged 18 to 24 and 34% of respondents aged 25 to 39 indicating they did this always or mostly. Families with children were also significantly less likely to indicate this (35%), as were those who had completed secondary education (38%) and those with a household income of over $100,000 per annum (34%).

Females were significantly more likely to cook extra food for a future planned meal, with 39% indicating they did this always or most times (compared to 33% of all respondents). CALD respondents were also significantly more likely to indicate they did this (47%), as were those with a trade qualification and respondents with a household income of over $100,000 per annum (41% and 45% respectively).

On the other hand, males were significantly less likely to indicate they always or mostly cooked extra food for future planned meals (27%). This was also the case with respondents in Newcastle or Wollongong (19%) and respondents who had not completed secondary education (19%).

Interestingly, in the Follow up study there was a significant shift away from cooking extras 'just in case' (14%, compared to 20% in the Benchmark) and more frequent cooking of extras for a future, planned meal (33%, compared to 28%). Those in Primary areas however were significantly more likely to cook extra in both cases, with 18% indicating they cook extra just in case (compared to 13% of those in other areas of NSW), and 42% making extra for planned meals (42%, compared to 31%).

Respondents in shared households were significantly more likely to cook extra 'just in case', with 22% indicating they always or mostly did so (compared to 14% of all respondents). Respondents aged 40 to 54 were also significantly more likely to indicate this (19%), as were those with a university education (19%) and respondents with a household income of over $100,000 per annum (28%).

Younger respondents (aged 18 to 24), however, were significantly less likely to indicate they cooked extra food 'just in case' (8%) as were respondents over 55 (7%). Respondents in Wollongong or Newcastle were also significantly less likely to indicate this (8%)

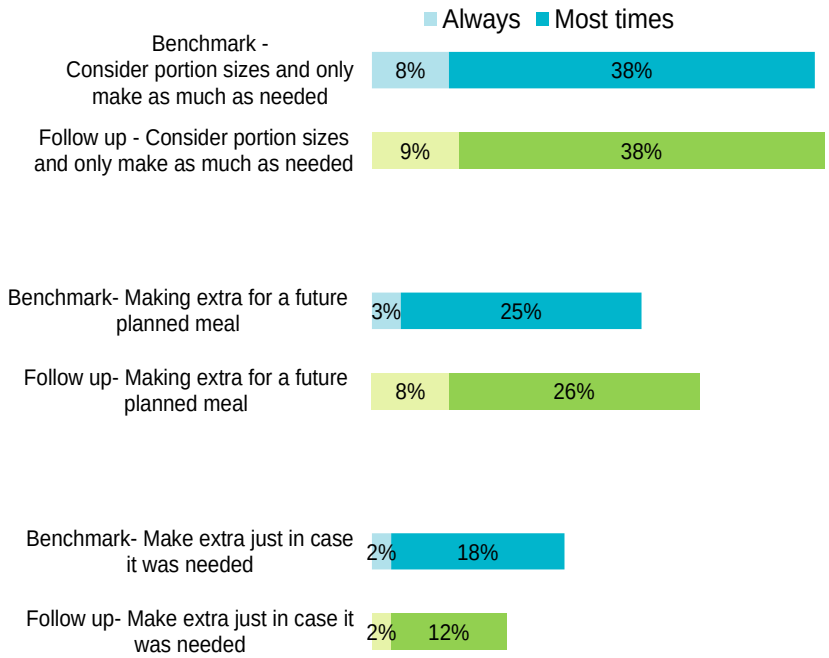

Figure 12: Behaviour when preparing food
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Behaviour after a meal

Q16. How regularly do you or your household do the following after main meals? (Five categories presented).

On a five-point frequency scale ranging from 'never' (number 1) to 'always' (number 5), respondents were asked to indicate how often they consumed, saved (stored) and disposed of leftovers.

The most frequently reported behaviour after main meals in both the Benchmark and Follow up studies was saving leftovers in the fridge to consume later (52% and 57% respectively indicating they 'always' or 'mostly' did this), with there being a significant shift towards this behaviour in the Follow up. Saving leftovers in the freezer was undertaken less frequent, as was saving leftovers in the fridge or freezer and throwing them out later. There were no significant movements in these behaviours from the Benchmark to the Follow up studies.

Respondents living in Primary areas were significantly less likely to indicate that that they saved leftovers in the freezer only to throw them out at a later date (4%, compared to 11% of those in other areas of NSW). Similarly, they were less likely to dispose of their main meal leftovers immediately after the meal (9%, compared to 13%).

Respondents in small country or rural areas were significantly more likely to save leftovers in the fridge and consume them afterwards, with 68% indicating they did this always or most times (compared to 57% of all respondents). Older respondents (over 55) were also significantly more likely to indicate they did this (65%), as were CALD respondents (64%), families with no children (67%) and those with a household income of $20,000 to $60,000 per annum (66%).

However, younger respondents (aged 18 to 24) were significantly less likely to indicate they saved leftovers in the fridge and consumed them afterwards (42%, compared to 57% of all respondents). Respondents from Newcastle or Wollongong were also significantly less likely to indicate they did this (40%), as were those in a single person household or families with children (41% and 48% respectively).

There were a number of significant differences that emerged when respondents were asked how frequently they saved meals in the freezer and consumed them afterwards. Respondents in large country areas were significantly more likely to indicate they did this always or most times (50%, compared to 37% of all respondents), as were respondents from small country or rural areas (46%). Respondents aged 40 to 54 and over 55 were also both significantly more likely to indicate they did this (44% and 48% respectively), as were those in shared households, respondents with a trade qualification and respondents with a household income of under $20,000 per annum (54%, 45% and 54% respectively).

Respondents aged 25 to 39 were significantly less likely to indicate they saved meals in the freezer and consumed them afterwards (22%, compared to 37% of all respondents). This proportion was also significantly lower among CALD respondents (30%) and respondents from Newcastle or Wollongong (25%).

Despite relatively low levels of reported frequency of saving leftovers in the fridge and throwing them out later, respondents in a shared household were significantly more likely to indicate they did this always or most times (24%, compared to 8% of all respondents). CALD respondents were also significantly more like to indicate this (16%), as were those who had completed university (14%).

Older respondents (over 55) were significantly less likely to indicate they saved leftovers in the fridge and then throw them out later (3%). Respondents in single person households and those with a trade qualification were also significantly less likely to indicate they did this (both 4%).

When it came to disposing meals immediately after the meal, younger respondents (aged 18 to 24) and males were significantly more likely to indicate they did this always or most times (26% and 18% respectively, compared to 13% of all respondents). Respondents who had not completed secondary education were also significantly more likely to indicate they did this (20%).

Females, however, were significantly less likely to indicate they threw out food immediately after the meal (8% compared to 13% of respondents). Respondents in small country or rural areas were also significantly less likely to indicate they did this (6%), as were those aged 40 to 54 (9%) and those with a household income of $60,000 to $100,000 (7%).

Although just 10% of respondents indicated they saved leftovers in the freezer and threw them out later, those living in single person households were significantly more likely to do so, with 27% indicated they did this always or most times. Respondents who had not completed secondary education were also significantly more likely to indicate they did this (30%), as were respondents in Newcastle or Wollongong (31%) and those aged 25 to 39 (16%).

However, respondents in Sydney and small country or rural areas were significantly less likely to indicate they saved leftovers in the freezer and threw them out later (7% and 2% respectively). Interestingly, males were also significantly less likely to indicate this (6%), as were those aged over 55 (6%), families with no children (4%), those who had completed secondary education (5%), those with a trade qualification (5%) and respondents with a household income of $20,000 to $60,000 per annum (5%).

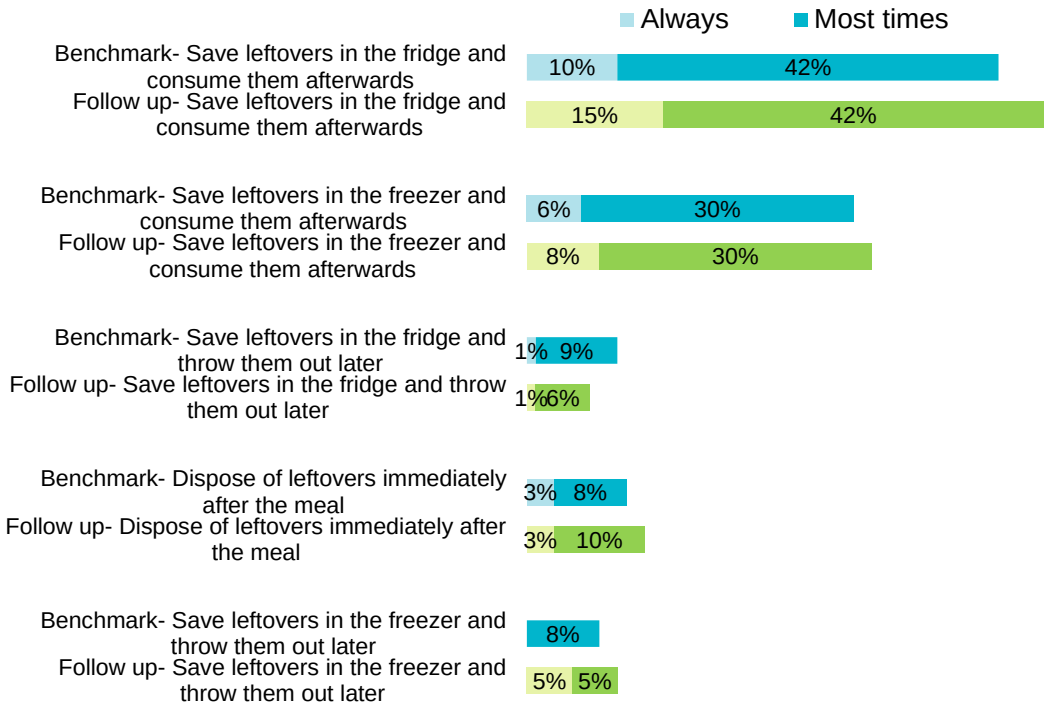

Figure 13: Behaviour after a main meal
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Quantity of food wasted

Q10. In a normal week, please estimate how much of the following food types your household throws away (including going to the compost, worm farm or pets) (Three categories presented).

To estimate the volume of food wasted per household, respondents were asked to indicate how many four litre (4L) containers worth of food (within the pre-defined waste categories) they threw out in an average week. Respondents were shown an image of a 4L ice-cream container in order to assist with visualisation of the volume. Due to changes to the questionnaire, direct comparisons to the Benchmark study were unable to be made.

On average, respondents in the Follow up study estimated that they threw away 2.9L of leftovers per week – the highest volume of the three listed food categories. The next highest volume of food wasted was 2.6L of fresh food. This included food that was composted, worm farmed or fed to pets. On average 2.1L of packaged and long-life food was estimated to be thrown out on average per week.

Respondents living in Primary areas indicated that they wasted a significantly lower amount of leftovers than those in other areas of NSW (2.5L per week on average, compared to 3.1L).

Table 7: Quantity of food wasted (L)

Category	Follow up (L)	Primary areas (L)	Other areas of NSW (L)
Fresh food	2.6	2.6	2.6
Leftovers	2.9	2.5	3.1
Packaged/ long life	2.1	2.0	2.2

Base: all respondents that indicated they wasted food Follow up (n=1,079).
*Drink volumes were <2L, 2L, 4 to 8L, 10+L.

Value of food wasted

Q11. In a normal week, please estimate the dollar value of each type of food your household purchases but throws away without being consumed (including going into the compost, worm farm, or fed to pets). Please make your best estimate in whole dollars. (Five categories presented).

A key outcome of the research was to update the financial figures of the value of food wasted in NSW for a variety of food types. Respondents were asked to estimate the value of the food they had purchased but not consumed in a normal week. The responses were provided in whole dollars. Due to changes to the questionnaire, direct comparisons to the Benchmark study were unable to be made.

Respondents in the Follow up study estimated the value of the fresh food they threw away to be $14.50 per week, on average. As seen in waste volume, fresh food was the highest type of waste (in monetary value terms) of all listed foods and drink categories. Packaged and long life food, along with frozen food were the next highest in value wasted per week at $10.90 each. Approximately $10.60 of packaged and long-life food was estimated to be thrown out per week on average, followed by $9.30 of drinks and $7.60 of home delivered/take away food. The total value of food items wasted was $63.80 per household, per week in NSW.

Respondents living in Primary areas indicated they wasted considerably less food and drinks (across all categories presented) than those in other areas of NSW, as shown in Table 8 below. In total, those in Primary areas reported that they wasted $46.70 per week on average, compared to those in other areas of NSW that wasted $69.10.

Younger consumers were identified as higher wasters of food in financial terms, with 18–24 year olds wasting an average of $106.40 per week and 25–39 year olds wasting $89.90 (Table 9).

Families with children were also larger wasters in terms of value, wasting an average of $87.10 worth of food per week. Families without children on the other hand reported that they wasted significantly less ($53.40 per week).

Males were also more likely to indicate they wasted more food, at $75.10 per week, compared to females at $50.70.

Those from CALD backgrounds also wasted a higher value of food than the total sample ($83.70 per week).

Table 8: Amount of food wasted ($)

Category	Follow up ($)	Primary areas ($)	Other areas of NSW ($)
Fresh food	14.50	10.50	15.50
Packaged/ long life	10.90	8.60	11.80
Frozen Food	10.90	7.50	12.20
Leftovers	10.60	8.30	11.50
Drink	9.30	5.70	10.00
Home delivered/takeaway	7.60	6.10	8.10
Total	**63.80**	46.70	69.10

Table 9: Mean value ($) of food wasted per week by age

Category	All food wasters (n=1,079) ($)	Age group			
		18-24 (n=156) ($)	25-39 (n=341) ($)	40-54 (n=351) ($)	55+ (n=352) ($)
Fresh food	14.50	21.7	22.4	10.4	7.2
Leftovers	10.60	19.0	12.7	8.8	6.3
Packaged/long life	10.90	16.9	14.4	8.5	6.9
Drinks	9.30	18.3	12.6	6.2	4.7
Frozen food	10.90	14.7	17.4	7.0	6.4
Home delivered/ takeaway	7.60	15.8	10.4	5.7	2.5
Total	**63.80**	106.4	89.9	46.6	34

Table 10: Mean value ($) of food wasted per week by household type

Category	All food wasters (n=1,079) ($)	Household type			
		Single (n=195) ($)	Family (with children) (n=332) ($)	Family (no children) (n=476)	Share (n=92) ($)
Fresh food	14.50	11.1	16.5	14.5	14.7
Leftovers	10.60	11.0	14.7	8.1	9.4
Packaged/ Long life	10.90	9.8	15.3	8.6	10.4
Drinks	9.30	7.0	11.5	9.0	8.9
Frozen food	10.90	8.8	16.9	8.3	8.9
Home delivered/ takeaway	7.60	6.3	12.2	4.9	8.2
Total	**63.80**	**54.00**	87.10	53.40	**60.50**

Table 11: Mean value of food wasted per week by gender and language ($)

Category	All food wasters (n=1,079) ($)	Gender		CALD
		Male (n=521) ($)	Female (n=557) ($)	CALD (n=225) ($)
Fresh food	14.50	17.6	11.9	23.3
Leftovers	10.60	10.6	10.8	13.4
Packaged/ Long life	10.90	14.3	7.9	14.0
Drinks	9.30	6.8	8.1	8.3
Frozen	10.90	15.9	6.5	16.1
Home delivered/ takeaway	7.60	9.9	5.5	8.6
Total	**63.80**	75.1	50.7	83.7

Reasons for food waste

An important objective of this study was to identify possible areas of behaviour change. To investigate this, respondents were asked to identify the reasons why food was wasted in their household.

Section snapshot

The reasons for household food waste were in the main consistent with the Benchmark. However, there was a significant decrease in the numbers of respondents who stated that the main reason for food waste was that some household members do not always finish their meal (14%, compared to 19% in the Benchmark) and an

increase in the number who simply cook too much (11% compared to 8% in the Benchmark). When taking into account all the reasons given for food waste instead of the main reason, there was also a significant decrease in the number of respondents who indicated that some of their household members did not always finish their meals (29% compared to 39% in the Benchmark).

Detailed section findings

Reasons for household food waste

Q12. Please think about why food gets wasted in your household. Firstly, select the main reason that food gets wasted in your household. Now select all other reasons that apply. (Fourteen categories presented).

The main reason for food being wasted at the household level in the Follow up study was food being left too long in the fridge or freezer (19%, compared to 18% in the Benchmark). Interestingly, in the Follow up study there was a significant decrease in the proportion of respondents that indicated that they wasted food due to other household members not finishing their meal (14%, compared to 19% in the Benchmark). However, there was also a significant increase in the proportion of respondents that indicated that they simply cook too much food (11%, compared to 8% in the Benchmark).

Respondents living in areas of NSW outside the Primary areas were significantly more likely to believe that the main reason for their household wasting food was that they cook too much (12%, compared to 8% of those in Primary areas). These respondents were also significantly more likely to indicate that food they bought on sale did not last long enough (8%, compared to 5% in Primary areas), and that they did not use leftover ingredients for other meals (6%, compared to 3%). In the Primary areas on the other hand, respondents were more likely than those in other areas of NSW to indicate that the main reason for their food waste was due to family members changing their plans (9% and 5% respectively).

There were also some differences that emerged within various locations of NSW. Residents of Wollongong and Newcastle were significantly more likely than the total sample to indicate that cooking too much food was the main reason for their household food waste (36%, compared to 11% of the total sample). Those in large country towns however were more likely to indicate that they did not use leftover ingredients in other meals (20%, compared to 5% of the total sample). Those living in smaller country towns were more likely than the total sample to believe that their main reason for wasting food was that some of their household members did not finish their meals (27%, compared to 14% of the total sample).

Main reasons for household food waste also varied with age. Respondents aged 18 to 24 years were significantly more likely to believe that the following reasons contributed to their food waste behaviour:

- Food being left too long in the fridge or freezer (30%, compared to 19% of the total sample)
- Food going off before the ‘use by’ or ‘best before’ date (16%, compared to 10%)
- Food bought on sale not lasting long enough (16%, compared to 7%).

Respondents aged 25 to 39 years on the other hand were significantly more likely to believe that they cooked too much food (20%, compared to 11% of the total sample), and that they did not use the leftover ingredients for other meals (14%, compared to 5%). Those aged 40 to 54 years were more likely to indicate that their household members did not finish their meals (20%, compared to 14% of the total sample), and that this was the main reason for their household food waste. Similarly, families with children appeared to have the same issues, with 21% indicating that some members of the household did not finish their meals, and 12% indicating they did not tend to use leftovers for other meals (compared to 5% of the total sample).

Those living in shared accommodation were likely to believe that their meal planning was affecting their household food waste. These respondents were significantly more likely to indicate that they did not plan meals in advance (9%, compared to 2% of the total sample), and that when they did plan meals that they were too busy to cook these meals (10%, compared to 2% of the total sample).

Respondents who had not completed secondary school were likely to indicate the main reason for their household food waste was cooking too much food (34%, compared to 11%), and that they bought food on sale that did not last long enough (14%, compared to 7%). Those who had completed a trade or TAFE course on the other hand felt that their household members did not always finish their meals and that this was the number one contributor to household food waste (22%, compared to 14% of the total sample). University graduates appeared not to plan their shopping trips, with a significantly higher number than the total sample

indicating that they did not check the fridge or freezer before going shopping (6%, compared to 3% of the total sample).

Annual household income also appeared to vary with main reasons for wasting food. Lower income respondents (those who had an annual household income of $20,000 or less) were significantly more likely than the total sample to indicate that food they bought on sale did not last long enough (23%, compared to 7%). Contrastingly, those who had an annual household income of $60,000 to $99,999 were significantly more likely to cite the following as main reasons for their household food waste:

- Food going off before 'best before' or 'use by' dates (16%, compared to 10% of the total sample)
- Family members changing their plans (12%, compared to 6%)
- Lack of using leftovers ingredients in other meals (13%, compared to 5%).

CALD respondents were significantly more likely to indicate that food bought on sale did not last long enough (14%, compared to 7% of the total sample), and that their family members changed their plans (12%, compared to 6%).

Table 12: Main reasons for household food waste

Reason	Benchmark %	Follow up %
Food is left too long in the fridge and freezer	18	19
Some household members do not always finish their meal	19	14
Food goes off before the 'use by' or 'best before' date	9	10
Food bought on sale does not always last long enough	9	7
We cook too much food	8	11
Family members change their plans (e.g. they do not turn up for dinner etc.)	7	6
We do not tend to use leftover ingredients in other meals	3	5
We do not check the fridge, freezer and cupboard before going shopping	5	3
We buy too much food	3	4
We like to eat as fresh as possible	7	3
We tend not to plan meals in advance	3	2
We are generally too busy to cook meals that we planned	2	2
We are not sure how to or can not store food properly	-	-
Fruit/vegetables going off	2	-
Only throw away vegetables/fruit peelings	1	-
Do not waste food	9	-

Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Taking into account all the reasons given for food waste (main and others combined), the top two main reasons were again the most common. Similarly to the trend in the main reasons given, when looking at all reasons that contribute to food waste there was a significant decrease in the number of respondents who cited some of their household members did not always finish their meals (29%, compared to 39% in the Benchmark study).

Surprisingly, whilst residents of Primary areas were less likely to indicate that food bought on sale didn't last long enough as a main reason, they were more likely than those in other areas of NSW to cite this as another reason for their household food waste (28%, compared to 21%). These respondents were also more likely to indicate that they buy too much food (18%, compared to 13%).

Table 13: Total reasons for household food waste

Reason	Benchmark %	Follow up %
Food is left too long in the fridge and freezer	45	46
Some household members do not always finish their meal	39	29
Food goes off before the 'use by' or 'best before' date	26	25
Food bought on sale does not always last long enough	26	23
We cook too much food	25	23
Family members change their plans (e.g. they do not turn up for dinner etc.)	23	20
We do not tend to use leftover ingredients in other meals	17	15
We do not check the fridge, freezer and cupboard before going shopping	17	15
We buy too much food	17	14
We like to eat as fresh as possible	16	12
We tend not to plan meals in advance	16	12
We are generally too busy to cook meals that we planned	9	11
We are not sure how to or can not store food properly	3	2
Fruit/vegetables going off	2	1
Only throw away vegetables/fruit peelings	0	-
Do not waste food	9	-

Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Information sources

In order to raise awareness of some of the issues surrounding food waste behaviours and attitudes, and to educate consumers about effective ways to reduce their household's food waste, respondents were asked to indicate whether they had previously sought information on food related issues. In the Benchmark study this provided a comprehensive list of potential communication channels for the *Love Food Hate Waste* program, and it provided tracking data for the Follow up study.

Section snapshot

Just under half of the respondents in the Follow up survey had sought information on food related issues in the last six months, which was a similar proportion to the Benchmark (47% and 49% respectively). Of these respondents, just over three quarters had obtained information from the internet (77%) with just over half stating that the internet was their main source of information (53%). Both similar figures to the Benchmark study.

A lower proportion of respondents in the Follow up study indicated that they thought that the NSW State Government should have a role to play in assisting people to reduce the amount of food wasted (61%, compared to 73% in the Benchmark).

Detailed section findings

Incidence of seeking information

Q17. In the past six months have you looked for information about food and related issues e.g. cooking, storage, nutrition, specials, recipes ideas, waste? (Yes/No)

Respondents were asked if they had sought information on food related issues in the last six months. Slightly less than half of all respondents in both the Benchmark and Follow up waves had searched for information on food issues (49% and 47% respectively). This may have involved information on cooking, storage, nutrition, specials, recipe ideas or food waste.

Respondents from Primary areas were significantly more likely than those in other areas of NSW to have actively searched for food related information (58% and 46% respectively).

Residents of Wollongong and Newcastle were significantly more likely than the total sample to have sought information regarding food (56%, compared to 47% of the total sample). Females and those who had

completed a university degree were also more likely to have actively looked for information on food and related issues (57% and 61% respectively), as were those with an annual household income of $20,000 to $60,000 (60%).

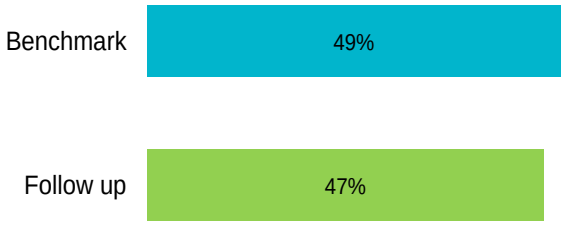

Figure 14: Respondents who sought food related information in the past six months
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Sources used for food related information

Q18a. What was your main source for this information? (Fourteen categories presented).

Respondents who indicated they had sought information on food related issues in the last six months were then asked to indicate where they sought this information. The internet was the most popular source of information in both the Benchmark and Follow up studies, with more than one in two respondents indicating it was their main source of information (51% and 53% respectively). Recipe books and cook books remained the second most popular source of information, with over one in five respondents (22%) in the Follow up study using these.

In the Follow up study there was a significant decrease in the proportion of respondents that had sourced food related information from Lifestyle TV programs (6%, compared to 10% in the Benchmark). There was however a significant increase in the proportion of respondents that had used other TV programs, such as news or documentaries, for food related information (4%, compared to 2% of those in the Benchmark), and also advertising and promotional materials (3%, compared to 1%).

Table 14: Main source used for food related information

Source	Benchmark %	Follow up %
The Internet	51	53
Recipe/cook books	24	22
Lifestyle TV programs (e.g. Better Homes & Gardens, cooking shows)	10	6
Newspaper and magazine articles	6	7
Family and friends	4	2
Other TV programs (including news, current affairs, documentaries)	2	4
Advertising and promotional materials	1	3
Community events including food festivals	1	-
The local library	1	-
Courses e.g. cooking	-	1
Radio	-	-
Council brochures/information	1	-
Diet/nutritional advice	-	-
Other (specify)	1	-

Base: respondents who sought information Benchmark (n=585), Follow up (n=568).

In regards to all the sources used to search for information related to food issues, the internet was again the most common (77% in both the Benchmark and Follow up studies having indicated they

had used it). There was however a significant decrease in the proportion of respondents in the Follow up study that had used recipe/cook books (68%, down from 74% in the Benchmark), lifestyle TV programs (43%, compared to 53%), family and friends (25%, compared to 35%) and community events (6%, compared to 9%).

Respondents living in Primary areas were significantly more likely to have used Lifestyle TV programs as a source of information (53%, compared to 39% in other areas of NSW). They were also more likely to rely on family and friends for food related information (34%, compared to 23%). In other areas of NSW, respondents indicated they were more likely to gain information from the radio (8%, compared to 4% of those in Primary areas), cooking courses (9%, compared to 3%), and community events including food festivals (6%, compared to 3%).

Table 15: Total sources used for food related information

Source	Benchmark %	Follow up %
The Internet	77	77
Recipe/cook books	74	68
Lifestyle TV programs (e.g. Better Homes & Gardens, cooking shows)	53	43
Newspaper and magazine articles	37	33
Family and friends	35	25
Other TV programs (including news, current affairs, documentaries)	17	18
Advertising and promotional materials	13	15
Community events including food festivals	9	6
The local library	5	3
Courses e.g. cooking	4	8
Radio	4	7
Council brochures/information	4	4
Diet/nutritional advice	0	-
Other (specify)	1	1

Base: respondents who sought information Benchmark (n=585), Follow up (n=568).

Role of the NSW Government

Q19. Do you think the NSW Government should have a role in assisting the people of NSW to reduce the amount of food they waste? (Yes/No).

Respondents were asked if the NSW State Government should have a role in assisting people to reduce the amount of food wasted. In the Follow up study respondents were significantly less likely to indicate that they believed the NSW Government should have a role to play in this area (61%, compared to 73% in the Benchmark study).

Interestingly, in the Follow up study, those who lived in Primary areas were significantly more likely to believe that the NSW Government should assist residents of NSW to reduce the amount of food they waste (69%, compared to 60% of those in other areas of NSW). Residents of Wollongong and Newcastle on the other hand were significantly less likely than the total sample to believe that the NSW Government should have a role in reducing household food waste (50%, compared to 61% of the total sample).

Respondents' age also appeared to influence their view on whether the NSW Government should assist the public in reducing the amount of food they waste. Younger respondents (aged 18 to 24 years) were significantly more likely than the total sample to believe the Government should have a role to play (81%, compared to 61%). Those who were aged 25 to 39 years however were significantly less likely to hold this belief (55%).

CALD respondents, university graduates and those with an annual household income of $100,000 or more were all significantly more likely than the total sample to indicate that the NSW Government should have a role in assisting the people of NSW to reduce the amount of food they waste (70%, 71% and 75%

respectively). Conversely, those living in single person households and those that did not complete secondary school were significantly less likely than the total sample to hold this view (52% and 42% respectively).

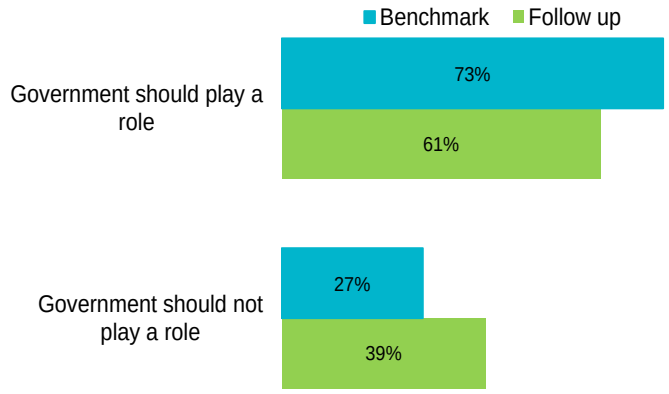

Figure 15: Role of the NSW government in assisting the community to avoid food waste
Base: all respondents Benchmark (n=1,200), Follow up (n=1,200).

Love Food Hate Waste program evaluation

The Follow up study included a number of measures to assess awareness, understanding and message take out from Love Food Hate Waste program elements. Respondents were shown some advertising and promotional materials, shown in the relevant sections.

To better understand the impact of the Love Food Hate Waste program, significant differences between results for those in Primary areas (where the advertising and promotional materials were focussed) and other areas of NSW are highlighted.

Section snapshot

Just over one in six respondents indicated that they were aware of advertising or promotion about the general issue of food waste in the last 12 months (17%). Of these respondents, almost three quarters saw it on TV (73% of those aware, or 12% of all respondents). The most common response in relation to the recalled advertising content was that the advertising or promotion they had seen was about composting/worm farming (28% of those aware, or 5% of all respondents), followed by a general reminder not to waste food (17% of those aware, or 3% of all respondents).

4% of all respondents stated that they had heard of LFHW previously and 2% stated that they had seen the LFHW logo before. 3% indicated that they had seen, read or heard media, advertising or promotion in NSW about LFHW in the past 12 months. Of these respondents 70% said they had seen it on TV (2% of all respondents). When asked what the main messages were of the program, 15% indicated that the main message was ‘Don’t waste food’ with a further 11% indicating that it was to ‘Only purchase what you need’ (less than 1% of all respondents for each of these). Almost half did not know what the main message was (49%, or 1% of all respondents).

When prompted with messages from the program, a large proportion of those aware of the program recognised ‘waste less food, save money and our environment’, with 95% stating they had seen or heard this message, and 92% recognising ‘wasting food wastes water, energy and natural resources’ (equating to less than 3% of all respondents for each statement).

The majority of respondents did not recall any taglines or slogans from the advertising or promotion they’d seen or heard (81%, or 2% of all respondents). The tag with the highest recall was ‘love food hate waste’ with

3% of respondents aware of the program recalling it (which rounds to 0% of all respondents). However, when prompted, 2% of all respondents stated they recognised the “Sad, isn’t it?” tagline.

The most recognised of the print ads shown to respondents was the ‘Apple’ version, with 5% of respondents indicating they had seen it before.

Given the low overall awareness of the LFHW program, it is difficult to assess the outtake of the advertising. However, though the results can only be treated as indicative (due to the small sample sizes that result) it does appear that the program (and advertising) has been effective amongst those who were exposed to it.

Of the respondents who had seen or heard the LFHW advertising or promotion, 85% stated that the materials motivated them to at least think about acting in ways to waste less food (7% of all respondents). The main actions the respondents were motivated to do were to cook the correct serving sizes (60%, or 4% of all respondents), use leftovers for other meals (56%, or 4% of all respondents), write a shopping list (53%, or 4% of all respondents) and check use by and best before dates in store (50%, or 3% of all respondents).

When asked what it was about the campaign that made them want to act, 16% (or 1% of all respondents) indicated that it was ‘to help the environment’, 13% (or 1% of all respondents) said it was because the campaign ‘gave suggestions on how to reduce waste’ and a further 11% (1% of all respondents) said it was because of ‘the waste of so much money’.

Respondents who were aware of any advertising or promotion were also asked to indicate which websites, if any, they visited as a result of seeing or hearing anything about the issue of food waste. Just under half (46%, or 4% of all respondents) indicated they had visited the Woolworths website. The Foodwise website was visited by 29% and just over one in four visited the LFHW website and the Local Council website (2% of all respondents for each).

Detailed section findings

Awareness of food waste advertising

Q20. Have you seen, read or heard any media, advertising or promotion about the issue of food waste in the past 12 months?

17% of respondents indicated they were aware of advertising or promotion about the issue of food waste in the last 12 months. The proportion of respondents aware did not differ significantly between Primary areas and other NSW (14% and 17% respectively).

Respondents in single person households were significantly more likely to be aware of advertising or promotion (40% compared to 17% of all respondents), as were respondents in Newcastle/Wollongong (46%) and those who had not completed secondary education (37%).

In contrast, respondents in Sydney were significantly less likely to be aware of advertising or promotion (12%, compared to 17% of all respondents), those with a household income of $60,000 to $100,000 per annum and over $100,000 per annum (11% and 10% respectively), as were CALD respondents (7%), families with children (9%), shared households (9%), and those who had completed secondary education (7%).

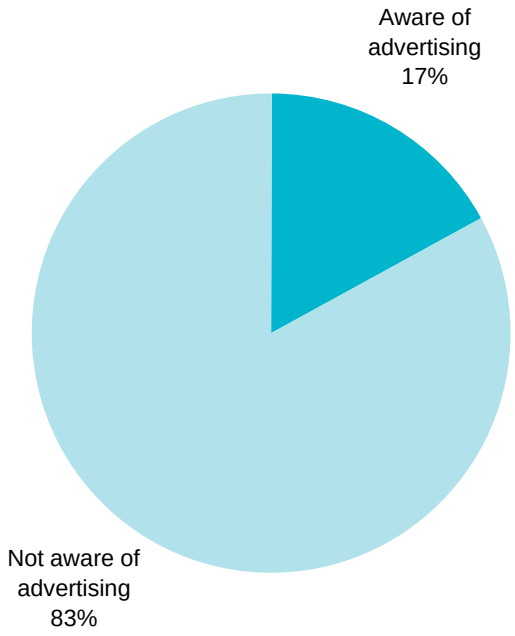

Figure 16: Awareness of media, advertising or promotion about food waste issue
Base: All respondents (n=1,200).

Advertising/promotion medium recalled

Q21. Where did you see or hear this media, advertising or promotion?

Just under three quarters of the respondents who were aware of food waste advertising or promotion indicated they saw it on television (73%, or 12% of all respondents). The proportion of respondents indicating they saw it on television was significantly higher amongst those in Newcastle/Wollongong (92%, compared to 73% of all respondents), as well as those aged 25 to 39, those in single person households, and those who had not completed secondary education (94%, 84% and 89% respectively).

One in four respondents indicated they saw advertising or promotion in the newspaper (25%, or 4% of all respondents), with males, older respondents (over 55) and families with no children all being significantly more likely to recall seeing it in the newspaper (37%, 43% and 45% respectively).

20% of respondents aware of the advertising or promotion who were from the Primary areas indicated they heard about the food waste issue on the radio, which was significantly higher than those in other areas of NSW (5%).

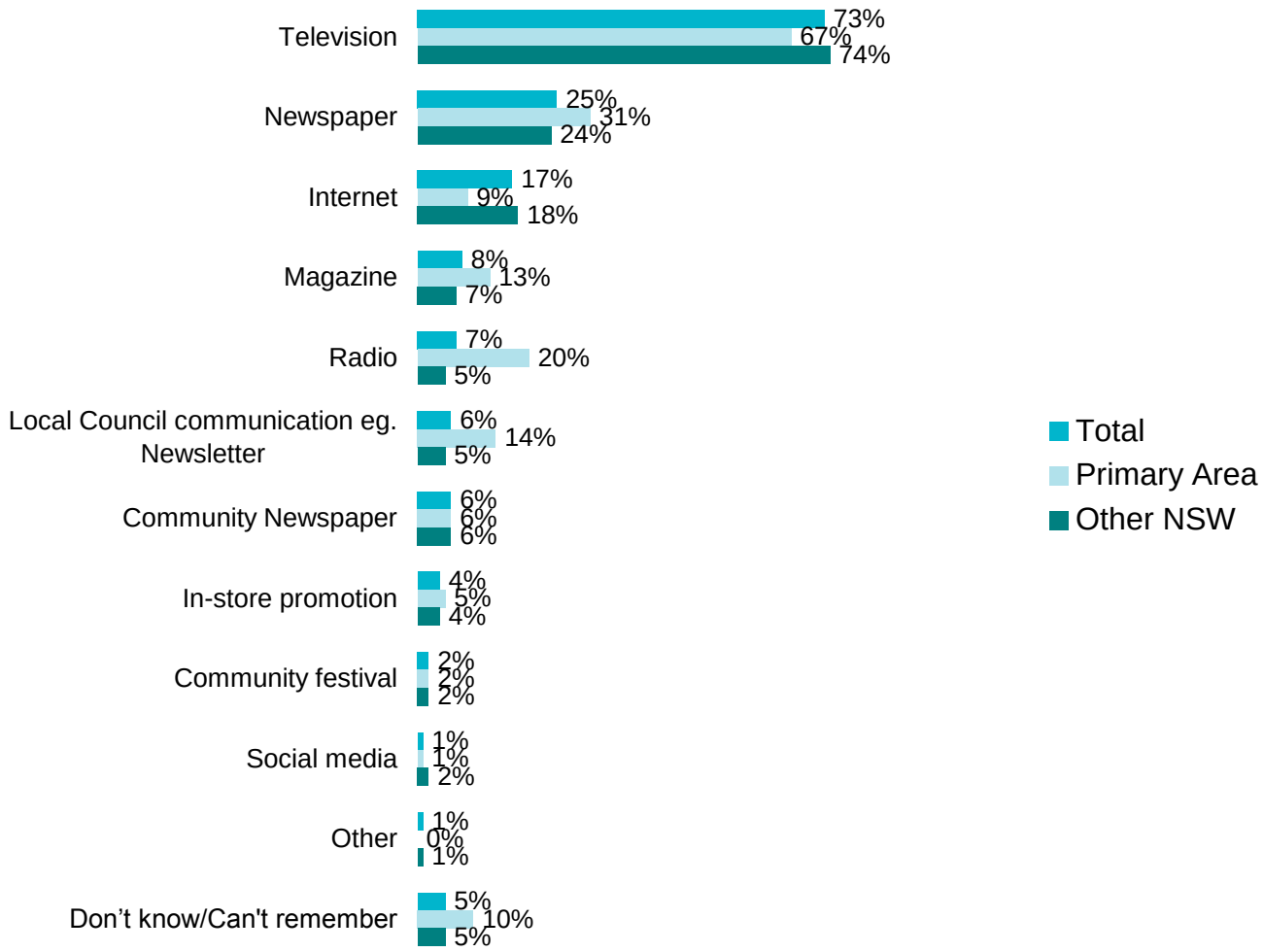

Figure 17: Advertising/promotion mediums recalled
Base: respondents aware of advertising or promotion (n=200).

Description of advertising/promotion

Q22. What was that media, promotion or advertising about? (This was an open-ended question. No prompting or pre-codes were provided)

Over a quarter of respondents who were aware of advertising or promotion indicated it was 'about composting/worm farming' (28%, or 5% of all respondents). Respondents aware of the advertising/promotion from other areas of NSW were significantly more likely to mention this than those in Primary areas (32% compared to 3%). Females were also significantly more likely to say 'about composting/worm farming' (46%, compared to 28% of all aware), as were respondents in Sydney/Newcastle (71%), those aged 25 to 39 (67%), those in single person households (63%) and those who had not completed secondary education (74%).

Amo0ngst those aware, the respondents in Primary areas were significantly more likely to indicate the advertising or promotion was about 'the large amount of food waste/in Australian households/we waste too much food' than those in other areas of NSW (29% compared to 6%).

Males were significantly more likely to indicate the advertising or promotion that they were aware of was more a 'A general reminder not to waste food' (28% compared to 17% of all aware), as were those aged over 55 (35%), families with no children (30%), those who have completed a trade qualification (40%) and those with a household income of $20,000 to $60,000 per annum.

Older respondents (over 55) were significantly more likely to indicate that the advertising or promotion that they were aware of was telling people 'to plan meals in advance/recipes' (20% compared to 7% of all aware), as were those with a household income of $20,000 to $60,000 per annum (18%).

Table 16: Description of advertising/promotion recalled

Response	Total %	Primary area %	Other NSW %
About composting /worm farming	28	3	32
A general reminder not to waste food	17	9	18
The large amount of food wasted / in Australian households / we waste too much food	9	29	6
To plan meals in advance / recipes	7	9	7
An organisation is using food that would otherwise be thrown away to feed the needy	6	11	5
Information about use by and best by / people waste because they don't understand	6	4	6
Gave ideas on how to avoid waste	5	9	5
To buy only as much as you need	5	2	5
Food storage/ management/ safe food/ avoiding food poisoning	5	2	5
The large amounts of waste is creating landfill problems	4	9	3
About recycling, reusing, reducing	3	6	2
That our waste food could keep a 3rd world family alive	2	6	2
A new plastic wrap machine to preserve food	2	1	2
You will also save money by not wasting food	2	2	2
Sustainability/impact of waste on the environment	2	6	1
About the waste of food by supermarkets	1	7	0
Other	7	4	7
Don't know	8	10	7
Not answered	2	1	2

Base: respondents aware of advertising or promotion (n=200).

Incidence of having heard of Love Food Hate Waste

Q23a. Have you heard of Love Food Hate Waste?

All respondents were asked if they had heard of Love Food Hate Waste, with 4% indicating they had. 5% of respondents in other areas of NSW indicated they had heard of Love Food Hate Waste, with this proportion being significantly higher than those in Primary areas (2%).

Respondents aged 25 to 34 were significantly more likely to have heard of Love Food Hate Waste (9%, compared to 4% of all respondents), as were the CALD respondents and those who had not completed secondary education (11% and 13% respectively).

Contrastingly, respondents in a shared household were significantly less likely to indicate they had heard of Love Food Hate Waste (1% compared to 4% of all respondents). Respondents who worked in the trade industry (1%), respondents aged over 55 (2%) and those living in large country towns (1%) or small country/rural areas (1%) were also significantly less likely to have heard of Love Food Hate Waste.

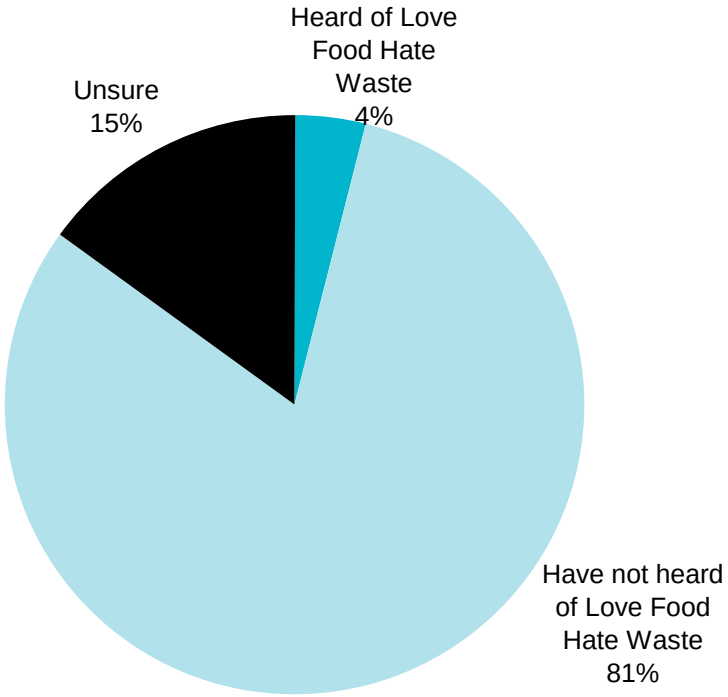

Figure 18: Incidence of having heard of Love Food Hate Waste
Base: all respondents (n=1,200).

Incidence of having seen Love Food Hate Waste logo

Q23b. Have you seen the Love Food Hate Waste logo, shown below, in any media, advertising or promotional materials?

Respondents were shown the Love Food Hate Waste logo and then asked if they had seen the logo in any media, advertising or promotional materials. 2% of respondents indicated they had seen the logo before, and this figure did not differ between respondents in Primary areas and those in other areas of NSW (both 2%). There were also no significant differences amongst the various demographic groups.

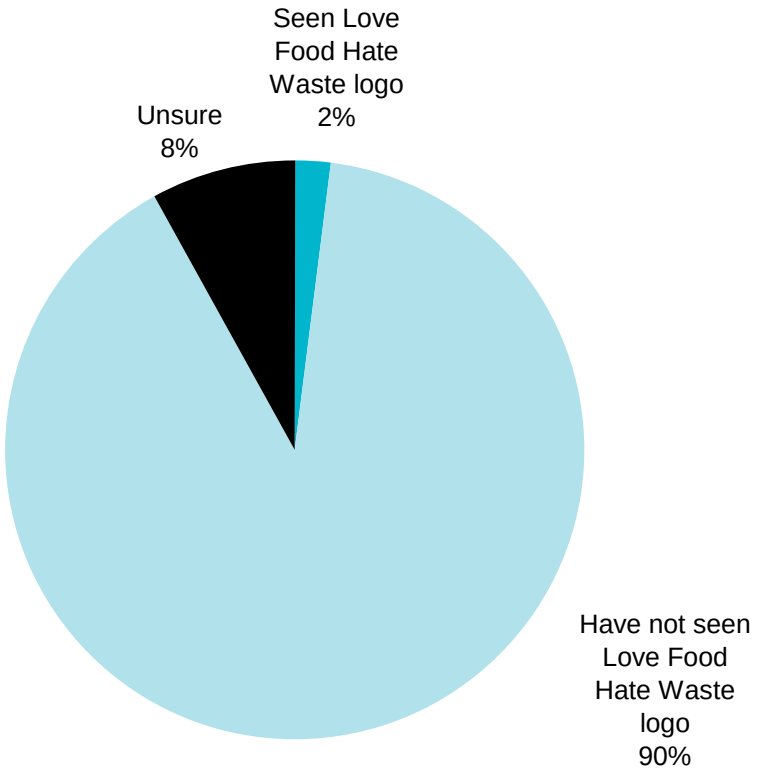

Figure 19: Incidence of having seen the Love Food Hate Waste logo
Base: all respondents (n=1,200).

Awareness of Love Food Hate Waste advertising/promotion

Q23c. Have you seen, read or heard any media, advertising or promotion in NSW about Love Food Hate Waste in the past 12 months?

3% of respondents indicated they were aware of some form of media, advertising or promotion in NSW about Love Food Hate Waste.

Respondents aged 25 to 39 were significantly more likely to be aware of Love Food Hate Waste advertising or promotion (6%, compared to 3% of all respondents), as were respondents who had not completed secondary education (13%) and CALD respondents (7%).

In contrast, respondents in small country or rural areas were significantly less likely to be aware of Love Food Hate Waste advertising or promotion (1%, compared to 3% of all respondents). Older respondents (over 55) were also significantly less likely to be aware of advertising or promotion (1%), as were those in shared households, those who had completed secondary education, those who had completed university and those with a household income of $20,000 to $60,000 per annum (all 1%).

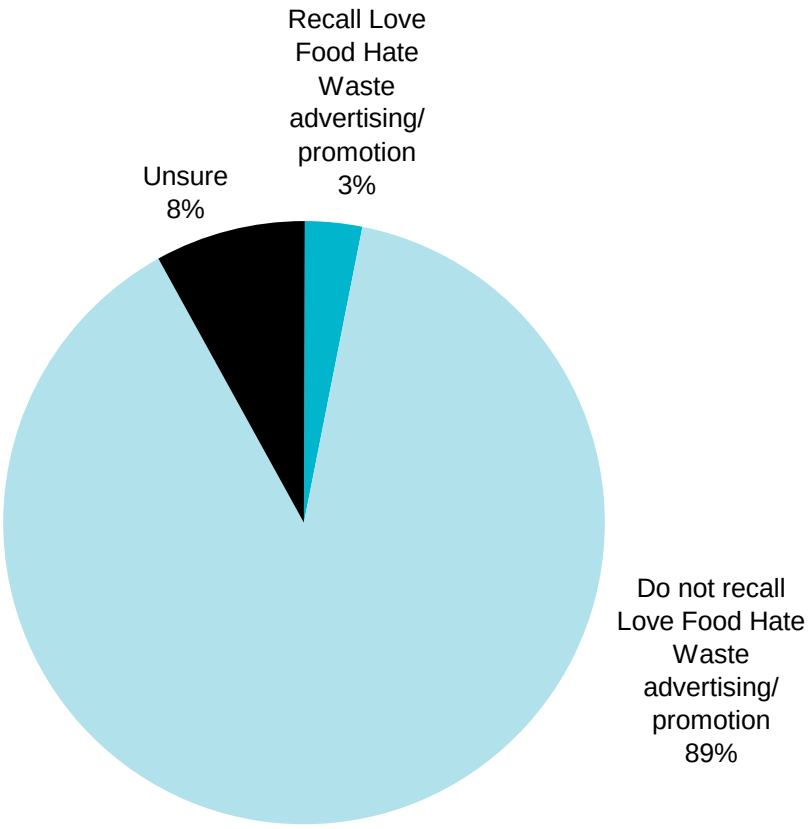

Figure 20: Awareness of Love Food Hate Waste advertising/promotion
Base: all respondents (n=1,200).

Love Food Hate Waste advertising/promotion medium recalled

Q24. Where did you see or hear this media, advertising or promotion?

Amongst the respondents who recalled Love Food Hate Waste advertising or promotion, 70% indicated they saw it on television (12% of all respondents), with respondents in other areas of NSW significantly more likely to indicate this than those in Primary areas (75% and 14% respectively).Two thirds (67%) of respondents aware of LFHW indicated they saw advertising or promotion in a food magazine, and 60% indicated they saw advertising or promotion on the internet. The advertising or promotion medium recalled did not differ significantly amongst other demographics.

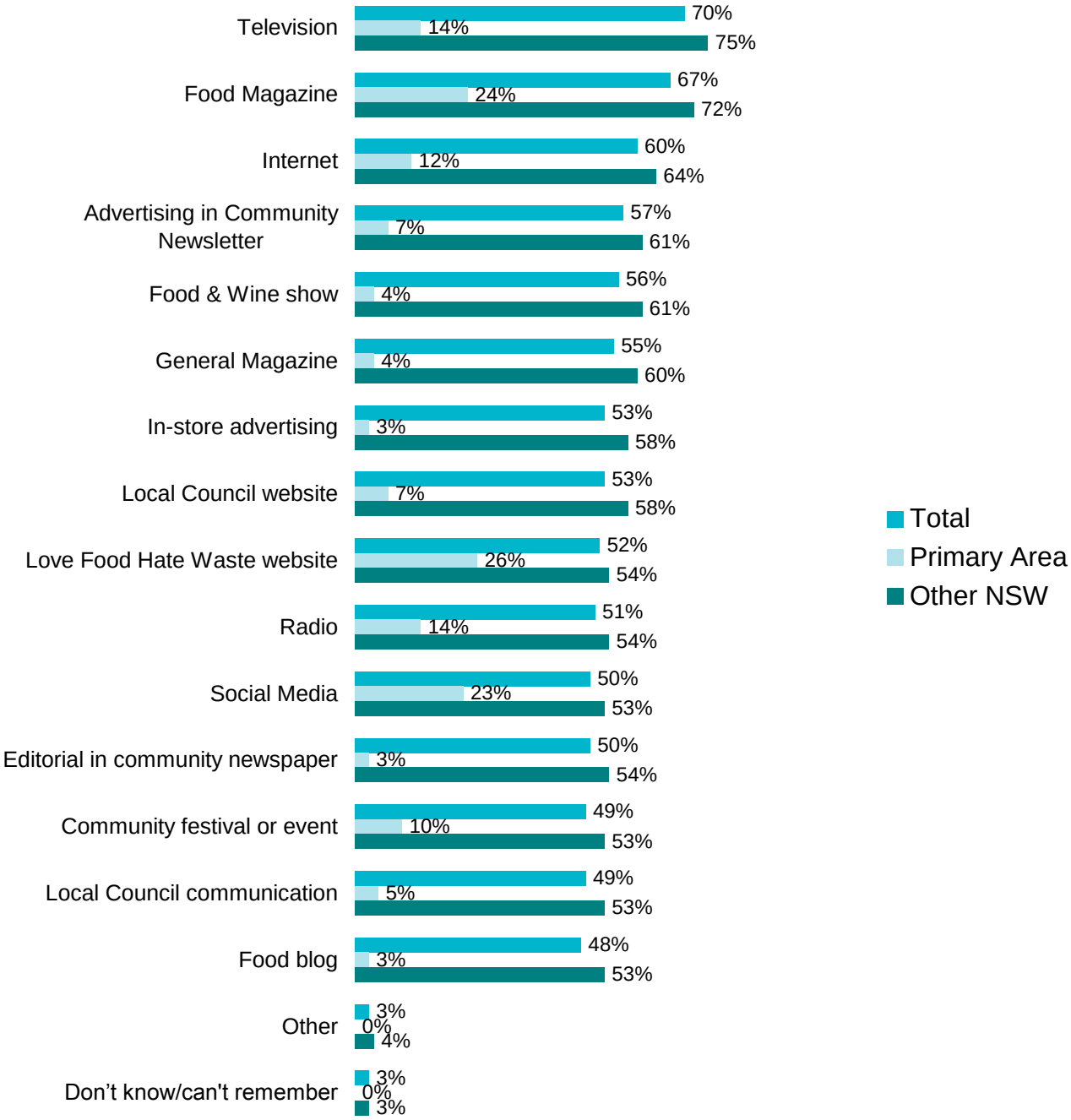

Figure 21: Love Food Hate Waste advertising/promotion mediums recalled
Base: All respondents aware of Love Food Hate Waste advertising/promotion (n=32).

Main messages of Love Food Hate Waste advertising/promotion recalled

Q25. What would you say are the main messages of the Love Food Hate Waste materials you have seen? (This was an open-ended question. No prompting or pre-codes were provided)

Respondents aware of advertising or promotion were asked what they thought the main messages of the materials they had seen were; with 15% indicating the main message was 'don't waste food' (this equates to less than 1% of all respondents). A further 11% of respondents indicated the main message was to 'only purchase what you need'. However, almost half of the respondents who were aware of advertising or promotion for Love Food Hate Waste indicated they did not know what the main message was (49%).

Table 17: Description of Love Food Hate Waste advertising/promotion recalled

Response	Total %	Primary area %	Other NSW %
Don't waste food	15	28	14
Only purchase what you need	11	0	12
Use leftovers	9	3	10
Save on the environment	8	0	8
Wasting food wastes the resources used to produce it	6	0	7
Cook only what you need	6	24	4
Prevention of waste by planning	4	0	4
That we should love the food that we eat	4	14	3
Take more care with disposal of waste	0	3	0
Other	4	9	4
Don't know	49	13	53
Not answered	8	23	7

Base: respondents aware of Love Food Hate Waste advertising/promotion (n=32).

Awareness of specific Love Food Hate Waste messages

Q26. Can you recall seeing or hearing any of these specific messages from the Love Food Hate Waste program? (This was an open-ended question. No prompting or pre-codes were provided)

Respondents aware of Love Food Hate Waste advertising or promotion were shown a number of specific messages from the Love Food Hate Waste program, and asked to indicate whether they recalled seeing or hearing them previously.

A number of the messages had high levels of awareness, with the most recognised message being 'waste less food, save money and our environment', with 95% of respondents aware of the advertising/promotion indicating they had either seen or heard this message (3% of all respondents).

Those aware of the advertising/promotion also showed high levels of awareness of the 'wasting food wastes water, energy and natural resources' as well as 'NSW households waste $2.5 billion dollars' worth of food per year' (92% and 87% respectively), however there were no significant differences amongst the various demographic groups.

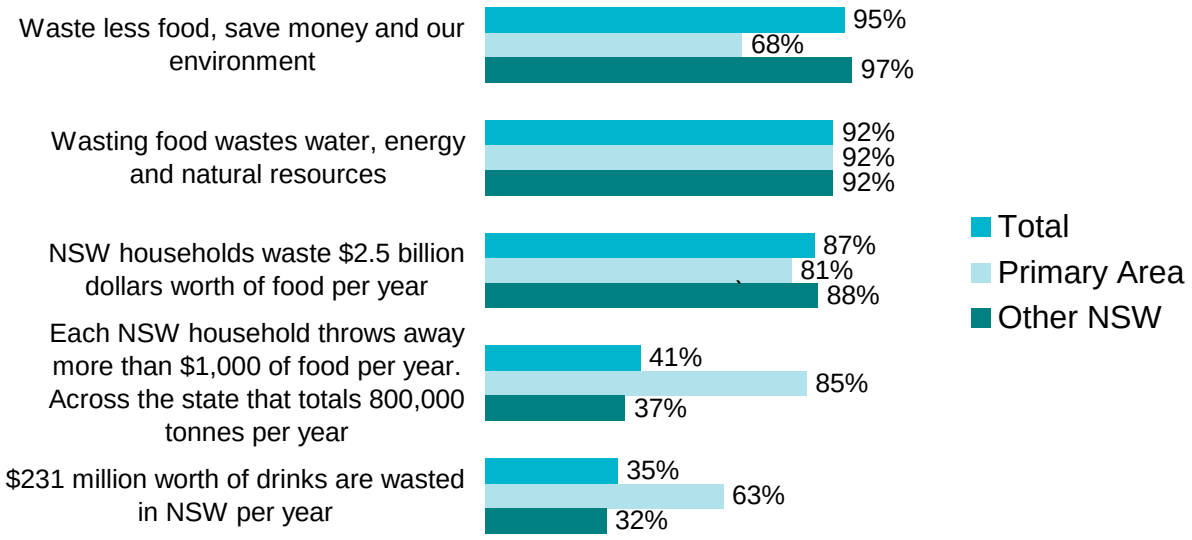

Figure 22: Awareness of Love Food Hate Waste messages
Base: All respondents aware of Love Food Hate Waste advertising/promotion (n=32).

Incidence of recalling Love Food Hate Waste tagline or slogan

Q27. What slogan or tagline do you recall being associated with the Love Food Hate Waste program?

Respondents aware of Love Food Hate Waste advertising or promotion were asked to list any slogans or taglines they recalled being associated with the program. However, these respondents showed very low levels of recall of any taglines or slogans, with 81% indicating they did not know, and a further 9% not providing an answer. The slogans or taglines that were mentioned included 'Love Food Hate Waste' (3%), 'Waste not, want not' (2%), 'Fresh is best' (2%), and 'Food waste', and these did not vary significantly amongst any of the demographic groups.

Table 18: Love Food Hate Waste tagline or slogan recalled

Response	Total %	Primary area %	Other NSW %
Love Food Hate Waste	3	0	4
Waste not, want not	2	0	3
Fresh is best	2	21	0
Food Waste	2	0	2
Reuse, reheat, enjoy	0	2	0
Don't know	81	40	83
Not answered	9	36	8

Base: respondents aware of Love Food Hate Waste advertising/promotion (n=32).

Awareness of "Sad, isn't it?" tagline

Q28. Do you recall the tag line "Sad, isn't it?" in association with the Love Food Hate Waste program?

All respondents were asked if they recalled the "Sad. Isn't it?" tagline in association with the Love Food Hate Waste program, with 2% indicating they did.

Respondents in shared households were significantly less likely to recall the "Sad, isn't it?" tagline (0%), as were those in large country areas, older respondents (over 55) and respondents with a household income of $60,000 to $100,000 per annum (all 1%).

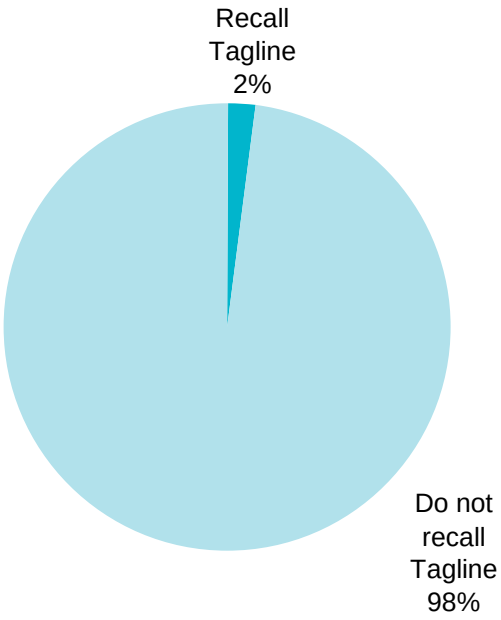

Figure 23: Awareness of "Sad, isn't it?" Tagline
Base: All respondents (n=1200)

Incidence of Recalling print materials

Q29. Which of the following materials have you seen before today?

All respondents were shown four print advertisements (separately) and asked to indicate which, if any, they had seen before. The most recognised print ad was 'Apple', with 5% of respondents indicating they had seen it before.

Respondents aged 24 to 34 were significantly more likely to be aware of the 'Apple' print advertisement (9%, compared to 5% of all respondents), as were CALD and respondents who had not completed secondary education (12% and 14% respectively).

CALD respondents and those who had not completed secondary education were also significantly more likely to indicate they had seen the 'Cheese' print advertisements (9% and 12% respectively), as well as the 'Milk' print advertisement (9% and 11% respectively).

Those from Newcastle or Wollongong were significantly more likely to indicate they had seen the 'Tomato' print advertisement (7%, compared to 3% of all respondents).

There was an overall NETT recall level of 8% for any of the four print advertisements, however those from Newcastle or Wollongong, CALD respondents and those who have not completed secondary education all had significantly higher levels of NETT recall (15%, 14% and 14% respectively).

Figure 24: Incidence of recalling print materials
Base: all respondents (n=1,200)

Motivation after viewing Love Food Hate Waste program

Q30. Thinking about the Love Food Hate Waste media, advertising or promotion that you have seen, did these materials motivate you to act in ways to waste less food? (This was an open-ended question. No prompting or pre-codes were provided)

Respondents who indicated they had either heard or seen Love Food Hate Waste advertising or promotion, or had seen the print materials, were asked to what extent the materials motivated them to act in ways to waste less food. Overall, 85% of respondents aware of some part of the campaign (or 7% of all respondents) indicated they were motivated to at least think about acting in ways to waste less food, with 33% indicating the materials motivated them either very much or quite a bit.

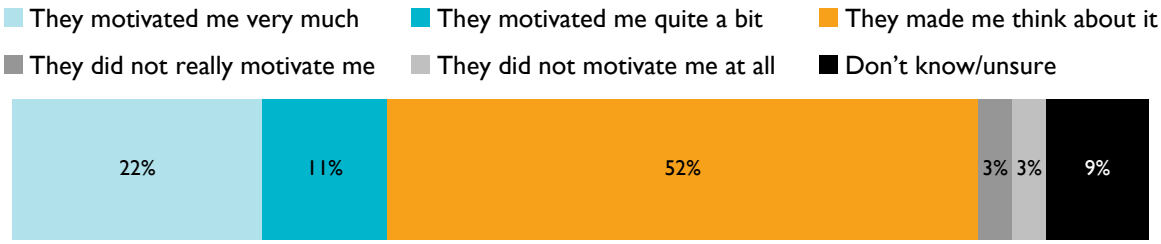

Figure 25: Motivation after viewing Love Food Hate Waste campaign
Base: All respondents aware of Love Food Hate Waste advertising or promotion or indicated they had seen print materials (n=93)

Actions motivated to do after viewing Love Food Hate Waste campaign

Q31. After seeing or hearing the Love Food Hate Waste promotion, media, advertising materials or attending an event, which of the following were you motivated to do?

Respondents who indicated they were motivated to some extent after viewing the materials were asked which actions they were motivated to do. 3 in 5 (60%) of these respondents indicated they were motivated to 'cook

the correct serving sizes' (or 4% of all respondents), and this proportion was significantly higher amongst those in other areas of NSW than those in Primary areas (67% and 14% respectively).

Over half (56%) of these respondents said they were motivated to 'use my leftovers for other meals', with 53% also indicating they now 'write a shopping list'. 1 in 2 of these respondents also indicated they were now motivated to 'check use by and best before dates in store'.

Overall, respondents who were motivated by the material and who were aged 25 to 39 were more likely to indicate they took action, and were significantly more likely to indicate they were motivated to 'check use by and best before dates' (72%, compared to 50% of all in this group). They were also significantly more likely to indicate they were motivated to 'buy less food more regularly' (70%), 'read storage instructions on packaging' (64%), 'start a compost or worm farm' (63%), 'change my shopping habits' (60%) and 'visit the Love Food Hate Waste website' (53%).

CALD respondents were also more likely to take a number of actions based on their motivation, and were significantly more likely to indicate they were motivated to 'buy less food more regularly' (68%). In addition to this, they were also significantly more likely to indicate they were motivated to 'read storage instructions on packaging' (73%), 'change my shopping habits' (72%), 'become a Love Food Hate Waste "Food Lover"' (59%), 'talk to family and/or friends about the issue of food waste' (60%), 'find out more about the issue of food waste' (57%), 'check the temperature of my fridge and freezer' (55%) and 'visit the Love Food Hate Waste website' (56%).

Respondents in a family with no children also appeared to be more likely to take action on their motivation, and were significantly more likely to indicate they were now motivated to 'write a shopping list' (78%, compared to 53% of all in this group), as well as 'check use by and best before dates in store' (75%), 'plan meals in advance' (72%), 'Buy less food more regularly' (67%), 'Start a compost or worm farm' (64%), 'change my shopping habits (62%), 'become a Love Food Hate Waste "Food lover"' (64%), 'talk to family and/or friends about the issue of food waste' (61%), 'find out more about the issue of food waste' (59%), 'check the temperature of my fridge and freezer' (64%) and 'Visit the Love Food Hate Waste website' (53%).

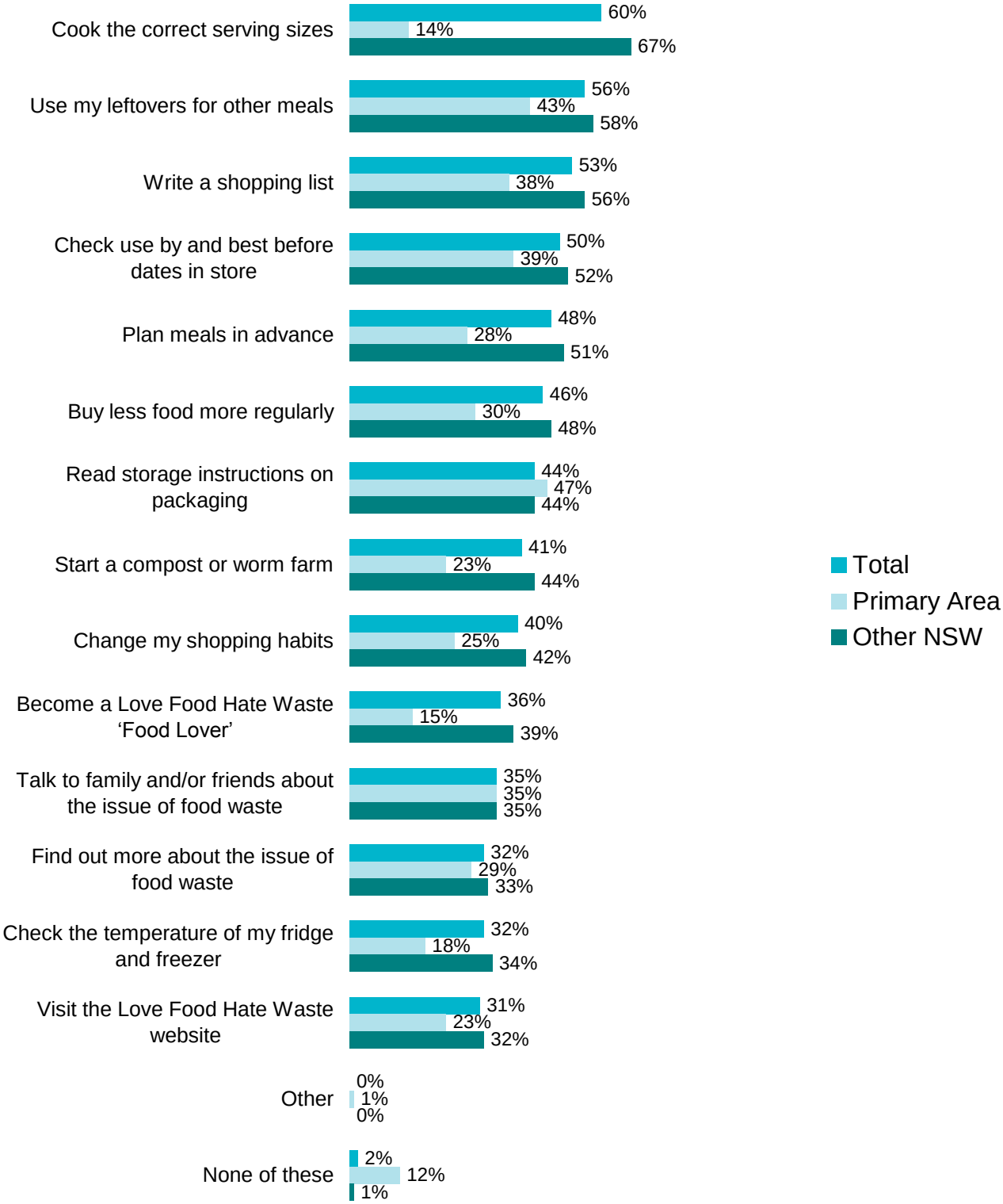

Figure 26: Actions motivated to do after viewing Love Food Hate Waste campaign
Base: Respondents who indicated they were motivated to some extent after viewing the materials (n=79)

How campaign motivated action

Q32. And what was it about the media, advertising, promotion or event that has motivated you to want to do these things? (This was an open-ended question. No prompting or pre-codes were provided)

Respondents who indicated they were motivated to act after viewing materials were asked what it was about the campaign that motivated them, with 16% of this group (or 1% of all respondents) indicating it was 'to help the environment'. 13% of respondents indicated it was because the campaign 'gave suggestions on how to reduce waste' and a further 11% indicated it was because of 'the waste of so much money'.

Respondents in Primary areas were significantly more likely to indicate they were motivated by the message 'that we waste so much more food when so many people are starving' than those in Other NSW (18% compared to 4%).

Table 19: How campaign motivated action

Response	Total %	Primary areas %	Other NSW %
To help the environment	16	1	18
It gave suggestions on how to reduce waste	13	18	12
The waste of so much money	11	21	10
I didn't fully realise the extent that food is wasted / the info given	10	10	10
Made me think / a reminder	6	18	4
That we waste so much food when so many people are starving	4	18	2
To waste less food	4	1	4
I already do most of these things anyway	2	5	2
It was persuasive	2	3	2
Other	1	1	2
Don't know	23	5	26
Not answered	14	6	15

Base: respondents who indicated they were motivated to act after viewing materials (n=77)

Website/s visited as a result of seeing or hearing about food waste issue

Q33. Which websites, if any, have you visited as a result of seeing or hearing anything about the issue of food waste?

Respondents who indicated they were aware of any advertising or promotion were asked to indicate which websites, if any, they visited as a result of seeing or hearing anything about the issue of food waste. Just under half (46%) indicated they visited the Woolworths Ltd website (this equates to 4% of all respondents), with respondents in families and no kids significantly more likely to go to this website (70%, compared to 46% of all aware). These respondents were also significantly more likely to indicate they went to the Local Council website and the Office of Environment and Heritage website (45% and 40% respectively).

Respondents who were aware of the advertising and promotion and who were aged 25 to 39 were significantly more likely to indicate they visited a number of websites; these websites were Foodwise (61% compared to 29% of all respondents), as well as Love Food Hate Waste (49%), Do Something! (47%), Office of Environment and Heritage (42%), Love Food Hate Waste UK (49%), and OzHarvest (45%).

The CALD respondents aware of the advertising/promotion also showed high levels of visitation to a number of websites and were significantly more likely to visit the Love Food Hate Waste website (51%, compared to 27% of respondents in this group), as well as the Love Food Hate Waste UK website (51%), Do Something! (50%), Foodwise website (48%), their Local Council website (47%), the OzHarvest website (46%), and the Office of Environment and Heritage website (43%).

Male respondents aware of the advertising/promotion were significantly more likely to indicate they went to the Do Something! website and the Love Food Hate Waste UK website (48% and 40% respectively) as a result of seeing or hearing anything about the issue of food waste.

Respondents in Other NSW who were aware of the advertising/promotion were also significantly more likely to indicate they visited the Love Food Hate Waste UK website (25%) than those in Primary areas (2%).

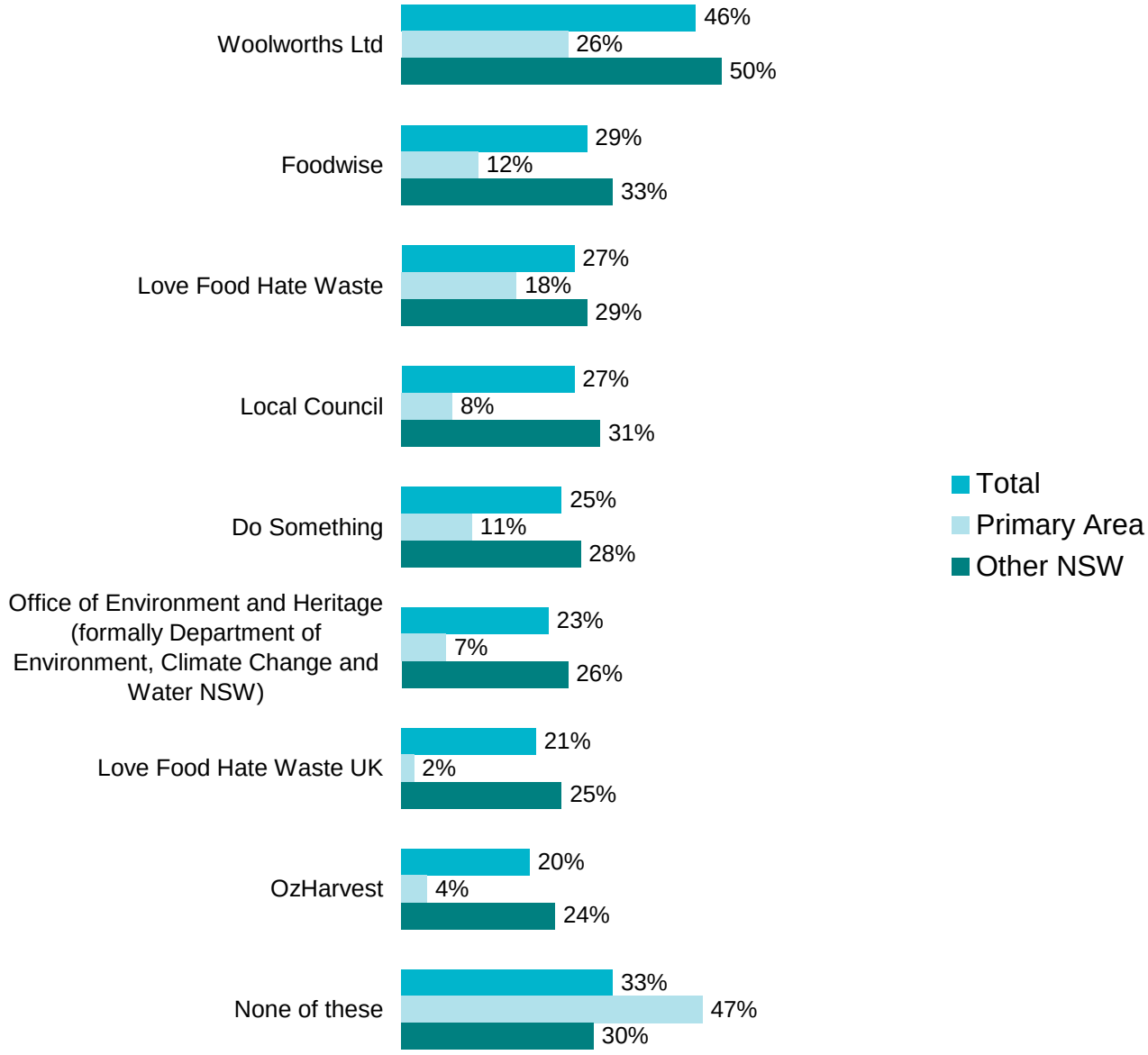

Figure 27: Websites visited as a result of promotion or advertising
Base: respondents aware of Love Food Hate Waste advertising or promotion (n=93)

Summary and conclusions

Food waste behaviours

Comparing the findings from the Follow up survey with the Benchmark shows mixed results with definite room for further improvement in food waste behaviour. There have been some positive changes in perceptions of food waste behaviour since the Benchmark survey. For example, one in three respondents in the Follow up survey stated that they spent money on food that was rarely or never used compared to almost one in two in the Benchmark survey. In addition, nearly three in five respondents indicated that they threw out 'very little' food compared to two in five in the Benchmark.

However, when it came to actual reported behaviour the picture is quite different. Although a relatively small proportion of respondents felt that they were throwing away more uneaten food than they should, they still estimated, on average, that they threw away 2.9L of leftovers, 2.6L of fresh food and 2.1L of packaged and long life food per week, with a value of $63.80 on average per household per week. So, it seems from these findings that this level of food waste was generally accepted and seen by many in the survey to be 'very little'. There was also still a strong level of disagreement that in general Australians don't waste much food, thus recognising the problem in other people but perhaps not accepting it in themselves.

The respondent groups with the largest volume of self reported food waste were those living outside the Primary LFHW program areas, those aged 18 to 24 years, those aged 25 to 39 years, families with children, males, and CALD respondents.

Similar to the benchmark, the largest amount of household waste was perceived to come from packaging, rather than food. A marginally higher proportion of respondents than in the Benchmark correctly identified that food waste was the largest component of household waste by weight (18% in Follow up, compared to 13% in Benchmark).

Changing attitudes

There have been some positive changes in knowledge and attitudes, such as a greater proportion of respondents believed that food is still safe to eat after the best before date. However, there is clearly still quite a bit of work to do on educating the public and changing attitudes towards food waste.

Although most respondents, as in the Benchmark, agreed that the energy and nutrients that are used to grow, process and transport food is lost if the food is not eaten (64%), a significantly lower proportion thought that food waste contributed to climate change (38%). There were also still:

- Over one in four respondents who believed that foods are still safe to eat after the use by date
- Nearly two in three who believed that food is not wasted if it is fed to pets or composted
- Over one in four respondents who thought that as long as cooked items remain frozen they can be stored for a year or more in the freezer
- Almost one in five respondents who thought that cooked leftovers which have been in the fridge for more than one day are unsafe to eat

Reasons for food waste

The reasons given for food waste remained largely consistent with the Benchmark. There was a decrease in the proportion of respondents who stated that food was wasted because some members of the household do not always finish their meals, perhaps showing a slightly better estimation of portion sizes in the Follow up wave.

Food related information and advertising

Similar to what was found in the Benchmark, just under half (47%), of the Follow up respondents had sought information on food related issues in the last six months, showing a desire to learn more about these issues. They had mainly sourced information from the internet.

Just over one in six respondents had seen or heard advertising or promotion about general food waste in the last 12 months. However, as discussed in the next section, there was no significant difference in this figure

between the Primary areas where the LFHW program has been active and the other areas of NSW where it has not.

In total 4% indicated they had heard of LFHW previously, and 2% said they had seen the LFHW logo before. Only 3% had seen, read or heard of any media, advertising or promotion in NSW about LFHW in the past 12 months. Of these respondents, half did not know what the main message of the program was without prompting, and over four in five did not recall any taglines or slogans from the adverting or promotion. So there is certainly scope to increase awareness of the program and highlight its main messages. However, on a positive note, when prompted, the majority of respondents (who previously indicated awareness of the program) did recognise the main messages showing that they had retained the information at some level.

Given that the base sizes are small, findings may be viewed as indicative only, but they do suggest that the advertising is creating some consideration of behaviour change with 85% of respondents who had seen or heard the LFHW advertising or promotion suggesting that the materials motivated them to at least think about acting in ways to waste less food.

Summary of differences between primary and other areas of NSW

There were some significant differences between respondents in Primary areas and other areas of NSW to emerge in the Follow up wave. However, these findings are difficult to interpret due to the inconsistency in findings on awareness and recognition of the LFHW program. It was expected that respondents in Primary areas would have greater awareness and knowledge about the program but this was not the case – possibly due to the low awareness of the campaign. As such, it may be that the Primary areas show differences in attitudes and behaviours due to other characteristics of these areas, as the LFHW program is unlikely to have had any significant impact in this regard.

Awareness and knowledge about the issue

Respondents in Primary areas appeared to be more aware of the problem of food waste and its consequences. They were significantly more likely to disagree with the statement ‘Australians don’t waste much food’, compared with those in other areas of NSW (76% and 68% respectively) and to indicate they believed food was the largest type of waste in the average household garbage bin (21% and 17% respectively). Those living in Primary areas were also significantly more likely than those in other areas of NSW to believe that ‘wasting food contributes to climate change’, with 44% indicating agreement (compared to 36% of those in other areas of NSW). Those in Primary areas were significantly more likely than those in other areas of NSW to believe that 'the energy, water and nutrients that are used to grow, process and transport food are lost if the food is purchased but not eaten” (with 70% and 62% respectively agreeing with these statements).

They also seemed to be more knowledgeable with regard to use by dates. Respondents living in Primary areas were significantly more likely than those living in other areas of NSW to correctly identify that use by dates stipulate that food must be either eaten or thrown out (with 71% correctly identifying this, compared to 65% of those in other areas of NSW). Respondents living in Primary areas were also significantly more likely than those in other areas of NSW to check use by or best before dates when shopping (75% and 69% respectively).

Food waste behaviours

Perhaps due to their increased awareness and knowledge about this issue, those in Primary areas were also rather more vigilant in terms of their behaviour. Almost three in four respondents from Primary areas (74%) indicated they wasted ‘very little’ food – significantly less than those from other areas in NSW (55%). When asked to quantify the amount of food wasted, they indicated that they wasted a significantly lower amount of leftovers than those in other areas of NSW (2.5L per week on average, compared to 3.1L).

This more responsible behaviour resulted in a financial benefit with respondents living in Primary areas indicating they wasted considerably less food and drinks in financial terms (across all categories presented) than those in other areas of NSW. In total, those in Primary areas reported that they wasted $46.70 per week on average, compared to those in other areas of NSW that reported waste valued at $69.10.

There were also differences evident in individual behaviours measured - potentially leading to the reduction in the amount of food waste amongst these respondents. This included making meals from ingredients that need

to be used (82% in Primary areas, compared to 69% in other areas of NSW), not saving leftovers in the freezer only to throw them out at a later date (4%, compared to 11% of those in other areas of NSW) and not disposing of their main meal leftovers immediately after the meal (9%, compared to 13%). However, they were more likely to make extra just in case (18% indicated they cook extra compared to 13% of those in other areas of NSW), they were also more likely to make extra for planned meals (42%, compared to 31%).

Respondents living in areas of NSW outside the Primary areas were significantly more likely to believe that the main reason for their household wasting food was that they cook too much (12%, compared to 8% of those in Primary areas), that food they bought on sale did not last long enough (8%, compared to 5% in Primary areas), and that they did not use leftover ingredients for other meals (6%, compared to 3%). These factors all appear to be within their control. However, the food waste reasons indicated by respondents living in Primary areas may be interpreted as being more outside of their control – with these respondents being more likely than those in other areas of NSW to indicate that the main reason for their food waste was due to family members changing their plans (9% and 5% respectively).

Food information

Respondents from Primary areas were significantly more likely than those in other areas of NSW to have actively looked for food related information (58% and 46% respectively) which may be a contributing factor in the difference in their knowledge and behaviours.

Respondents living in Primary areas were significantly more likely to have used Lifestyle TV programs as a source of information (53%, compared to 39% in other areas of NSW). They were also more likely to rely on family and friends for food related information (34%, compared to 23%). In other areas of NSW, respondents indicated they were more likely than those in the Primary areas to gain information from the radio (8%, compared to 4% of those in Primary areas), cooking courses (9%, compared to 3%), and community events including food festivals (6%, compared to 3%).

Interestingly, those who lived in Primary areas were significantly more likely to believe that the NSW Government should assist residents of NSW to reduce the amount of food they waste (69%, compared to 60% of those in other areas of NSW).

Food waste advertising and promotion

Given the low awareness levels, it is reasonable to assume that the differences in knowledge and behaviours between the respondents in the Primary areas and other areas of NSW cannot be attributed to any exposure to the food waste advertising. In total 17% of respondents indicated they were aware of general advertising or promotion about the issue of food waste in the last 12 months, and the proportion of respondents aware did not differ significantly between Primary areas and other NSW (14% and 17% respectively).

Amongst those aware of general promotional activity 20% of those in Primary areas indicated they heard about the food waste issue on the radio, which was significantly higher than those in other areas of NSW (5%).

There was a marked difference in the perceived content of the advertising in the Primary in comparison to responses from other areas of NSW. Respondents in other areas of NSW who were aware of general promotional activity were significantly more likely to mention that the advertising they had seen or heard was about composting/worm farming than those in Primary areas (32%, compared to 3%). Respondents in Primary areas were significantly more likely to indicate the advertising or promotion was about ‘the large amount of food waste/in Australian households/we waste too much food’ than those in other areas of NSW (29%, compared to 6%). While this outtake is in line with campaign objectives, this 29% (of respondents in the Primary areas) only equates to 4% of the total respondent base – indicating that the impact, while evident, has been minimal.

LFHW advertising and promotion

There were also some conflicting results in terms of the awareness and recognition of the LFHW advertising which further suggest that it cannot be concluded that exposure to the LFHW program resulted in real differences in beliefs and behaviours regarding food waste between these two populations, and that other factors (such as inherent socio-economic differences) may also have played a part. For example, in total, 4% of respondents in the Follow up study had heard of LFHW. However more respondents in the other areas of NSW indicated they had heard of it (5%), compared with those in the Primary areas (2%).

Also, 2% of respondents indicated they had seen the LFHW logo before, and this figure did not differ between respondents in Primary areas and those in Other NSW (both 2%).

3% of all respondents were aware of some form of LFHW media, advertising or promotion and again this did not differ between Primary and other areas of NSW. Of these respondents, 70% indicated they saw this on television, with respondents in other areas of NSW significantly more likely to indicate this than those in Primary areas (75% and 14% respectively).

On a positive note however, respondents in Primary areas were more likely to say they knew what the LFHW media, advertising or promotion main messages were. In the other areas of NSW almost half of the respondents (53%) who were aware of media, advertising or promotion for LFHW indicated they did not know what the main message was, compared to only 13% in Primary areas. In Primary areas they were most likely to say the messages were 'don't waste food' (28%) and 'cook only what you need' (24%). However, the base sizes for these individual messages equate to less than 1% of the total Primary area sample.

Respondents who claimed to be they were motivated to some extent after viewing the materials were asked which actions they were motivated to do. Three in five (60%) of these respondents indicated they were motivated to 'Cook the correct serving sizes', and this proportion was significantly higher amongst those in other areas of NSW than those in Primary areas (67% and 14% respectively).

Respondents in Primary areas who were motivated by the material were significantly more likely to indicate they were motivated by the message 'that we waste so much more food when so many people are starving' than those in other areas of NSW (18% compared to 4%).

Respondents in other areas of NSW were significantly more likely to indicate they visited the Love Food Hate Waste UK website (25%) than those in Primary areas (2%).

Conclusions and areas of opportunity for the LFHW program

There does seem to be some evidence that people in Primary areas where the LFHW program has been launched have different attitudes and behaviours regarding food waste than those in other areas. However, we cannot attribute this to the LFHW program, due to the contradictory findings in relation to awareness and knowledge of the program.

The findings do show that there is scope to increase awareness of the program and the indicative findings amongst those aware of it suggest that it has the potential to deliver messages in line with the campaign objectives. The fact that the vast majority of respondents who had seen or heard of the program recognised its main messages and were considering changing their behaviours suggests that the program can be effective in this manner.

The overall program findings suggest the need to continue to close the knowledge gap between the amount of food people think they are throwing away and the amount they are actually throwing away.

Similar areas of opportunity still exist as were identified in the Benchmark study, in that there is still a need to educate consumers about:

- the fact that food waste is the largest component of household waste
- quantity and monetary value of food that is thrown away
- the connection between food production, consumption, disposal and the associated environmental impacts
- the correct length of storage time of cooked food in the fridge and freezer
- the distinction between best before and use by dates
- the fact that feeding uneaten food to animals and pets is a form of food waste

There is also opportunity to encourage them to:

- save leftovers in the freezer rather than the fridge
- plan meals in advance and make extra for future meals to freeze
- think about portion sizes when cooking
- think about how much they will use when shopping
- write a shopping list
- buy food that is on special

As mentioned in the Benchmark conclusions, there are still some consumer segments who seem to be wasting larger volumes of food and so will need to be targeted specifically address their differences. These groups include CALD consumers, families with children and younger consumers (18 to 24 years old).

In addition, as mentioned previously, highlighting the link between food waste and climate change may also help to produce an attitude shift in households and therefore encourage people to avoid food waste behaviours.

Appendix 1

Food Waste Avoidance Benchmark questionnaire

Today we are conducting a study about food storage and disposal. Please complete the survey by placing your answers in the spaces provided.

- use the 'forward' button to move to the next question
- use the 'back' button if you need to go back and correct a response
- use the 'X' button if you need to suspend the survey

Si. Please enter your Post Code: ___ ___ ___ ___ CHECK QUOTAS

Sii Where do you live?

Sydney	1
Newcastle	2
Wollongong	3
Large country town (population over 15,000)	4
Small country town (population between 3,000 and 15,000)	5
Country rural area	6

Siii. Please indicate your gender:

Male	1
Female	2

Siv. Please type in your current age: _____ CHECK QUOTAS

Sv. Please indicate if you are the person who is mainly responsible, or equally responsible, for each of the following activities in your household:

	Yes	**No**
Food purchasing	1	2
Cooking/food preparation	1	2
Food storage (i.e. of grocery items and leftovers)	1	2

CONTINUE IF CODE 1 FOR ANY OF THE ABOVE

Q1a. In general, how concerned would you say that you are about environmental problems?

A great deal	1
A fair amount	2
A little	3
Not really concerned	4
Not at all concerned	5

Q1b. Please indicate which one (1) of the following you are most concerned about:

Health effects of pollution	1
Quality of life	2
Concern for future generations	3
Long-term economic sustainability	4
Maintaining eco-systems – nature, plants and animals	5
Availability of resources we consume	6

Q2a. People sometimes spend money on household goods and services that are never or rarely used. Please indicate whether your household ever does any of the following:

	Yes	**No**	**Don't know**
Use more electricity than is necessary	1	2	3
Buy food that gets thrown away before being eaten	1	2	3
Buy books, magazines, CDs and/or DVDs that are rarely or never used	1	2	3
Buy clothes and other personal items that are rarely or	1	2	3

never used			
Pay interest on credit card purchases	1	2	3

Q2b. **FOR EACH CODE 1 AT Q2a:** And how concerned would you say that you are about each of the following?

	A great deal	**A fair amount**	**A little**	**Not at all**
The amount of electricity that your household uses that could be saved	1	2	3	4
The amount of food that gets thrown away before being eaten in your household	1	2	3	4
The number of books, magazines, CDs and/or DVDs in your household that are rarely or never used	1	2	3	4
The amount of clothes and other personal items in your household that are rarely or never used	1	2	3	4
The amount of money your household spends on interest for credit card purchases	1	2	3	4

Q3. How much general garbage including recycling, furniture, clothing and other types of unwanted materials do you think your household usually throws away?

Much more than you should	1
More than you should	2
A reasonable amount	3
Very little	4
None	5

Q4. How much uneaten food would you say that your household usually throws away?

Much more than you should	1
More than you should	2
A reasonable amount	3
Very little	4
None	5

Q5. What do you think is the largest type of waste in the average household garbage bin?

Packaging	1
Food	2
Garden clippings	3
Paper	4
Other (Specify) _____	5

Q6. Approximately how much would you estimate that the average NSW household spends on food that is purchased but never eaten each year?

$100	1
$200	2
$300	3
$400	4
$500	5
Over $600	6
Other (Specify) _____	7

Q7a. In regard to food labels, which of the following do you think best describes what is meant by the 'use by' date? SINGLE RESPONSE (INCLUDE VISUAL IMAGE OF LABEL)

Q7b. And which of the following do you think best describes what is meant by the 'best before' date? SINGLE RESPONSE (INCLUDE VISUAL IMAGE OF LABEL)

	USE BY	**BEST BEFORE**
Foods must be eaten or thrown away by this date	1	1
Foods are still safe to eat after this date as long as they are not damaged, deteriorated or perished	2	2
Foods must be sold at a discount after this date	3	3
Other description for 'use by' (Specify) _____	4	
Other description for 'best before (Specify) _____		5

Q8. How much of your uneaten food (such as vegetable peelings, plate scrapings and spoiled food, before and/or after preparation) is disposed of in the following ways?

	None	**A little**	**About half**	**Most**	**All**
Home compost or worm farm	1	2	3	4	5
Household garbage bin	1	2	3	4	5
Sink, toilet or drain	1	2	3	4	5
Sink disposal unit (e.g. In-Sink-Extractor)	1	2	3	4	5
Fed to pets/animals	1	2	3	4	5
Specialised food/garden collection service	1	2	3	4	5
Other (specify)	1	2	3	4	5

Q9. If each of the following foods were to be thrown into the garbage bin at home, which would you consider to be waste that **could** be avoided, or waste that **could not** be avoided? ROTATE ORDER

Waste that **could** be avoided = waste that would not have been produced if the food was better managed
Waste that **could not** be avoided = waste that would be produced regardless of how well the food was managed

	Waste that could be avoided	**Waste that could not be avoided**	**I do not consider this to be waste**
Fruit and vegetable peelings	1	2	3
Old frozen food	1	2	3
Spoiled fresh produce (e.g. fruit, vegetables, dairy or meat)	1	2	3
Scraps left on the plate after a meal	1	2	3
Unfinished drinks	1	2	3
Unserved portions left after a meal	1	2	3
Meat bones	1	2	3
Out-of-date packaged food	1	2	3
Tea bags or coffee grinds	1	2	3

Attitudes & Knowledge

Q10. Please move each 'slider' to indicate where you personally feel that you fit between the two statements presented. If, for example, the statement on the left fully describes you, you would move the 'slider' as far to the left as possible. **USE SLIDER FEATURE**

When I buy items that don't get used I feel guilty	1	2	3	4	5	When I buy items that don't get used it doesn't bother me
When shopping, I think carefully about how much I will use	1	2	3	4	5	When shopping, I rarely think about how much I will use
I often find that things I've bought don't get used	1	2	3	4	5	I hardly ever find that things I've bought don't get used
When I go food shopping I do a large shop to last until next time	1	2	3	4	5	When I go food shopping I buy small amounts regularly
I plan meals in advance and shop to a strict list	1	2	3	4	5	I don't usually plan meals and decide what I need while shopping.

Q11. Below is a list of statements about food. Please indicate the extent to which you agree or disagree with each of them.

	Disagree strongly	**Disagree**	**Neither agree nor disagree**	**Agree**	**Agree strongly**
Food that could have been eaten by people is not wasted if it is fed to the pets or composted	1	2	3	4	5
Wasting food contributes to climate change	1	2	3	4	5
Australians don't waste much food	1	2	3	4	5
The energy, water and nutrients that are used to grow, process and transport food are 'lost' if food is purchased but not eaten	1	2	3	4	5
People who are disorganised or lazy waste more food than organised people	1	2	3	4	5
Busy lifestyles make it hard to avoid wasting food	1	2	3	4	5

As long as cooked food items remain frozen they can be stored for a year or more in the freezer	1	2	3	4	5
Leftovers that have been kept in the fridge for more than one day are unsafe to eat	1	2	3	4	5
It is easy to make meals from assorted ingredients that need using up	1	2	3	4	5

General Behaviour

Q12. Please move each 'slider' to indicate where you feel that you fit between the two statements presented. If, for example, the statement on the left fully describes you, you would move the 'slider' as far to the left as possible. **USE SLIDER FEATURE**

I throw out fruit or vegetables that are blemished or wilted	1	2	3	4	5	I don't mind what fruit or vegetables look like and use them anyway
I throw out any food that is mouldy	1	2	3	4	5	I cut off the mouldy parts of food and use the good parts
I throw out bread as soon as it becomes dry	1	2	3	4	5	I still use or freeze bread if it is dry for toast, breadcrumbs or cooking recipes
I throw out packaged food that hasn't been opened but has passed the 'best before' date	1	2	3	4	5	I check unopened packaged food if it has passed the 'best before' date and still use it if it looks and smells the same
I throw out fresh food if it is on or past the 'use by' date	1	2	3	4	5	I consider the 'use by' date as a guide and still use the food a day or two later if it looks and smells the same
When I buy fresh fruit and vegetables I try to only buy the amount I need (such as by looking for items available loose rather than pre-packed)	1	2	3	4	5	When I buy fresh fruit and vegetables I buy the best value even if it is more than I need
The current economic climate means I am careful about buying only foods that I know will be used	1	2	3	4	5	I buy foods that I like and do not consider if they will be completely eaten when I purchase them

Behaviour

The following questions relate to the amount of food that you throw away in a normal week.

> 'Fresh food' includes fresh fruit, vegetables, salad items, herbs, bread, milk and dairy products, meat and seafood.
>
> 'Packaged and long life food' includes sweet and savoury biscuits, chips, rice, cereal, flour, coffee and tinned food.
>
> 'Frozen food' includes frozen vegetables and fruit, chips, ready made meals and frozen desserts.
>
> 'Leftovers' includes any uneaten food portions or ingredients remaining from a previous meal that can be eaten at a later date including take away meals, home cooked dinners or individual cooked ingredients like pasta.
>
> 'Home delivered and take away meals' includes meals which have been purchased, not prepared at home including pizza, Thai, Indian or Chinese food.
>
> 'Drinks' includes soft drinks, cordial, tea and coffee, juices, milkshakes and purchased bottled water (sparkling and still), but excludes alcohol.

Q13. In a normal week, please estimate the amount of money your household spends on the following food types. Please make your best estimate in whole dollars, and exclude expenditure on food purchased elsewhere e.g. at work or eating out

	Fresh food	**Packaged & long life food**	**Frozen food**	**Home delivered/ take-away meals**	**Drinks**
I never buy this	1	1	1	1	1
Less than $20	2	2	2	2	2
$20 - $49	3	3	3	3	3
$50 – $99	4	4	4	4	4
$100 - $149	5	5	5	5	5
$150 - $200	6	6	6	6	6
More than $200	7	7	7	7	7

Q14. **FOR EACH ASPECT AT Q13 WITH CODES 2 TO 7:** In a normal week, please estimate how much of the following food types your household throws away (including going to the compost, worm farm or pets).

> Please use a 4 Litre (4L) ice cream container as the way of measuring this total, and include the amount, if any, that you composted or fed to animals. (SHOW IMAGE)

	Fresh food	**Packaged & long life food**	**Frozen food**	**Home delivered/ take-aways**	**Left overs**
None at all	1	1	1	1	1
Less than one 4L container	2	2	2	2	2
One 4L container	3	3	3	3	3
Two to four 4L containers	4	4	4	4	4
Five – seven 4L containers	5	5	5	5	5

More than eight 4L containers	6	6	6	6	6

Q15. **IF CODES 2 TO 7 FOR 'DRINKS AT Q13:** In a normal week, please estimate the volume of drinks your household throws away, including pouring in the sink, toilet, outside or other disposal methods.
Please use a 2 Litre (2L) drink bottle as the measurement. (SHOW IMAGE)

	Drinks
None at all	1
Less than one 2L bottle	2
One 2L bottle	3
Two to four 2L bottles	4
More than five 2L bottles	5

Q16. **FOR EACH ASPECT AT Q13 WITH CODES 2 TO 7:** In a normal week, please estimate the dollar value of each **food type** that your household purchased but threw away without being consumed (including going into the compost, worm farm or fed to pets). Please make your best estimate in whole dollars.

	Fresh food	**Packaged & long life food**	**Frozen food**	**Home delivered/ take-away meals**	**Left overs**	**Drink**
Less than $10	1	1	1	1	1	1
$10-$24	2	2	2	2	2	2
$25-$49	3	3	3	3	3	3
$50 - $74	4	4	4	4	4	4
$74- $99	5	5	5	5	5	5
More than $100	6	6	6	6	6	6

Q17a. **SKIP IF CODE 5 AT Q4.** Please think about why food gets wasted in your household. Firstly, select the main reason that food gets wasted in your household. **SINGLE RESPONSE. ROTATE ORDER.** Now select all other reasons that apply.

	Main (Select one)	**Others (Select all)**
We buy too much food	1	1
We cook too much food	2	2
Food goes off before the 'use by' or 'best before' date	3	3
Food is left too long in the fridge and freezer	4	4
We don't check the fridge, freezer and cupboard before going shopping	5	5
We tend not to plan meals in advance	6	6
We don't tend to use leftover ingredients in other meals	7	7
We aren't sure how to or can't store food properly	8	8
Family members change their plans (then don't turn up for dinner etc)	9	9
We like to eat the freshest food possible	10	10
We're generally too busy to cook meals that we planned	11	11
Some household members don't always finish their meal	12	12
Food bought on sale doesn't always last long enough	13	13
Another reason (specify) _____	14	14

Q17b. **IF CODE 1 FOR STATEMENT 1 At Q17a:** What prevents you or your household from buying the amount of food you actually need?

I/we don't check the cupboard or fridge before shopping	1
I/we don't write a list	2

I/we forget to take our list	3
Think we need more food than we actually do	4
Tempted by supermarket specials e.g. 2 for 1	5
Lack of time or organisation to plan ahead e.g. no list, no meal plan	6
Size of food portions and packages is too large	7
Like fresh ingredients and don't keep older ingredients	8
Like to have more food or ingredients available than not enough	9
Other (specify) _____	10

Q17c. **IF CODE 1 FOR STATEMENT 2 AT Q17a:** What prevents you or your household from cooking the amount of food you actually need?

Preferable to serve too much rather than not have enough	1
Not sure how many people will be home for meals	2
Find it difficult to know how to cook the right portion sizes	3
Find it difficult to estimate how much to cook per person	4
Lack of time or organisation to plan ahead e.g. no meal plan	5
One or more household members have different food preferences or special dietary needs	6
I'm unsure about what visitor's food preferences will be	7
Other (specify) _____	8

Q17d. **IF CODE 1 FOR STATEMENT 8 AT Q17a:** What prevents you or your household from storing food to maximise its longevity?

	1
Don't read storage instructions	
Don't have appropriate storage containers	2
I'm unsure about the best way to store different food types	3
Food goes off before the use by or best before date	4
Lack of time and organisation	5
Tend to leave food products in the original packaging	6
Other (specify) _____	7

Q17e. **IF CODE 1 FOR STATEMENT 7 AT Q17a:** What prevents you or your household from re-using leftovers?

Forget about leftovers in the fridge and/or freezer	1
I'm unsure how to use leftover individual/assorted ingredients	2
Don't like eating leftovers	3
Health concerns about eating leftovers	4
Other (specify) _____	5

Behaviour – Food purchase, Preparation & Storage

Q18. In a normal week, on how many days does your household do the following?

	Never	Less than weekly	1-2 Days	3-4 Days	5-7 Days
Cook a main meal from raw main ingredients	1	2	3	4	5
Eat a meal left over from a previous day	1	2	3	4	5
Eat out or eat a takeaway (as a main meal)	1	2	3	4	5
Eat store-purchased ready made meals e.g. frozen dinners	1	2	3	4	5
Have all members of the household eat the same main meal	1	2	3	4	5

Q19. Before you or your household does your main food shopping, how regularly do you do the following?

	Never	Rarely	Some times	Most times	Always
Check what food is already in the house	1	2	3	4	5

Plan the meals to be cooked in the next few days	1	2	3	4	5
Write a list and stick to it as much as possible	1	2	3	4	5

Q20. How regularly do you or your household do the following when you are doing the grocery shopping?

	Never	Rarely	Some times	Most times	*Always*
Buy food according to a set budget	1	2	3	4	5
Buy food based on what is on special (including 2 for 1 deals)	1	2	3	4	5
Buy items 'in bulk'	1	2	3	4	5
Check the 'use by' or 'best before' dates before purchasing food items	1	2	3	4	5

Q21. How regularly do you or your household do the following when preparing a main meal?

	Never	Rarely	Some times	Most times	Always
Consider portion sizes and only make as much as you need	1	2	3	4	5
Make extra for a future planned meal (e.g. lunch or dinner the next day)	1	2	3	4	5
Make extra just in case it is needed	1	2	3	4	5

Q22. How regularly do you or your household do the following after main meals?

	Never	Rarely	Some times	Most times	Always
Save leftovers in the fridge and consume them afterwards	1	2	3	4	5
Save leftovers in the fridge and throw them out later	1	2	3	4	5
Save leftovers in the freezer and consume them afterwards	1	2	3	4	5
Save leftovers in the freezer and throw them out later	1	2	3	4	5
Dispose of leftovers immediately after the meal	1	2	3	4	5

Q23. **SKIP IF CODE 4 AT Q4.** Overall, how willing would you say that you are to make changes in the following areas in order to reduce the amount of food waste that your household produces?

	Not at all willing	Not Particularly willing	Quite willing	Very willing	Extremely willing	Already do this
Plan a weekly menu	1	2	3	4	5	6
Use a shopping list	1	2	3	4	5	6
Write a shopping list based on a menu plan	1	2	3	4	5	6
Buy less extra food	1	2	3	4	5	6
Cook the right amount of food for meals	1	2	3	4	5	6
Change the way you store food	1	2	3	4	5	6
Use leftover food for other meals	1	2	3	4	5	6
Start a compost or worm farm	1	2	3	4	5	6
Attend a 'kitchen skills' workshop	1	2	3	4	5	6
Attend a local event about food	1	2	3	4	5	6
Visit a website to find more information	1	2	3	4	5	6
Ask someone you know for advice	1	2	3	4	5	6

Information

Q24. In the past six months have you looked for information about food and related issues e.g. cooking, storage, nutrition, specials, recipes ideas, waste?

Yes 1
No 2

Q25. IF CODE 1 AT Q24, ASK: What was your main source for this information? SINGLE RESPONSE
And what other sources did you use?

	Main Source (Select one)	Other Sources (Select all that apply)
The Internet	1	1
The local library	2	2
Lifestyle TV programs (e.g. Better Homes and Gardens, cooking shows)	3	3
Other TV programs (including news, current affairs, documentaries etc.)	4	4
Council brochures/information	5	5
Radio	6	6
Family and friends	7	7
Courses e.g. cooking	8	8
Recipe/cook books	9	9
Newspaper and magazine articles	10	10
Advertising and promotional materials	11	11
Community events including food festivals	12	12
Other (specify) _____	13	13
No others	-	14

Q26. IF CODE 2 AT Q24, ASK: If you were interested, what would be your main source for information about food and related issues e.g. cooking, storage, nutrition, specials, recipes ideas, waste?
SINGLE RESPONSE
And what other sources would you use?

	Main Source (Select one)	Other Sources (Select all that apply)
The Internet	1	1
The local library	2	2
Lifestyle TV programs (e.g. Better Homes and Gardens, cooking shows)	3	3
Other TV programs (including news, current affairs, documentaries etc.)	4	4
Council brochures/information	5	5
Radio	6	6
Family and friends	7	7
Courses e.g. cooking	8	8
Recipe/cook books	9	9
Newspaper and magazine articles	10	10
Advertising and promotional materials	11	11
Community events including food festivals	12	12
Other (specify) _____	13	13
No others	-	14

Q27. How reliable would you find the following as potential sources of information about food and related issues e.g. cooking, storage, nutrition, specials, recipes ideas, waste?

	Very unreliable	unreliable	Neither/nor	Reliable	Very reliable
NSW Government environment agencies	1	2	3	4	5
NSW Government health agencies	1	2	3	4	5
Local Council	1	2	3	4	5
Environment or community groups	1	2	3	4	5
Supermarkets and grocery stores	1	2	3	4	5
Newspapers and news media	1	2	3	4	5
Food publications (e.g. food and recipe magazines, radio shows, TV programs)	1	2	3	4	5
Home and lifestyle publications e.g. magazines, radio shows, TV programs	1	2	3	4	5
Celebrity chefs	1	2	3	4	5
Universities and research institutions	1	2	3	4	5
Health professionals or health authorities	1	2	3	4	5
Family and friends	1	2	3	4	5
Teachers or education institutions	1	2	3	4	5
Other courses e.g. WEA or community college cooking class	1	2	3	4	5
Consumer advocacy groups e.g. CHOICE	1	2	3	4	5

Q28. Do you think the NSW Government should have a role in assisting the people of NSW to reduce the amount of food they waste?

Yes	1
No	2

Classification

Qi. Which of the following best describes the outdoor area(s) available where you live? **MULTIPLE RESPONSE**

Balcony	1
Small garden or courtyard	2
Large backyard	3
Small backyard	4
Front yard	5
Acreage	6

Qii. What is the main language spoken at home?

English	1
Cantonese	2
Mandarin	3
Arabic	4
Italian	5
Greek	6
Vietnamese	7
Spanish	8
Hindi	9
Korean	10
Tagalog	11
Other (specify)_____	12
Prefer not to indicate	13

Qiii. What, if any, second language is spoken at home?

No other language	1
English	2

Cantonese	3
Mandarin	4
Arabic	5
Italian	6
Greek	7
Vietnamese	8
Spanish	9
Hindi	10
Korean	11
Tagalog	12
Other (specify)_____	13
Prefer not to indicate	14

Qiv. Which one of the following best describes you?

In paid work (full time or part time - includes being self-employed)	1
Unemployed and looking for work	2
Student	3
Home duties	4
Retired/ Age pensioner	5
Other pensioner	6
Other (specify)	7

Qv. Which of the following best describes your household composition?

Single person household	1
Family with children	2
Family, only adults (16+)	3
Shared household, non-related	4
Other (specify) _____	5

Qvi. **IF CODES 2 to 5 AT Qv:** How many people in your household are in each of the following age bands?

0 to 6	_____
7 to 12	_____
13 to 17	_____
18 to 24	_____
25 to 34	_____
35 to 44	_____
45 to 54	_____
55 to 64	_____
65 plus	_____

Qvii. What is the highest level of education that you have completed?

No formal schooling	1
Primary school	2
Some secondary school	3
Completed secondary school (HSC, Leaving Certificate, etc.)	4
Trade or technical qualification (e.g. TAFE)	5
University or College of Advanced Education diploma, degree or higher degree	6
Prefer not to answer	7

Qviii. Which of the following best describes your household income before tax?

Less than $20,000	1	$80,000 to $99,999	5
$20,000 to $39,999	2	$100,000 to $149,999	6
$40,000 to $59,999	3	$150,000 or more	7
$60,000 to $79,999	4	Prefer not to indicate	8

Thank you very much for your time.

Appendix 2

Food Waste Avoidance Follow up questionnaire

We are conducting a study about the way you manage food in your home. Please complete the survey by placing your answers in the spaces provided.

- Use the 'forward' button to move to the next question
- Use the 'back' button if you need to go back and correct a response
- Use the 'X' button if you need to suspend the survey

Si. Please enter your Post Code: ___ ___ ___ ___
DEFINE AS 'LFHW SEGMENT' or 'GENERAL NSW POPULATION'

Sii Where do you live?

Sydney	1
Newcastle	2
Wollongong	3
Large country town (population over 15,000)	4
Small country town (population between 3,000 and 15,000)	5
Country rural area	6

Siii. Please indicate your gender:

Male	1
Female	2

Siv. Please type in your current age: _____

Sv. Please indicate if you are the person who is mainly responsible, or equally responsible, for each of the following activities in your household:

	Yes	**No**
Food purchasing	1	2
Cooking/food preparation	1	2
Food storage (i.e. of grocery items and leftovers)	1	2

CHECK OVERALL QUOTAS FROM SCREENING SECTION

Q1. In general, how concerned would you say that you are about environmental problems?

A great deal	1
A fair amount	2
A little	3
Not really concerned	4
Not at all concerned	5

Q2. Please indicate which one (1) of the following you are most concerned about:

Health effects of pollution	1
Quality of life	2
Concern for future generations	3
Long-term economic sustainability	4
Maintaining ecosystems – nature, plants and animals	5
Availability of resources we consume	6

Q3a. People sometimes spend money on household goods and services that are never or rarely used. Please indicate whether your household ever does any of the following:

	Yes	**No**	**Don't know**
Use more electricity than is necessary	1	2	3

Buy food that gets thrown away before being eaten	1	2	3
Buy books, magazines, CDs and/or DVDs that are rarely or never used	1	2	3
Buy clothes and other personal items that are rarely or never used	1	2	3
Pay interest on credit card purchases	1	2	3

Q3b How concerned would you say that you are about each of the following? FOR EACH CODE 1 AT Q3a.

	A great deal	**A fair amount**	**A little**	**Not at all**
The amount of electricity that your household uses that could be saved	1	2	3	4
The amount of food that gets thrown away before being eaten in your household	1	2	3	4
The number of books, magazines, CDs and/or DVDs in your household that are rarely or never used	1	2	3	4
The amount of clothes and other personal items in your household that are rarely or never used	1	2	3	4
The amount of money your household spends on interest for credit card purchases	1	2	3	4

Q4. How much uneaten food would you say that your household usually throws away?

Much more than you should	1
More than you should	2
A reasonable amount	3
Very little	4
None	5

Q5. What do you think is the largest type of waste in the average NSW household garbage bin?

Packaging	1
Food	2
Garden clippings	3
Paper	4
Other (Specify) _____	5

Q6. Approximately how much would you estimate that the average NSW household spends on food that is purchased but never eaten each year?

$100	1
$200	2
$300	3
$400	4
$500	5
$600	6
$700	7
$800	8
$900	9
$1000	10
$1100	11
$1200	12
$1300	13
$1400	14
$1500 or more	15
Other (Specify) _____	16

Q7a. In regard to food labels, which of the following do you think best describes what is meant by the 'use by' date? SINGLE RESPONSE (INCLUDE VISUAL IMAGE OF LABEL)

Q7b. And which of the following do you think best describes what is meant by the 'best before' date? SINGLE RESPONSE (INCLUDE VISUAL IMAGE OF LABEL)

	USE BY	BEST BEFORE
Foods must be eaten or thrown away by this date	1	1
Foods are still safe to eat after this date as long as they are not damaged, deteriorated or perished	2	2
Foods must be sold at a discount after this date	3	3
Other description for 'use by' (Specify) _____	4	-
Other description for 'best before (Specify) _____	-	5

Attitudes & Knowledge

Q8. Please move each 'slider' to indicate where you personally feel that you fit between the two statements presented. If, for example, the statement on the left fully describes you, you would move the 'slider' as far to the left as possible. **USE SLIDER FEATURE**

When shopping, I think carefully about how much I will use	1	2	3	4	5	When shopping, I rarely think about how much I will use
I often find that things I've bought don't get used	1	2	3	4	5	I hardly ever find that things I've bought don't get used
I plan meals in advance and shop to a strict list	1	2	3	4	5	I don't usually plan meals and decide what I need while shopping.

Q9. Below is a list of statements about food. Please indicate the extent to which you agree or disagree with each of them.

	Disagree strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly
Food that could have been eaten by people is not wasted if it is fed to the pets or composted	1	2	3	4	5
Australians don't waste much food	1	2	3	4	5
The energy, water and nutrients that are used to grow, process and transport food are 'lost' if food is purchased but not eaten	1	2	3	4	5
Busy lifestyles make it hard to avoid wasting food	1	2	3	4	5
As long as cooked food items remain frozen they can be stored for a year or more in the freezer	1	2	3	4	5
Leftovers that have been kept in the fridge for more than one day are unsafe to eat	1	2	3	4	5

It is easy to make meals from assorted ingredients that need using up	1	2	3	4	5

General Behaviour

The following question relates to the amount of food that you throw away in a normal week. The question will use the terms that appear below. Please read the definitions provided here first before answering the question.

'Fresh food' includes fresh fruit, vegetables, salad items, herbs, bread, milk and dairy products, meat and seafood.

'Packaged and long life food' includes sweet and savoury biscuits, chips, rice, cereal, flour, coffee and tinned food.

'Frozen food' includes frozen vegetables and fruit, chips, ready made meals and frozen desserts.

'Leftovers' includes any uneaten food portions or ingredients remaining from a previous meal that can be eaten at a later date including take away meals, home cooked dinners or individual cooked ingredients like pasta.

'Home delivered and take away meals' includes meals which have been purchased, not prepared at home including pizza, Thai, Indian or Chinese food.

'Drinks' includes soft drinks, cordial, tea and coffee, juices, milkshakes and purchased bottled water (sparkling and still), but excludes alcohol.

Q10. (If responses 1-4 at Q4.)
In a normal week, please estimate how much of the following food types your household throws away (including going to the compost, worm farm or pets).

Please use a 4 Litre (4L) ice cream container as the way of measuring this total, and include the amount, if any, that you composted or fed to animals. (SHOW IMAGE)

	Fresh food	**Packaged & long life food**	**Left overs**
None at all	1	1	1
Less than one 4L container	2	2	2
One 4L container	3	3	3
Two to four 4L containers	4	4	4
Five to seven 4L containers	5	5	5
More than eight 4L containers	6	6	6

Q11. (If responses 1-4 at Q4.)
In a normal week, please estimate the dollar value of each **food type** that your household purchased but threw away without being consumed (including going into the compost, worm farm or fed to pets). Please make your best estimate in whole dollars.

	Fresh food	**Packaged & long life food**	**Frozen food**	**Home delivered/ take-away meals**	**Left overs**	**Drink**
Do not purchase ($0)	1	1	1	1	1	1
Less than $10	2	2	2	2	2	2
$10-$24	3	3	3	3	3	3
$25-$49	4	4	4	4	4	4
$50 - $74	5	5	5	5	5	5

$74- $99	6	6	6	6	6	6
More than $100	7	7	7	7	7	7

Q12. (If responses 1-4 at Q4.)
Please think about why food gets wasted in your household. Firstly, select the main reason that food gets wasted in your household. **SINGLE RESPONSE. ROTATE ORDER.** Now select all other reasons that apply.

	Main (Select one)	**Others (Select all)**
We buy too much food	1	1
We cook too much food	2	2
Food goes off before the 'use by' or 'best before' date	3	3
Food is left too long in the fridge and freezer	4	4
We don't check the fridge, freezer and cupboard before going shopping	5	5
We tend not to plan meals in advance	6	6
We don't tend to use leftover ingredients in other meals	7	7
We aren't sure how to or can't store food properly	8	8
Family members change their plans (then don't turn up for dinner etc)	9	9
We like to eat the freshest food possible	10	10
We're generally too busy to cook meals that we planned	11	11
Some household members don't always finish their meal	12	12
Food bought on sale doesn't always last long enough	13	13
Another reason (specify) _____	14	14
We do not waste any food in our household	15	-

Behaviour – Food purchase, Preparation & Storage

Q13. Before you or a member of your household does your main food shopping, how regularly do you do the following?

	Never	**Rarely**	**Some times**	**Most times**	**Always**
Check what food is already in the house	1	2	3	4	5
Plan the meals to be cooked in the next few days	1	2	3	4	5
Write a list and stick to it as much as possible	1	2	3	4	5

Q14. How regularly do you or a member of your household do the following when doing the grocery shopping?

	Never	**Rarely**	**Some times**	**Most times**	***Always***
Buy food according to a set budget	1	2	3	4	5

Buy food based on what is on special (including 2 for 1 deals)	1	2	3	4	5
Buy items 'in bulk'	1	2	3	4	5
Check the 'use by' or 'best before' dates before purchasing food items	1	2	3	4	5

Q15. How regularly do you or a member of your household do the following when preparing a main meal?

	Never	Rarely	Some times	Most times	Always
Consider portion sizes and only make as much as you need	1	2	3	4	5
Make extra for a future planned meal (e.g. lunch or dinner the next day)	1	2	3	4	5
Make extra just in case it is needed	1	2	3	4	5

Q16. How regularly do you or a member of your household do the following after main meals?

	Never	Rarely	Some times	Most times	Always
Save leftovers in the fridge and consume them afterwards	1	2	3	4	5
Save leftovers in the fridge and throw them out later	1	2	3	4	5
Save leftovers in the freezer and consume them afterwards	1	2	3	4	5
Save leftovers in the freezer and throw them out later	1	2	3	4	5
Dispose of leftovers immediately after the meal	1	2	3	4	5

Information

Q17. In the past six months have you actively looked for information about food and food related issues e.g. cooking, storage, nutrition, specials, recipes ideas, waste?

Yes	1
No	2

Q18a.**IF CODE 1 AT Q17, ASK:** What was your main source for this information? SINGLE RESPONSE

Q18b. And what other sources did you use?

	Main Source (Select one)	Other Sources (Select all that apply)
The Internet	1	1
The local library	2	2
Lifestyle TV programs (e.g. Better Homes and Gardens, cooking shows)	3	3
Other TV programs (including news, current	4	4

affairs, documentaries etc.)		
Council (brochure, information, workshop)	5	5
Radio	6	6
Family and friends	7	7
Courses e.g. cooking	8	8
Recipe/cook books	9	9
Newspaper and magazine articles	10	10
Advertising and promotional materials	11	11
Community events including food festivals	12	12
Other (specify) _____	13	13
No others	-	14

Q19. Do you think the NSW Government should have a role in assisting the people of NSW to reduce the amount of food they waste?

Yes	1
No	2

Love Food Hate Waste Program

Q20. Have you seen, read or heard any media, advertising or promotion about the issue of food waste in the past 12 months?

Yes	1	**CONTINUE**
No	2	**GO TO Q23a**

Q21. Where did you see or hear this media, advertising or promotion?

ROTATE LIST, MULITPLE RESPONSE.

Television	1
Radio (general)	2
Newspaper	3
Community newspaper	4
Internet	5
Community festival	6
Local council communication e.g. newsletter	7
Magazine	8
In-store promotion e.g. check out screen or recipe card	9
Social media e.e Twitter, Facebook	10
Other (please specify)	11
Don't know/can't remember	12

Q22. What was that media, promotion or advertising about? PLEASE WRITE IN AS MUCH DETAIL AS YOU RECALL.

_____
_____
_____

ALL RESPONDENTS

Q23a. Have you heard of Love Food Hate Waste?

Yes	1
No	2
Unsure	3

POP OUT BELOW Q23a

Q23b. Have you seen the Love Food Hate Waste logo, shown below, in any media, advertising or promotional materials?

INSERT LFHW LOGO

Yes	1
No	2
Unsure	3

POP OUT BELOW Q23b

Q23c. Have you seen, read or heard any media, advertising or promotion in NSW about Love Food Hate Waste in the past 12 months?

Yes	1	**CONTINUE**
No	2	**GO TO Q28**
Unsure	3	**GO TO Q28**

Q24. Where did you see or hear this media, advertising or promotion?

ROTATE LIST, MULITPLE RESPONSE.

Editorial in community newspaper	1
Advertising in community newspaper	2
Love Food Hate Waste website	3
Local council website	4
Food magazine	5
General magazine	6
Food blog	7
Internet	8
In-store advertising e.g. check-out screen or recipe card	9
Community festival or event	10
Food and Wine Show	11
Local council communication e.g. newsletter	12
Radio	13
Social media e.g. Facebook, Twitter	14
Television	15
Other (please specify)	16
Don't know / Can't remember	17

Q25. What would you say are the main messages of the Love Food Hate Waste materials you have seen? PLEASE WRITE IN AS MANY AS YOU CAN THINK OF.

_____
_____
_____

Q26. Can you recall seeing or hearing any of these specific messages from the Love Food Hate Waste program?

ROTATE MESSAGES	Yes	No
NSW households waste $2.5 billion dollars worth of food per year.	1	2
Wasting food wastes water, energy and natural resources.	1	2
Each NSW household throws away more than $1,000 of food per year. Across the state that totals 800,000 tonnes	1	2

per year.

Waste less food, save money and our environment.	1	2
$231 million worth of drinks are wasted in NSW per year.	1	2

Q27: What slogan or tagline do you recall being associated with the Love Food Hate Waste program?

PLEASE WRITE IN	_____	1
None		2

ALL RESPONDENTS

Q28: Do you recall the tag line 'Sad.Isn't it?' in association with the Love Food Hate Waste program?

Yes	1
No	2

Q29. Which of the following materials have you seen before today?
INSERT IMAGES x4. MULTIPLE RESPONSE, INCLUDE 'NONE OF THESE'.

ASK IF Q29= ANY IMAGES, OR Q23c=1, ELSE GO TO CLASSIFICATION

Q30. Thinking about the Love Food Hate Waste media, advertising or promotion that you have seen, did these materials motivate you to act in ways to waste less food?

They motivated me very much	1
They motivated me quite a bit	2
They made me think about it	3
They did not really motivate me	4
They did not motivate me at all	5
Don't know/unsure	6

Q31. After seeing or hearing the Love Food Hate Waste promotion, media, advertising materials or attending an event, which of the following were you motivated to do?
ROTATE LIST, MULITPLE RESPONSE.

Visit the Love Food Hate Waste website	1
Find out more about the issue of food waste	2
Talk to family and/or friends about the issue of food waste	3
Plan meals in advance	4
Write a shopping list	5
Change my shopping habits	6
Cook the correct serving sizes	7
Use my leftovers for other meals	8
Read storage instructions on packaging	9
Check use by and best before dates in store	10
Check the temperature of my fridge and freezer	11
Buy less food more regularly	12
Become a Love Food Hate Waste 'Food Lover'	13
Start a compost or worm farm	14
Other (please specify)	15
None of these	16

ASK IF Q31 = 1-15. POP OUT BELOW Q31.

Q32. And what was it about the media, advertising, promotion or event that has motivated you to want to do these things?

_____
_____
_____

Q33. Which websites, if any, have you visited as a result of seeing or hearing anything about the issue of food waste?

ROTATE LIST, MULITPLE RESPONSE.

Love Food Hate Waste	1
Foodwise	2
Do Something	3
Office of Environment and Heritage (formally Department of Environment, Climate Change and Water NSW)	4
OzHarvest	5
Woolworths Ltd	6
Local council	7
Love Food Hate Waste UK	8
Other (PLEASE SPECIFY) _____	9
None of these	10

CLASSIFICATION

We just have a few more questions to ensure that we have a responses from a good cross-section of people.

Qi. What is the main language spoken at home?

English	1
Cantonese	2
Mandarin	3
Arabic	4
Italian	5
Greek	6
Vietnamese	7
Spanish	8
Hindi	9
Korean	10
Tagalog	11
Other (specify)_____	12
Prefer not to indicate	13

Qii. What, if any, second language is spoken at home?

No other language	1
English	2
Cantonese	3
Mandarin	4
Arabic	5
Italian	6
Greek	7
Vietnamese	8
Spanish	9

Hindi	10		
Korean	11		
Tagalog	12		
Other (specify)_____	13		
Prefer not to indicate	14		

Qiii. Which one of the following best describes you?

In paid work (full time or part time - includes being self-employed)	1		
Unemployed and looking for work	2		
Student	3		
Home duties	4		
Retired/ Age pensioner	5		
Other pensioner	6		
Other (specify)	7		

Qiv. Which of the following best describes your household composition?

Single person household	1		
Family with children	2		
Family, only adults (16+)	3		
Shared household, non-related	4		
Other (specify) _____	5		

Qv. **IF CODES 2 to 5 AT Qiv:** How many people in your household are in each of the following age bands?

0 to 6	_____
7 to 12	_____
13 to 17	_____
18 to 24	_____
25 to 34	_____
35 to 44	_____
45 to 54	_____
55 to 64	_____
65 plus	_____

Qvi. What is the highest level of education that you have completed?

No formal schooling	1		
Primary school	2		
Some secondary school	3		
Completed secondary school (HSC, Leaving Certificate, etc.)	4		
Trade or technical qualification (e.g. TAFE)	5		
University or College of Advanced Education diploma, degree or higher degree	6		
Prefer not to answer	7		

Qvii. Which of the following best describes your household income before tax?

Less than $20,000	1	$80,000 to $99,999	5		
$20,000 to $39,999	2	$100,000 to $149,999	6		
$40,000 to $59,999	3	$150,000 or more	7		
$60,000 to $79,999	4	Prefer not to indicate	8		

Appendix 3

Literature cited

Baker D, Fear J and Denniss R. 2009, *What a waste: an analysis of household expenditure on food*, Policy Brief No.6, The Australia Institute, Canberra.

Department of Climate Change (DCC) 2009, *Australia's national greenhouse accounts - national greenhouse gas inventory accounting for the KYOTO target*, Published by DCC, May 2009.

Department of Climate Change (DCC), 2009, 'Australia's national greenhouse accounts', National greenhouse gas inventory report 2007. DCC, Canberra

Department of Environment and Climate Change NSW 2009, Local government kerbside waste audit data from 2007–08, unpublished data.

Garnaut R, 2008, *The Garnaut Climate Change Review,* Cambridge University press, Australia.

Hamilton C, Denniss R and Baker D, 2005, *Wasteful Consumption in Australia.* Discussion Paper No.77, The Australia Institute, Canberra.

O'Neil P, James S and Crabtree L 2009, 'Sydney's food value chain: a discussion paper', presentation to the Hawkesbury Foundation Conference, Sydney, September 2009.

Recycled Organics Unit 2008, 'Greenhouse gas emissions calculator – waste', Unpublished report.