Love Food
Hate Waste
Tracking Survey
2017

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1. Executive summary

Wasting food has significant environmental, economic and social implications which the community, including governments, businesses and households, is starting to recognise.

To tackle this issue, the NSW Government is delivering the Love Food Hate Waste (LFHW) program, which focuses on educating households and businesses about food waste avoidance behaviours.

The primary objectives of this tracking research are to:

- measure attitudes to and awareness of environmental issues, with particular focus on food waste
- measure current levels of food waste avoidance behaviours in households
- identify barriers to reducing food waste by households
- explore the influence of coverage on food waste in the media and program initiatives in encouraging good habits and behaviour to avoid and prevent food waste.

A benchmark survey was conducted in 2009 and was followed by three additional waves of tracking in 2011, 2012 and 2015. This fourth tracking exercise was conducted via an online survey from 14 September to 3 October 2017 with 1389 NSW residents taking part.

Key findings

Environmental problems

- NSW residents are concerned for the environment. Those who say they are concerned 'a great deal' about environmental problems continued to rise in 2017. A quarter of respondents were concerned 'a great deal' about environmental problems and almost half (44%) concerned 'a fair amount'. Only 7% were not concerned.
- The number of respondents concerned 'a great deal' rose from 16% in 2009 to 25% in 2017, while the size of the group concerned 'a little' decreased from 32% in 2009 to 25% in 2017.
- Quality of life remains the top environmental concern (26% in 2017, up from 25% in 2015), followed by a concern for future generations (23% in 2017, up from 21% in 2015).

Household food waste

- One in five survey respondents believed they threw away more or much more food than they should (20%), a 4% decrease since 2015. The shift has been into the group who believed they threw away a 'reasonable amount' which increased by 7% to 22% from 15% in 2015. Only 8% of residents surveyed claimed they did not throw away any uneaten food. This result suggests that either action has been taken by those throwing out more than they should or awareness of the gravity of the issue has declined.
- However, despite food waste not being a high priority when it comes to environmental concerns, this survey recorded an increase in awareness of the issue of food waste: 66% of residents disagree/strongly disagree that Australians don't waste much food (compared with 59% in 2015) along with a fall in the proportion of participants who agree and strongly agree that 'Australians don't waste much food' from 14% in 2015 to 9% in 2017, indicating that the food waste message is cutting through.

Unfortunately, the results show that the proportion of NSW households engaging in food waste avoidance behaviours has decreased since 2015 and are now similar to 2012 levels:

- In 2017, NSW households that reported at least one food waste avoidance behaviour remained steady at 96% (97% in 2015).

- NSW households that reported five or more food waste avoidance behaviours decreased from 68% in 2015 to 61% in 2017. A similar proportion was reported in 2012.
- NSW households that reported 10 or more food waste avoidance behaviours decreased from 10% in 2015 to 6% in 2017.

Types of waste

- Packaging continues to be considered the largest type of waste in the average NSW household bin (58%); however this figure has continued to decline since 2009, coinciding with a continued upward trend for food (up from 27% in 2015 to 33% this survey).
- Packaging is also considered to account for the highest amount of waste in terms of weight (38%). This has remained steady since 2015.
- In 2017, a question was added to gauge how NSW residents defined avoidable and unavoidable food waste. Items like peels and cores, bones, teabags and coffee grounds were considered to be unavoidable food waste by more than half of those surveyed (56–61%), while more than a quarter of respondents (26–27%) regarded them as not waste at all. However, younger residents were more likely to consider unfinished drinks and out-of-date frozen food to be 'unavoidable' food waste.

Main reason for household food waste

- Food being left too long in the fridge/freezer continues to be a major reason why food is wasted by households (17% in 2017, up from 16% in 2015).
- Household members not finishing their meal was also cited as a top reason by 15% (up from 12% in 2015).

Food planning behaviour – shopping

- Respondents reported food planning behaviours less frequently in 2017 than in 2015. For example, there was a decrease in 'planning the meals to be cooked in the next few days' (52% in 2015, 46% this survey). Those who reported writing a list and sticking to it also dropped from 62% to 56% ('always/most times').

Volume and value of food waste

- Estimates of food waste showed a slight downward trend in this survey. The average estimate of weekly waste was 5.46 litres, compared to 5.94 L in 2015. Taking each food category into account, the annual dollar value estimate was $3805 in 2017, compared with $3866 in 2015.
- When asked to estimate an average household's food waste over a year, 32% estimated more than $1000, while 21% were unsure. The average estimate was $1645.64.

Food preparation behaviour

- Those who reported considering portion size and only making as much as they needed decreased from 56% to 48% (now in line with results seen in the 2012 survey). This also came with a decrease in those who make extra 'in case it is needed' (24% in 2015 to 20% in 2017):
  o Those making extra food just in case they need it are more likely to be 18–34 year olds (29%).
  o Those most likely to consider portion size are residents of small country towns (63%) and aged 55+ (58%) and those most likely to admit they 'rarely/never' consider portion size are aged 18–34 (23% compared with the average of 19%).

Food leftovers behaviour

- Saving leftovers in the fridge remains the most common way of storing leftover food from meals (56%).

- Proportions of residents using the freezer to store leftovers remain lower than those using the fridge, with just over a third of respondents indicating they store leftovers in the freezer for later consumption (35%). The highest proportion of those using the freezer and fridge for leftovers were women and older residents aged over 55, who were also not significantly likely to make extra for future meals or just in case.
- 57% of residents living in share houses store their leftovers in the fridge. They were also significantly likely to make extra for a planned meal (50% compared with the 31% average).

Attitudes towards the NSW Government role in reducing food waste

- In 2017, there was a significant increase in respondents who agreed that the NSW Government should play a role in reducing food waste with 66% of respondents supporting this, up 7% from 2015.
  - o Those more likely to believe the NSW Government has a role in reducing food waste included families with children (74%); those aged 18–34 (79%), and the culturally and linguistically diverse (CALD) community, particularly those speaking an Asian language (82%).

Food waste in the media

- Awareness of media, advertising or promotions related to food waste dropped in 2017 to 14%, from 17% in 2015.
- Those who were aware of seeing food waste in the media were more likely to report adopting more food waste avoidance behaviours than those who were not. Of those who were aware of food waste in the media (14% of respondents), 70% reported following five or more food waste avoidance behaviours, compared with 61% who were not aware of any food waste initiatives or food waste in the media. This suggests the media presence of the food waste issue keeps it front of mind and can act as a call to action.

Action taken as a result of seeing food waste in the media

- Respondents felt motivated to take action to reduce their food waste after seeing something about it in the media. Common actions included considering how much food they needed to buy, writing a shopping list and buying less food more often.
- Of those who did something to reduce food waste as a result of seeing something about food waste in the media, more than half (52%) saw a reduction in their food waste (the average estimate of food waste reduced was 0.62 L).

Relationship between awareness, behaviour and food waste estimates

- In 2017, the Great NSW Food Waste Study confirmed that those with high awareness of food waste ('I waste more or much more than I should' or 'a reasonable amount') are more likely to estimate a higher food waste volume. Additionally, those who are becoming more aware have increased from 39% in 2015 to 42% in 2017.However the estimates of food wasted remained steady: 5.94 L in 2015 and 5.46 L in 2017.
- By segmenting NSW residents using measures of awareness of food waste and behaviour (I shop carefully for food vs. I do not shop carefully), four clear groups were found:
  - o 'Food wasters' (40%): aware they waste 'more' or 'much more' than they should or 'a reasonable amount' and aware they do not shop carefully ('I rarely think about how much I will use')
  - o 'Sensitive to food waste' (6%): aware they waste 'more' or 'much more' than they should or 'a reasonable amount' and say they 'think carefully about how much I will use when shopping'

- o 'Low perceived food waste' (32%): aware they waste 'very little' or 'none' and aware they do not shop carefully
- o 'No perceived food waste' (22%): aware they waste 'very little' or 'none' and say they 'think carefully about how much I will use when shopping'.
- Based on these results, LFHW programs and communications would have the most positive impact on the 'Food wasters' and 'Sensitive to food waste' segments. There is a need for effective tools and education for reducing food waste to continue.

Who are the most wasteful NSW residents?

In 2017, the groups who waste the most food by (estimated) volume (compared with the average NSW resident's 2017 weekly estimate of 5.46 L) were:

- residents aged 18–34 (6.6 L per week, though this age group's estimate fell by a litre from 7.6 L in 2015)
- households with gross annual incomes above $100,000, especially those in the $150,000+ bracket, who estimated wasting 5.8 L of food a week
- families with children estimate wasting waste more than other types of households, with 6.3 L wasted per week.

Implications of the research findings

1. This survey shows that there are still some gaps in knowledge, such as underestimating food as a proportion of all waste. Using the segments found in this research can help to better target residents with different levels of food waste awareness and food waste avoidance behaviours.
2. There is also confusion over the definition of 'unavoidable waste', with younger people more likely to define unfinished drinks or out-of-date frozen food as 'unavoidable food waste'. This topic may provide conversation starters.
3. Those who saw something about food waste in the media were more likely to perform more food waste avoidance behaviours, either due to being already engaged or learning about what they can do through something they saw or heard about food waste. Keeping the issue top of mind in day-to-day life will help increase these behaviours.
4. 75% are motivated to reduce food waste because it is the 'right thing to do' and 74% are motivated by saving money. Messages about the food waste issue incorporating these sentiments will increase resonance and relevance.
5. Leaving food in the fridge or freezer too long continues to be the main reason for food waste, either through forgetfulness or abandoning plans. The challenge will be to develop programs or campaigns to embed behaviours that address this, for example, checking what is in the fridge, making plans to use the food that is already in there, a 'use what's in your fridge' day or 'leftovers' day.

2. Background, objectives and methodology

Background

Food waste is a complex issue encapsulating environmental, social and economic aspects

In NSW, food waste is most commonly disposed of to landfill and this is of particular concern as the decomposition of food waste (together with other organic materials) is a major contributor to greenhouse gas emissions across the state. Nearly 15% of Australia's greenhouse gas emissions come from agriculture.[1] According to the United Nations Food and Agriculture Organisation, one-third of food produced globally for human consumption is wasted each year.[2] Food waste is a global issue that Australians contribute to and have a responsibility to address.

In NSW, the Love Food Hate Waste (LFHW) program has been developed to tackle the issue of food waste. The program focuses on avoiding food waste by not producing the waste in the first place. Avoidance is the most effective strategy to reduce the generation of waste in NSW. The LFHW program aims to raise awareness about the economic and environmental impacts of food waste in NSW and promotes easy and practical solutions for effective food purchasing, preparation and storage, which can reduce the amount of food being sent to landfill. The LFHW program helps NSW households avoid food waste, save time and money and reduce their impact on the environment.

The primary target audience for the LFHW program is householders and food businesses in NSW. This tracking research focuses on NSW households. Previous household food waste research has identified that the most wasteful groups are 18–34 year olds, high income households (> $100,000 per year) and families with younger children.

As well as the three previous waves of research conducted in 2011, 2012 and 2015, a benchmark survey was conducted in 2009. This is the fourth wave of the tracking research after the benchmark.

Research objectives

The ultimate purpose of the research is to identify NSW residents' knowledge, attitudes and behaviours towards food waste. The research will be used to develop initiatives that reduce the volume of food waste generated and disposed of at the household level and influence new habits and norms of behaviour with a shift towards more efficient approaches to food purchase, storage, preparation and consumption. This will be achieved by:

- increasing community knowledge about the environmental, social and economic impacts of food waste
- increasing community awareness of the amount of food waste generated and sent to landfill
- increasing knowledge and skills in best household practices in food purchasing, storage, preparation and use of leftovers
- promoting a range of simple, benefit-driven behaviours that support avoidance of food waste in the home (such as menu planning, shopping from a list, correct portion sizes and more effective food storage techniques), as well as what to do with food waste

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[1] Australian Agriculture's contribution; 2010 www.futurefarmers.com.au/young-carbon-farmers/the-changing-climate/australian-agricultures-contribution

[2] Save Food: global initiative on food loss and waste reduction, 2011; www.fao.org/save-food/resources/keyfindings/en/

- supporting institutional and intergenerational transfer of knowledge and skills in more efficient food purchasing, preparation and consumption
- providing a platform for increased knowledge and awareness of food waste in business.

The research objectives of this study are to:

- measure current attitudes to and awareness of environmental issues, with a particular focus on food waste
- measure current levels of food waste avoidance behaviours and possible barriers to reducing food waste in the household
- explore the influence of food waste in the media in encouraging new habits and norms of behaviour in terms of food waste avoidance strategies.

Methodology

This wave of tracking is a continuation of the research conducted in the past, albeit with some minor changes. The sample is exactly the same in terms of postcodes, geography (Sydney, Newcastle, Wollongong, large country town [population over 15,000], small country town [population between 3000 and 15,000] and country rural areas of NSW), gender and age.

In 2015, the original target was n = 1200 NSW residents, although an additional n = 137 surveys were completed to ensure a minimum number of residents from NSW's culturally and linguistically diverse (CALD) communities. In order to allow for individual analysis, in the 2017 survey quotas of n = 30 were applied and achieved for all language groups except Macedonian.

Surveys were conducted online with representative samples of people aged 18 and over who were primarily responsible for food purchasing, preparation or storage in their household. Surveys were conducted in English.

- The research included measures of:
- general environmental knowledge, attitudes and behaviours
- knowledge of food waste issues (environmental/social/economic)
- attitudes and values relating to program issues
- barriers to and drivers for reducing food waste in the home
- self-reported behaviours and actions relating to household food management and waste
- reach and recall of media on food waste issues.

Fieldwork was conducted between 14 September and 3 October 2017.

Sample structure/profile

Table 1 details the demographic profile of sample respondents.

Table 1: Sample structure/profile

Age %	2009	2011
18-24	13	13
25-39	28	28
40-54	28	29
55+	31	29

Age %	2012	2015	2017
18-24	9	9	9
25-34	25	19	18
35-44	21	23	20
45-54	16	17	16
55-64	13	14	17
65+	16	18	20

Household Income %	2009	2011	2012	2015	2017
Less than $20,000	6	4	8	5	6
$20,000-$39,999	8	10	15	17	16
$40,000-$59,999	17	17	14	16	16
$60,000-$79,999	11	11	13	14	12
$80,000-$99,999	12	12	11	12	12
$100,000-$149,999	6	6	12	16	16
$150,000 or more	3	3	8	7	9
Prefer not to indicate	38	38	19	13	13

Gender %	2009	2011	2012	2015	2017
Male	50	50	49	42	42
Female	50	50	51	58	58

Employment/Activity Status %	2009	2011	2012	2015	2017
In paid wok (FT/PT– incl. self-employed)	53	55	53	52	50
Unemployed and looking for work	6	5	5	5	6
Student	10	8	7	6	5
Home duties	10	10	9	11	10
Retired/ Age pensioner	16	17	18	20	23
Other pensioner	NA	NA	6	4	4
Other	4	0	1	1	1

Living area %	2009	2011	2012	2015	2017
Sydney			65	63	62
Newcastle			7	8	8
Wollongong			3	5	4
Large country town (population over 15,000)	NA		13	12	12
Small country town (population between 3,000 and 15,000)			8	8	8
Country rural area			4	4	5

Main family background %	2009	2011	2012	2015	2017
Australian				65	59
Anglo-Saxon				10	10
Italian				3	3
Spanish				1	1
Chinese				3	5
Arabic				1	2
Portuguese		NA		0	0
Greek				2	2
German				1	1
Vietnamese				2	2
Filippino				1	2
Indian				3	3
Other, please specify				9	9
Prefer not to indicate				1	1

Languages spoken at home %	2009	2011	2012	2015	2017
English	68	61	93	94	95
Cantonese and/or Mandarin	11/3	16/4	4/4	3	5
Arabic	2	0	2	2	3
Italian	2	0	3	2	3
Greek	2	1	2	2	3
Macedonian	NA	NA	<1	0	1
Vietnamese	1	3	3	2	2
Spanish	0	1	2	2	2
Korean	NA	NA	2	1	2
Hindi or other Indian dialect	1	1	2	3	3
Tagalog	0	1	1	1	3
Other, please specify	NA	NA	5	4	5
Prefer not to indicate	NA	NA	NA	0	0

Household composition %	2009	2011	2012	2015	2017
Single person household			19	22	20
Family with children			29	30	28
Family, only adults (16+)		NA	40	38	17
Shared household, non-related			7	5	5
Couple			NA	NA	26
Other (specify)			5	5	4

Education %	2009	2011	2012	2015	2017
No formal schooling				0	0
Primary school				1	0
Some secondary school	16*	16*	12*	10	11
Completed secondary school	23	28	20	20	19
Trade or technical qualification	30	29	29	28	27
University/College diploma, degree or higher degree	30	27	38	42	42
Prefer not to answer			1	1	1

= No formal schooling/Primary school/Some secondary school combined

3. Detailed survey findings

Concern about environmental problems

Overall level of environmental concern

Concern about environmental problems is increasing in NSW.

The trend shows there are now many more people in the state who are concerned 'a great deal' about environmental problems. Figure 1 shows there has been a rise from 16% in 2009 to 25% in 2017 and a corresponding decline in the proportion of the community only 'a little' concerned from 32% in 2009 to 25% in 2017.

Figure 1: Overall level of environmental concern
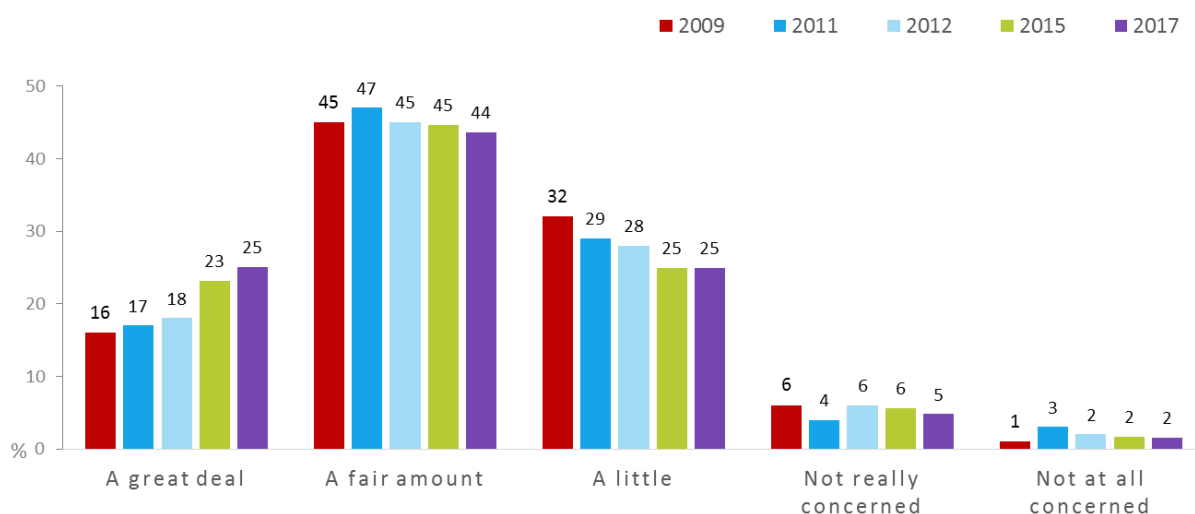
Q1. In general, how concerned would you say that you are about environmental problems? *Please select one*
Base: *Total sample 2009, n=1200; 2011, n=1200; 2012, n=1300; 2015, n=1337; 2017, n=1389*

Key areas of environmental concern

The key areas of environmental concern have seen little change. Quality of life remains the top environmental concern among NSW residents (as it has since 2011) with one in four (26%) now citing it as their main concern (see Figure 2). This is followed by concern for future generations (23%), maintaining ecosystems (18%) and the health effects of pollution (14%).

Long-term economic sustainability and the availability of the resources we consume are the lowest two environmental concerns for the NSW community. Only 9% of the community rated the availability of the resources consumed as their main environmental concern, a drop from 2009's high of 13% but consistent with 2015. So while the intensity of concern over environmental problems has been rising in NSW, it is not apparent in the attitude towards the availability of resources.

Newcastle residents (13%) showed the greatest concern for the resources we consume.

While not statistically significant, the highest proportion of residents whose greatest concern was quality of life were residents of country rural areas (32%).

Figure 2: Key areas of environmental concern
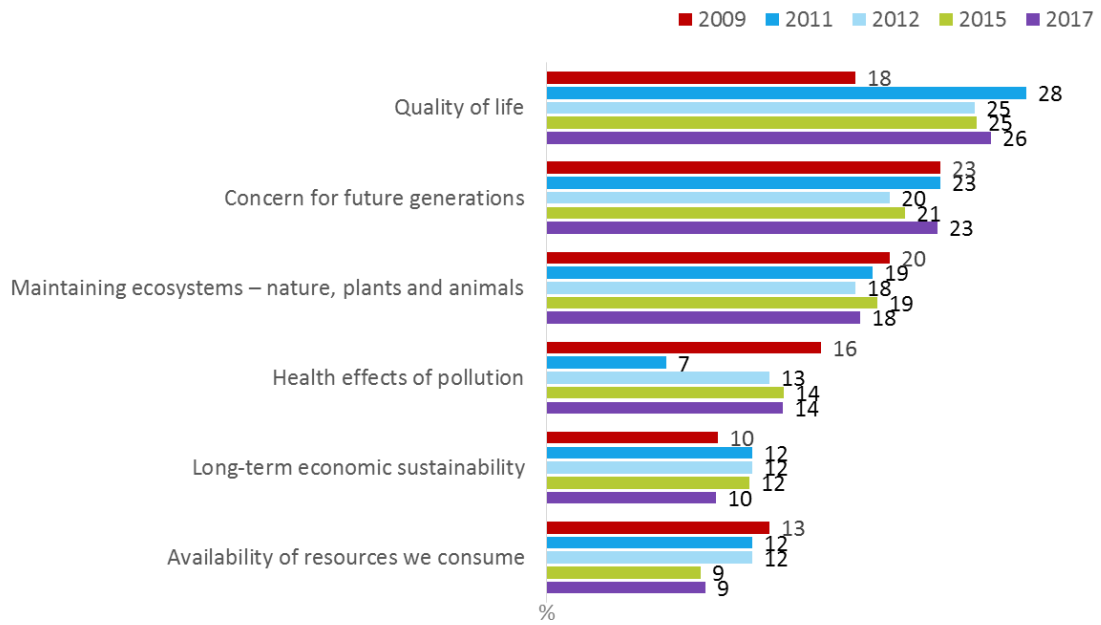
Q2. Please indicate which one (1) of the following you are most concerned about. *Please select one*
Base: Total sample 2009, n=1200; 2011, n=1200; 2012, n=1300; 2015, n=1337; 2017, n=1389

Areas of household food waste

Recognition there is a problem with food thrown away

In this latest wave of tracking, one in five NSW residents admitted to throwing away 'more' or 'much more' uneaten food than they should (20%) – see Figure 3.

The number who said they threw away a 'reasonable amount' of uneaten food has increased from 15% to 22% in the last two years.

Figure 3: Amount of uneaten food thrown away
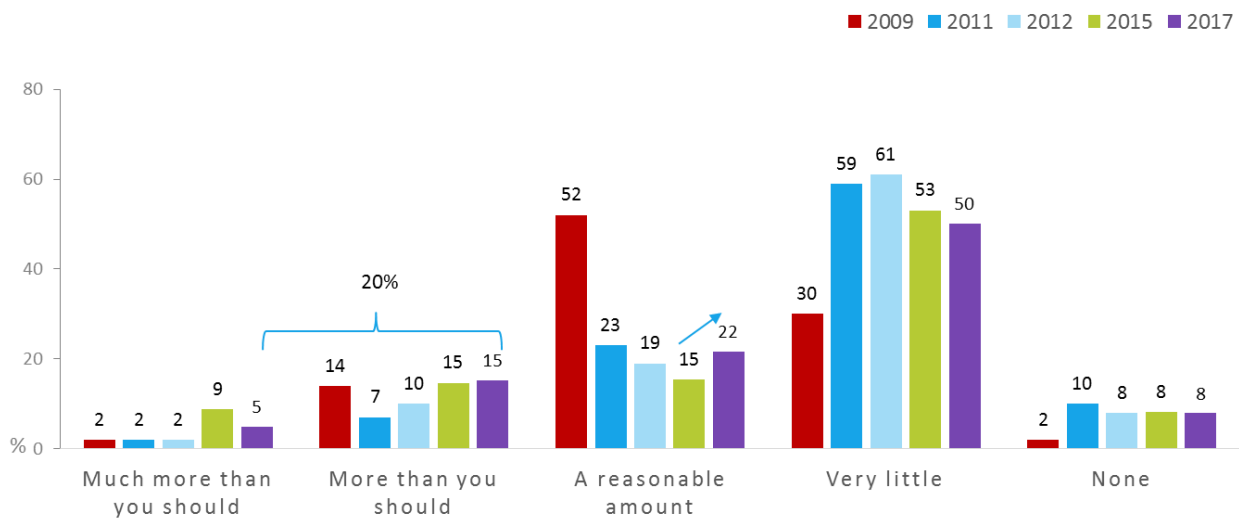
Q4. How much uneaten food would you say that your household usually throws away?
Base: Total sample: 2009 (n=1200), 2011 (n=1200), 2012 (n=1300) 2015 (n=1337), 2017 (n=1389)

Overall, only 42% of the NSW community believe they are throwing away a sizable quantity of uneaten food, that is, 'much more' than they should to a 'reasonable amount'. In fact, 50% say they throw away 'very little' uneaten food and 8% say they don't 'usually' throw any uneaten food away ('none'), a figure that has remained stable since 2012. Further analysis found that of the 8% who said 'none', 89% 'most times' or 'always' check what food is in the house before shopping (compared with the average of 63%) and 76% write a list and stick to it ('most times' or 'always', compared with 56% on average), indicating they are performing food waste avoidance behaviours to avoid throwing away food.

Further analysis showed that the average self-reported estimate of weekly food waste for residents who said they waste 'much more than they should' was 8.55 litres. The average estimate for those who said they waste 'more than they should' was 7.38 L and, for those who said they waste a 'reasonable amount', the average estimate was 6.61 L. Those who believe they wasted 'very little' estimated on average 4.07 L, suggesting residents' estimates are in line with their perceptions of food waste.

The proportion of the NSW community who believe they throw away 'very little' decreased from a high of 61% in 2012 to 50% in 2017, while those saying they waste 'a reasonable amount' has increased from 15% in 2015 to 22% in 2017, suggesting more are acknowledging they waste food.

Since the LFHW program wants residents to realise they can avoid food waste and take up food waste avoidance behaviours to reduce food waste, part of the challenge is convincing people that they are throwing away uneaten food, in order to effectively motivate food waste avoidance behaviours.

Perceptions of the type of waste placed in the bin

The proportion of NSW residents who nominated food as the largest type of waste in their garbage bin increased from 13% in 2009 to 33% in 2017. Awareness of the food waste issue has risen despite the large proportion claiming their household throws out 'very little or 'no' uneaten food.

Packaging is still seen as the largest item contributing to the average NSW household garbage bins (58% in 2017 – see Figure 4), although this has trended down since the benchmark in 2009 when 73% thought this was the largest type of waste in garbage bins. This could be because there is less packaging or because awareness of the food waste issue is rising.

Figure 4: Perceptions of average household waste type
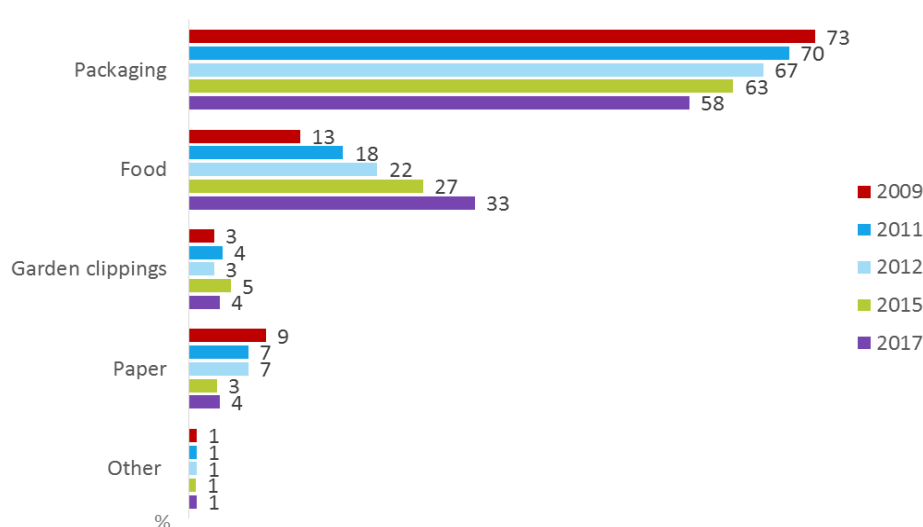
Q5. What do you think is the **largest** type of waste in the average NSW household garbage bin? *Please select one*
Base: Total sample 2012 (n=1300); 2015, (n=1337); 2017 (n=1389)

Families with children were more likely to say food accounted for the largest type of waste (41% compared with 33%). Those aged 18–34 were also more likely to nominate food as the biggest type of waste in the average household bin (41%, similar to the 40% of this age group seen in 2015).

As was seen in the 2015 survey, residents of small country towns and respondents aged 55+ were less likely to say food accounted for the largest type of waste (23% and 25%, respectively, compared with 33% for the sample on average).

Perceptions of the proportionate weight of various wastes

When asked about the composition of household waste by weight, packaging was again seen as the biggest contributor. On average, respondents believed that packaging accounted for 38% of the waste in the average NSW household bin (see Figure 5). This has remained steady since the question was introduced in 2015.

Figure 5: Perceptions of the proportionate weight of various wastes
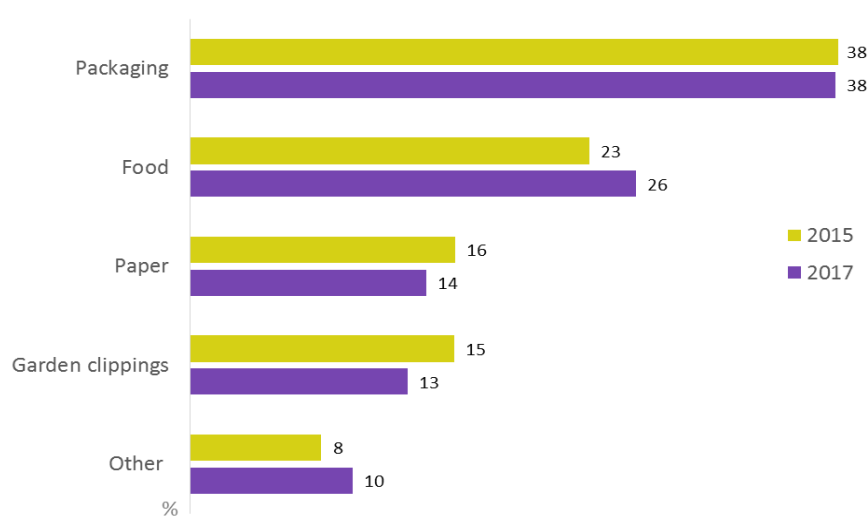
> **Q5b.** In terms of the weight of waste in the average NSW household garbage bin, what proportion do you think each of the following items makes up of the total weight? *Please write a number between 0-100. The total of all items should add up to 100%. If you are not sure then please indicate your best guess.* **Base:** *Total sample 2015 (n=1337); 2017 (n=1389)*

Food was the second largest contributor to the household bin with the average estimate being 26%, an increase of 3% since 2015.

Male respondents and those aged 55+ were more likely to estimate food weight in the garbage bin in the low range of 0–20%. In contrast, NSW residents aged 18–34 estimated that food contributed up to 40% of household waste.

Perceived value of food bought, but never eaten

This question on dollar value of food waste was changed in 2017 to more closely align with the value of food wasted annually. As such, it cannot be compared with previous years' results.

More than half (67%) of NSW residents estimated that the annual dollar value of food wasted was less than $3000, while 12% estimated it at more than $3000 and 21% were unsure (see Figure 6).

Overall, the average estimated dollar amount of an average NSW household's yearly food waste was $1645.64. This is less than half of the yearly figure calculated in the 2015 survey from self-estimations of food waste ($3866).

Those aged 55 years and older were most likely to respond that they did not know or were unsure about the annual dollar value of food wasted (30% compared with the NSW average of 21%).

Additionally, the change in the scale of dollar amount options for this question in 2017 saw an increase in those saying they were 'not sure' about an estimated annual dollar amount (2% selected 'other/not sure' in 2015, while 21% selected 'don't know/not sure' in 2017).

Figure 6: Estimated dollar value of food wasted per year
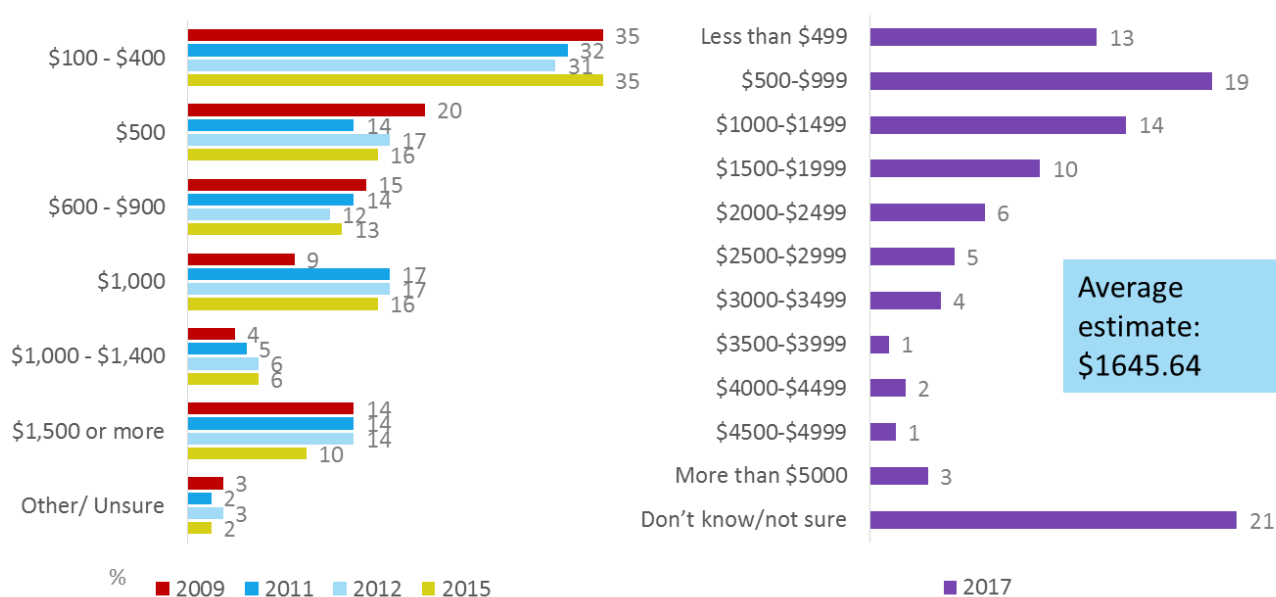
Q6. Approximately how much would you estimate that the average NSW household spends on food that is purchased **but never eaten** each year? *Please select one*
Base: *Total sample: 2009 (n=1200), 2011 (n=1200), 2012 (n=1300) 2015 (n=1337), 2017* (n=1389).*
**Note: this question was changed in 2017*

Further analysis found that:

- Families with children were more likely to estimate in the $3000–$3499 range, with an average of $1879.84.
- CALD residents' average estimate was $1855.
- The average estimate by residents aged 18–34 was $1930.79.
- The average estimate by residents with an annual income of more than $150,000 was $2133.53.
- Residents of country rural areas had the lowest average estimate of $1140.90.

Knowledge of food labels

Understanding of 'use-by' dates

More than half of the NSW residents surveyed understood 'use by' as meaning the food must be consumed by that date (61%). This has changed little since the benchmark measure in 2009 when it was 64% of the NSW community (see Figure 7).

The proportion of those who believed food was still safe to eat after the use-by date (if not damaged) increased to 33% from 29% in 2009.

Families with children tended to be more likely than average to correctly state the 'use-by' label means food must be eaten or thrown away by this date (69%).

Residents in shared households were more likely to say 'use by' means 'food must be sold at a discount after this date (12%), along with residents of Newcastle (10%).

Figure 7: Understanding of 'use-by' dates

Food must be eaten or thrown away by this date
- 64
- 67
- 65
- 64
- 61

Food is still safe to eat after this date as long as they are not damaged, deteriorated or perished
- 29
- 28
- 31
- 30
- 33

Food must be sold at a discount after this date
- 4
- 3
- 3
- 4
- 4

Other description for 'use by'
- 2
- 0
- 3
- 2
- 2

%

Legend:
- 2009
- 2011
- 2012
- 2015
- 2017
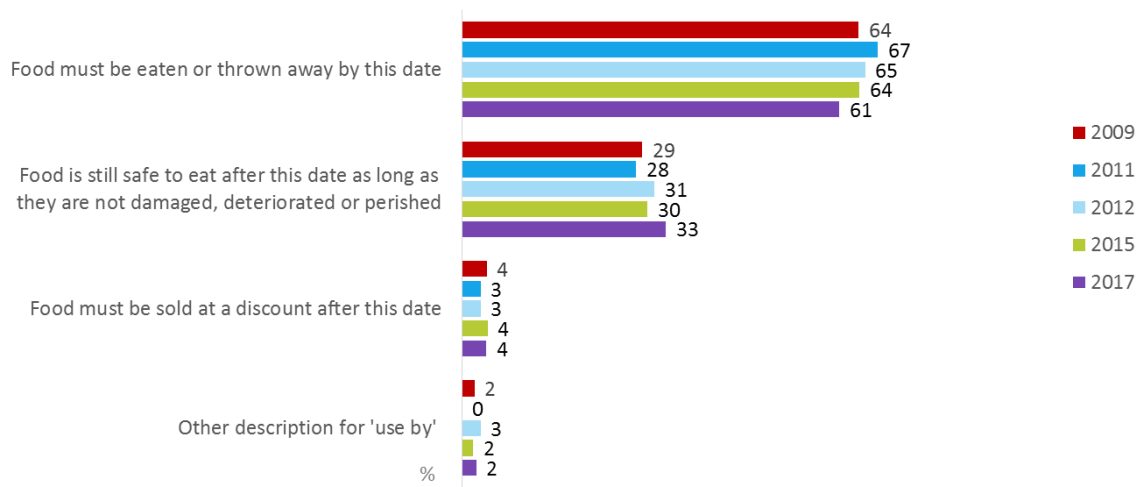
Q7a. In regard to food labels, which of the following do you think best describes what is meant by the 'use by' date?
Base: Total sample: 2009 (n=1200), 2011 (n=1200), 2012 (n=1300) 2015 (n=1337), 2017 (n=1389)

Understanding of 'best-before' dates

Understanding of 'best before' also remained relatively unchanged among the general NSW population, with just under three in four (73%) believing this to mean 'food is still safe to eat after the date as long as it has not been damaged, deteriorated or perished' (see Figure 8). This compared with 70% in 2009.

Figure 8: Understanding 'best-before' dates

Food is still safe to eat after this date as long as they are not damaged, deteriorated or perished
- 70
- 78
- 75
- 72
- 73

Food must be eaten or thrown away by this date
- 23
- 16
- 20
- 22
- 20

Food must be sold at a discount after this date
- 4
- 4
- 3
- 4
- 5

Other description for 'best before'
- 3
- 0
- 2
- 2
- 2

%

Legend:
- 2009
- 2011
- 2012
- 2015
- 2017
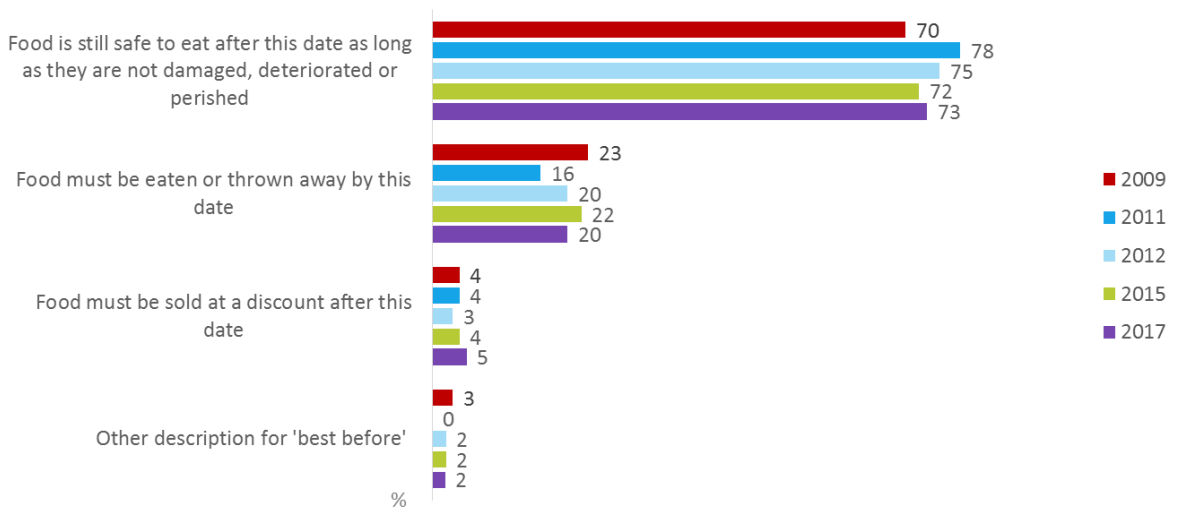
Q7b. In regard to food labels, which of the following do you think best describes what is meant by the 'best before' date?
Base: Total sample: 2009 (n=1200), 2011 (n=1200), 2012 (n=1300) 2015 (n=1337), 2017 (n=1389)

The results showed that respondents aged 18–34 were most likely to incorrectly believe that 'best before' means 'food must be eaten or thrown away by this date' (25% compared with 20% of the NSW average).

The CALD community were more likely to believe 'best before' to mean 'food must be eaten or thrown away by this date' (33%) and those aged 55+ were more likely to understand the label to mean 'food is still safe to eat after this date as long as it's not damaged, deteriorated, or perished' (78%).

Misunderstanding of labels

Misunderstanding of food labels may lead to food waste and food safety concerns.

There has been a decrease in the proportion of residents who thought 'use-by' and 'best-before' labels meant the same thing. Of the 61% of residents who knew the meaning of the 'use-by' label as 'food must be eaten or thrown away by this date', 81% thought 'best before' meant the same thing (see Table 2), a significantly higher proportion than 28% in 2015. Of the 73% who knew 'best before' to mean that food is still safe to eat after this date as long as it is not damaged, deteriorated or perished, 38% believed the 'use-by' label meant the same thing. To summarise:

- In 2015, 18% of all respondents thought both labels meant 'food must be eaten or thrown away by this date', a view shared by 16% of the residents surveyed in 2017.
- In 2015, 28% of all respondents thought that both labels meant 'food is still safe to eat after this date as long as it is not damaged', compared with 24% thinking the same in 2017.

As was the case in 2015, there remains a misunderstanding, particularly among 18–34 year olds, over the correct meaning of the 'best-before' label and misunderstanding among 55+ year olds over the true meaning of the 'use-by' label.

Table 2: Confusion over labels in 2017

			Definition of 'best before'			
		Total %	Food must be eaten or thrown away by this date %	Food is still safe to eat after this date as long as it is not damaged, deteriorated or perished %	Food must be sold at a discount after this date %	Other %
		n=1389	n=277	n=1016	n=70	n=26
Definition of 'use by'	Food must be eaten or thrown away by this date %	61	81	58	27	35
	Food is still safe to eat after this date as long as it is not damaged, deteriorated or perished %	33	17	38	38	9
	Food must be sold at a discount after this date %	4	2	3	32	0
	Other %	2	1	1	2	55

In 2017, only 43% of NSW residents surveyed understood both 'use-by' and 'best-before' food date labels correctly, a decrease from 45% in 2015 (see Figure 9).

Figure 9: Understanding of labels in 2017
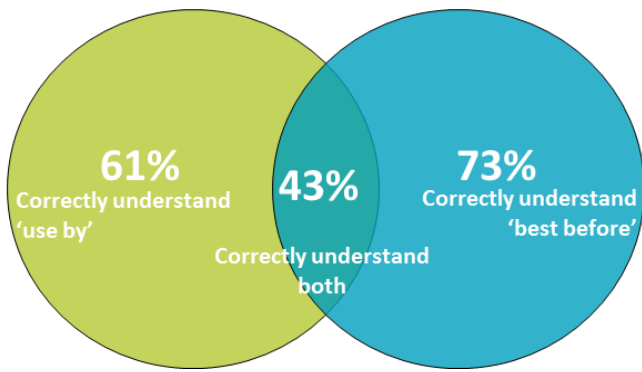
General attitudes to storing and using food

Attitudes to food waste and shopping

Attitudes to food waste and the approaches to shopping remained relatively unchanged among the average NSW households.

Figure 10 shows the attitudes of the average NSW household to different statements. As in previous years, residents tended to say they hardly ever found the food they bought not used. However the main reason for food waste was that 'we cook too much' (50%), suggesting while food gets used it is not all consumed. Fewer said they thought carefully or that they planned ahead and made shopping lists.

Figure 10: Attitudes to food waste and shopping
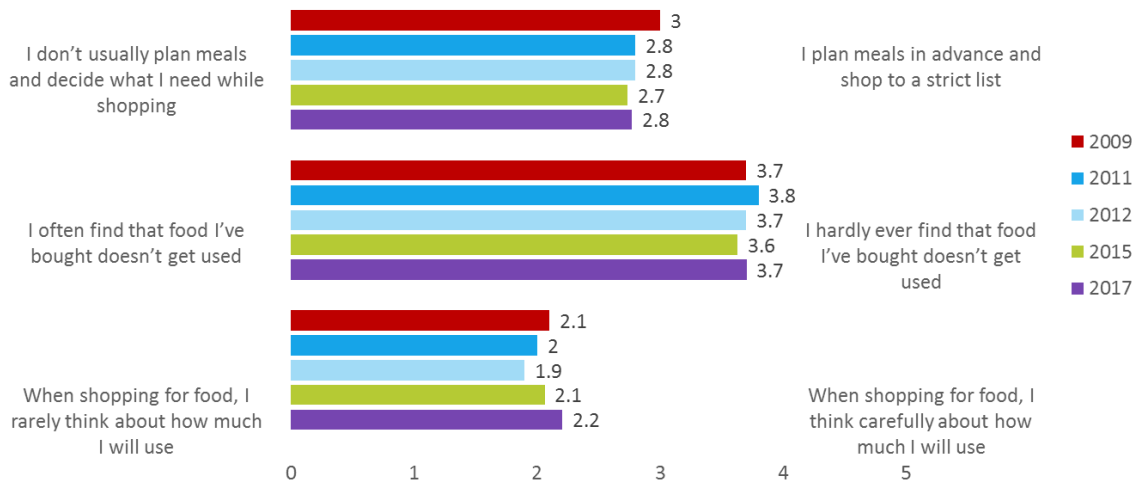
Q8. Please move each 'slider' to indicate where you personally feel that you fit between the two statements presented. If, for example, the statement on the left fully describes you, you would move the 'slider' as far to the left as possible.
Base: *Total sample 2012, (n=1300); 2015, (n=1337); 2017, (n=1389)*

The mean score of 3.7 out of 5 indicates that the NSW community hardly ever find that the food they buy doesn't get used. For those who acknowledge that food bought doesn't get used, the main reason for food waste is being 'too busy to cooked planned meals' (37%). The results also suggest that while residents might try to plan meals (average score of 2.8 out of 5) they rarely think closely about their plans and therefore how much they might use while shopping (average score of 2.2 out of 5). When it came to meal planning behaviours, the study found they were close to the mid-point on average between planning and not planning their meals. This suggests residents are more

inclined to try and plan their meals, but don't think about the detail of what and how much they will use while shopping.

The detailed analysis showed that families with children were more likely to find that food bought doesn't get used (24% with a rating of 2, compared to 18% of the average household with this rating).

The results showed that those aged 18–34 were more likely than those aged 55+ to say they often found the food they bought doesn't get used (average rating of 3.51 compared with 3.95 for those aged 55+).

General attitudes to food waste

The 2017 survey found that NSW residents were less inclined to recognise the loss of resources where food was not eaten. Only 59% agreed/strongly agreed that resources were lost if food wasn't eaten, down from 67% in 2009.

There was also a persistent view that food consumed by a pet or composted did not constitute food waste. Currently 63% of the community agree/strongly agree with this view (75% in 2009).

Only 9% of NSW residents agreed/strongly agreed that Australians don't waste much food, a decrease from 14% in 2015. Turning the question around, about one in five NSW residents strongly agreed that Australians wasted food.

Many in the community continued to believe that busy lifestyles make it difficult to reduce food waste. This view increased from 35% in 2015 to 38% this survey.

The proportion of people who believed leftovers were unsafe to eat after being in the fridge more than one day decreased from 23% to 16%, following an increase from 14% in 2012, suggesting fewer people were rejecting the opportunity to consume refrigerated leftovers.

The 2017 detailed analysis shows that:

- Families with children were more likely to agree that leftovers kept in the fridge for more than one day are unsafe to eat (23% compared with the 16% average in Figure 11), indicating they may be more cautious with consumption of leftovers.

Figure 11: General attitudes to food waste (1)
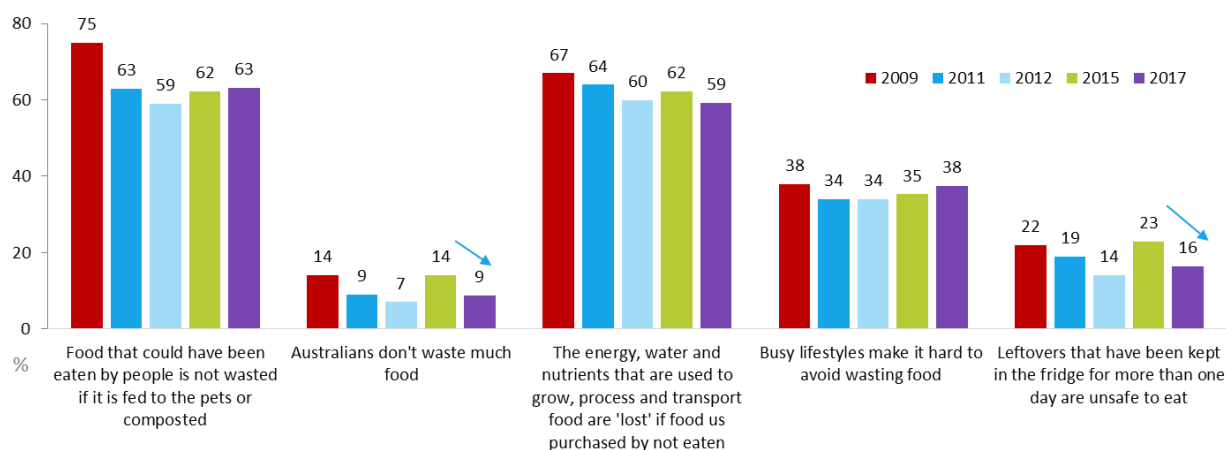
Q9. Below is a list of statements about food. Please indicate the extent to which you agree or disagree with each of them. (NET Agree/Strongly Agree)
Base: Total sample 2012, (n=1300); 2015 (n=1337); total sample 2017 (n=1389)

- Residents of large country towns and those aged 55+ were more likely to disagree that leftovers stored for more than a day are unsafe to eat (72% and 71%, respectively).

- Residents in families with children and those aged 18–34 years were more likely to agree that busy lifestyles made it difficult to avoid wasting food (44% and 48%, respectively) while those who lived as a couple tended to be more likely to disagree (41%).

- Women were more likely to agree that food that is composted or fed to pets is not 'wasted' (68%).

In 2017, households that believed wasting food contributed to climate change remained stable (46% – see Figure 12). The proportion that agreed it was easy to make meals from ingredients that needed to be used up decreased to 71% (76% in 2009, but no significant change from 2011 to 2015). The proportion of the community who agreed that cooked food can be stored in the freezer for up to three months without compromising quality remained stable at 62%.

Figure 12: General attitudes to food waste (2)
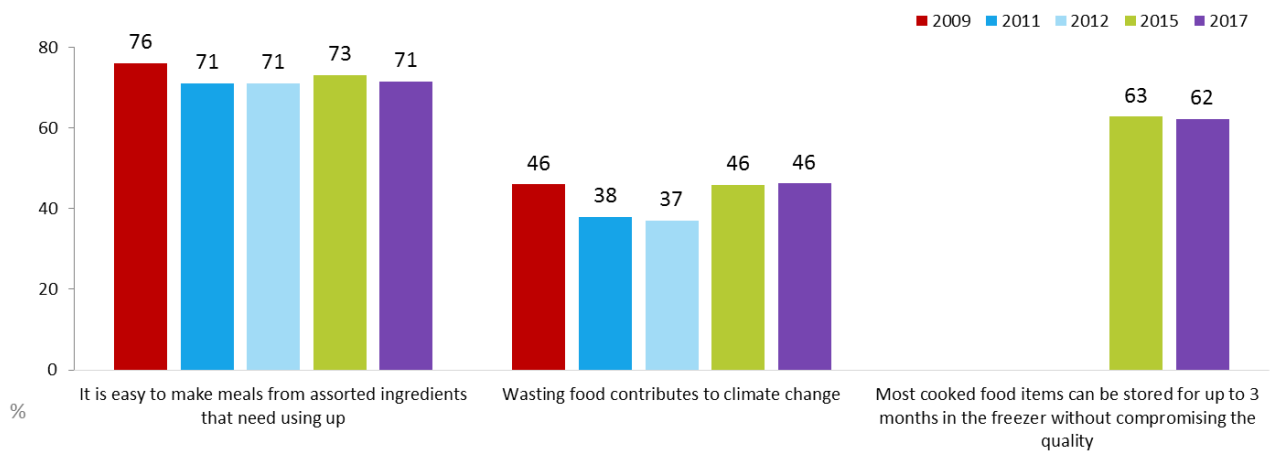
*Question changed 2015: Most cooked food items can be stored for up to 3 months in the freezer without compromising the quality

Q9. Below is a list of statements about food. Please indicate the extent to which you agree or disagree with each of them. (NET Agree/Strongly Agree)
Base: *Total sample 2012, (n=1300); 2015, (n=1337); 2017 (n=1389)*

Attitudes in various regions of NSW about the contribution of food waste to climate change differed in various locations (see Figure 13), with residents of Wollongong more inclined to agree that food waste did contribute to climate change (58% compared with an average of 46%). Residents of Newcastle and both large and small country towns (all 40%) were least likely to agree.

Figure 13: General attitudes to food waste by location
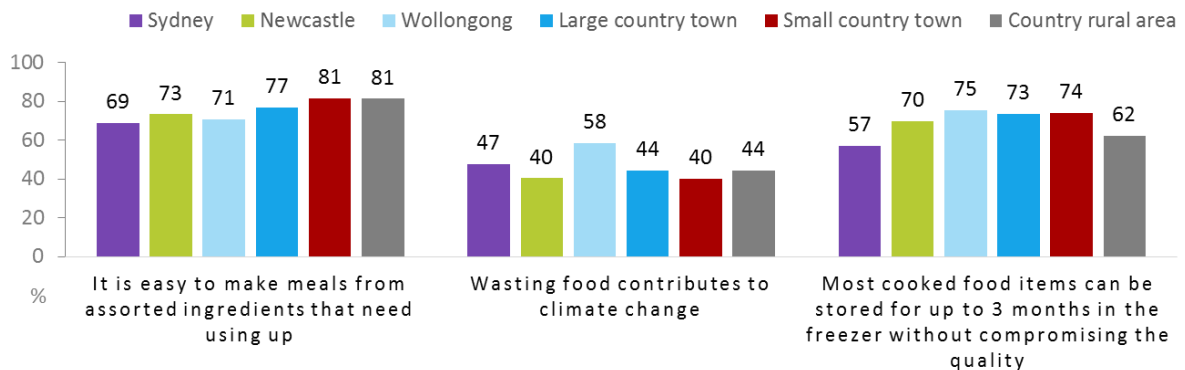
Q9. Below is a list of statements about food. Please indicate the extent to which you agree or disagree with each of them. (NET Agree/Strongly Agree)
Base: *Sydney, (n=863); Newcastle, (n=116); Wollongong, (n=58); Large country town, (n=171); Small country town, (n=110); Country rural area, (n=71)*

Couples were more likely to agree that it's easy to make meals from ingredients that needed to be used up (79% compared with an average of 71%). Share households in contrast were less likely to agree that it is easy to make meals from such ingredients (60%).

Single households were less likely to agree that wasting food contributed to climate change (40%). This could be because single-person households are more likely to be older residents aged over 55 (28% compared with an average 20%), who are also less likely to agree food waste contributes to climate change (see Figure 14).

Figure 14: General attitudes to food waste by household demographic
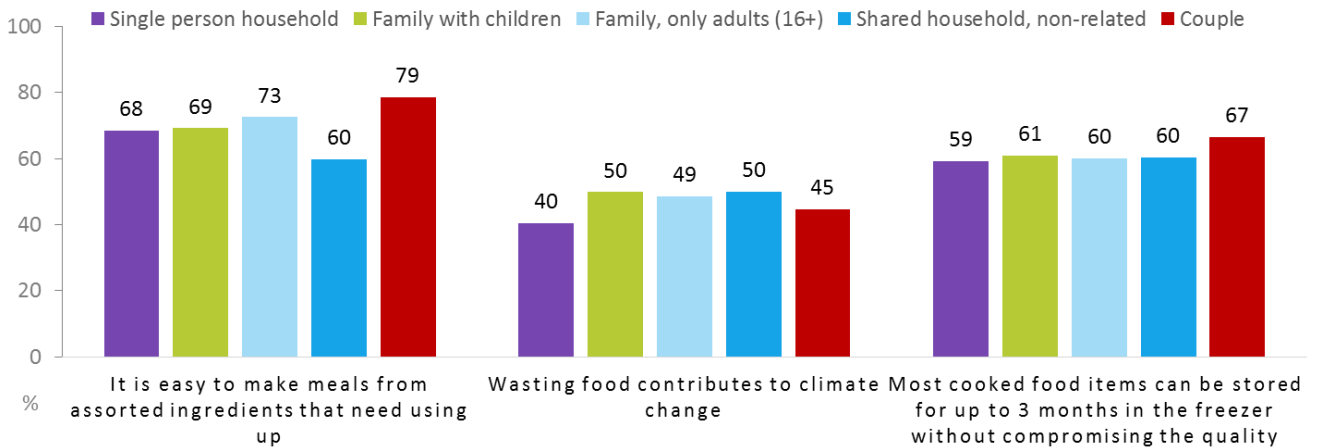
Q9. Below is a list of statements about food. Please indicate the extent to which you agree or disagree with each of them. (NET Agree/Strongly Agree)
Base: Single person household, (n=278); Family with children, (n=392); Family, only adults, (n=230); Shared household, non-related, (n=68); Couple, (n=368)

In this survey, older residents (55+ years) were more versatile with ingredients and more likely to find it easy to use assorted ingredients that needed to be used up in meals (80% compared to an average of 71%). There was a smaller proportion of residents aged 18–34 that agreed with this (59%), suggesting they may be less resourceful than older residents (see Figure 15). Older residents also felt more comfortable with freezing food for longer, compared with residents aged 18–34 (70% vs. 53%). Those aged 55+ were less likely to believe food waste contributed to climate change (40% compared to an average of 46%).

Figure 15: General attitudes to food waste by age
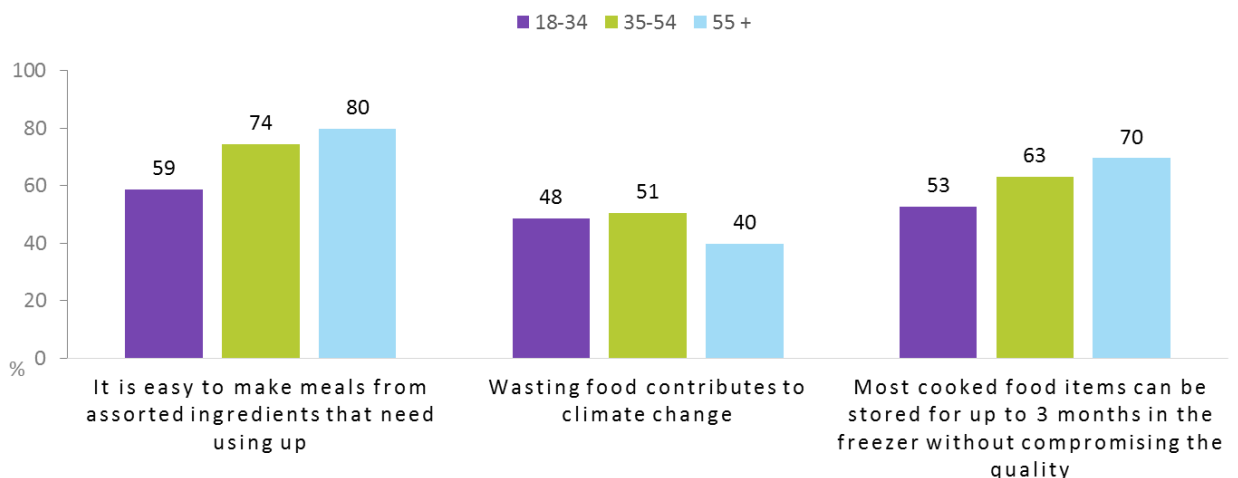
Q9. Below is a list of statements about food. Please indicate the extent to which you agree or disagree with each of them. (NET Agree/Strongly Agree)
Base: 18-34, (n=379); 35-54, (n=496); 55+, (n=514)

Value and quantity of food wasted

Estimated volume of waste

NSW residents were asked to estimate the volume of food they threw away each week. The largest amount of food wasted by volume is fresh food (2.18 litres), followed by leftovers (1.9 L) and then packaged and long-life food (1.39 L) – see Figure 16.

The total estimated average amount of food wasted had reduced by about half a litre since 2015, from 5.94 L to 5.46 L.

Note: A comparison cannot be made with the results of the initial benchmark survey in 2009 due to a change in the wording in the categories used to calculate volume of food waste – in 2009 there were six separate categories, but since 2011 there have only been three.

Figure 15: Estimated volume of household food waste
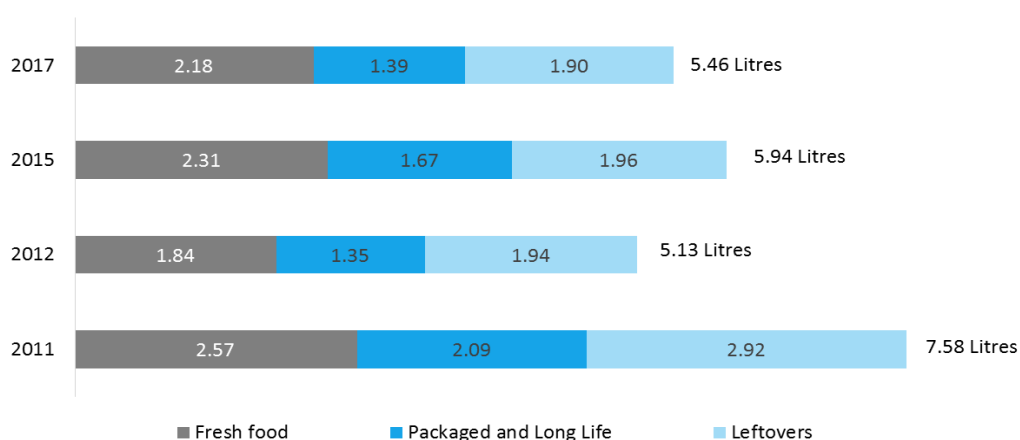
Q10/11a. In a normal week, please estimate how much of the following food types your household throws away (including going to the compost, worm farm, tipped down the sink or fed to pets).
Base: Those who admit to regularly throwing out uneaten food: 2011 (n=1080), 2012 (n=1197), 2015 (n=1229), 2017 (n=1273).

Detailed analysis of the data revealed that:

- Based on their own estimation, NSW residents aged 18–34 continued to waste the largest amount of food in 2017 (6.6 litres per week compared with an average 5.46 L).
- Those aged 55+ continue to waste the least (4.22 litres per week).
- Males tend to estimate wasting more than women (5.7 litres per week for men compared with 5.2 L for women).
- By household type, families with children estimated wasting the most per week (6.3 L), followed by shared households (5.8 L).
- Those earning $150,000 or more estimated that they wasted up to 5.8 litres a week.

Value of weekly household food waste

Weekly spend on groceries

In 2017, a question on weekly grocery spend by category was returned to the survey following its removal in 2012. As was the case in 2009, households spent a larger proportion of their grocery budget on fresh food, with 41% spending $50 or more.

The total average weekly spend on these food categories was $196.03.

The average weekly spend on each food category was:

- $59.44 for fresh food
- $38.48 for packaged and long-life food
- $29.91 for frozen food
- $38.77 for home delivery and takeaway food
- $29.43 on drinks.

Figure 17: Weekly grocery spend

	Fresh food %		Packaged & long life food %		Frozen food %		Home delivered/take-away meals %		Drink %	
	2009	2017	2009	2017	2009	2017	2009	2017	2009	2017
Do not purchase ($0)	1	3	4	7	4	7	27	28	4	10
Less than $20	18	18	39	40	55	56	49	36	63	61
$20 - $49	43	37	36	34	32	25	19	22	26	18
$50 - $99	28	27	17	12	8	7	3	8	7	5
$100 - $149	9	8	2	4	1	2	2	3	1	3
$150 - $200	1	4	2	1	0	2	0	2	0	1
$200 or more	1	2	0	2	0	1	0	2	0	2

*Note: This question was removed from 2012 onwards, but included in 2017.

Q10. 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.
Base: 2009, n=1200; 2017, n=1273

Detailed analysis of the data revealed that:

- Residents of Newcastle and Wollongong tended to spend more than average on fresh food ($71.64 and $72.80, respectively).
- Families with children spent more than the average NSW resident on fresh food ($65.27) along with families with adults ($70.73).
- Families with children also tended to spend more per week on packaged and long-life food ($46.12), while families of adults and residents aged 18–34 spent more per week on delivery and takeaway ($44.39 and $51.80, respectively).

Estimated value of food thrown out

The estimated dollar value of food thrown away each week has also decreased slightly since 2015, coinciding with a similar decrease in the weekly food waste estimates.

The highest dollar value was attributed to fresh food at $16.43 per week, an increase of 4% since 2015 (see Figure 18). The average estimate for the dollar value of leftovers was $12.80 per week (up by 0.8% since 2015) and drinks at $11.39 a week (down by 10% since 2015).

Figure 18: Estimated value of food thrown out by type

Year	Fresh Food	Packaged & Long Life	Frozen food	Home delivered/ take-away meals	Leftovers	Drink	Weekly	Yearly
2017	$16.43	$11.07	$10.39	$11.11	$12.80	$11.39	$73.19/week	$3,805.88/year
2015*	$15.69	$11.41	$11.16	$11.07	$12.69	$12.33	$74.35/week	$3,866.20/year
2012	$12.74	$9.28	$8.09	$7.88	$9.57	$8.44	$56.00/week	$2,912.00/year
2011	$14.50	$10.90	$10.90	$7.60	$10.60	$9.30	$63.80/week	$3,317.60/year

■ Fresh Food ■ Packaged & Long Life ■ Frozen food ■ Home delivered/ take-away meals ■ Leftovers ■ Drink

*Note: 2015 options changed to take into account CPI increase since 2012. The average value of food wasted was calculated for each food category by using the mid-point of each dollar range.

> **Q11/12. 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, tipped down the sink or fed to pets). Please make your best estimate in whole dollars
> *Base: Those who admit to regularly throwing out uneaten food: 2011 (n=1080), 2012 (n=1197), 2015 (n=1229), 2017 (n=1273)*

Based on their own estimates, those who wasted the most food in terms of value were:

- 18–34 year olds ($112.93 per week)
- Newcastle residents ($95.18)
- Chinese-speaking households ($89.09)
- Wollongong residents ($84.79)
- Arabic language households ($81.42)
- Males ($80.40).

Overall, based on respondents' estimates, NSW residents threw out almost a third of what they spent on fresh food and frozen food and about a quarter of what they spent on packaged/long-life food and home delivery/takeaway. For instance, the average weekly spend on fresh food in 2017 was $59.44 and the average estimated dollar amount for this type of food thrown out was $16.43 (see Table 3).

Table 3: Estimated dollar value of food purchased and thrown out by category

Food category	Weekly spend	Est. weekly $ wasted
Fresh food	$59.44	$16.43
Packaged and long life	$38.48	$11.07
Frozen food	$29.91	$10.39
Home delivery and takeaway	$38.77	$11.11
Drinks	$29.43	$11.39

Further analysis of the segments (see later section for more detail) showed that those who tended to report spending more on weekly groceries also estimated wasting more (see Table 4).

Table 4: Weekly spend on groceries vs. estimated food waste

Segments	Weekly grocery spend	Estimated $ value of food wasted/wk	Estimated vol. of food wasted (L)/wk
Total residents	$196.03	$73.19	5.46L
Sensitive to food waste (-,+) (5%)	$235.91	$73.51	4L
Food wasters (-, -) (37%)	$242.71	$110.36	4L
No perceived food waste (+, +) (25%)	$168.02	$36.98	2.52L
Low perceived food waste (+, -) (33%)	$136.52	$52.30	2.65L

Avoidable vs. unavoidable food waste

A question about residents' understanding of the definition of avoidable versus unavoidable food waste was removed after the 2012 survey and added again in 2017.

Items like peels and cores, bones, teabags and coffee grounds were considered to be unavoidable food waste by more than half of those surveyed (56–61%) or not considered to be waste at all by more than a quarter of respondents (26–27%) (see Figure 19). Food that is forgotten, like old frozen food, spoiled produce and leftovers, was correctly considered avoidable waste by around two-thirds of NSW residents surveyed (64–68%). Respondents were split, almost evenly, about whether scraps left on the plate were avoidable or unavoidable food waste (42% consider it avoidable, 44% unavoidable, while 14% don't consider it waste at all), indicating more education is needed to clarify the definition of food waste.

Figure 19: Avoidable vs. unavoidable food waste
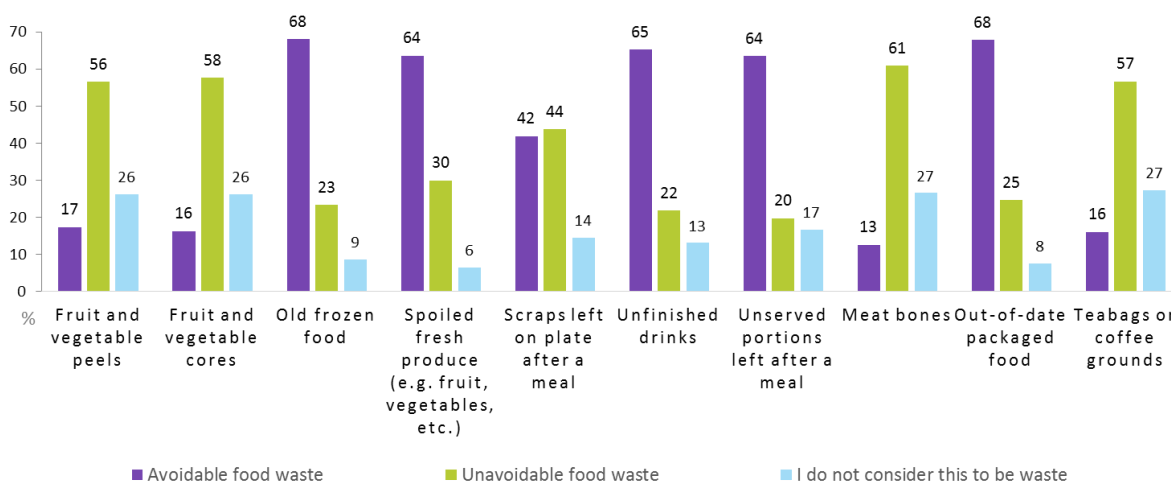
Q18a. If each of the following foods were to be thrown into the garbage bin at home, which would you consider to be waste that could have been avoided, or waste that could not be avoided? **Note:** this question was removed after 2012, and added again in 2017
Base: Total sample 2017 (n=1389)

Residents aged 18–34 (see Figure 20) were more likely to consider out-of-date packaged food to be unavoidable food waste (31% compared with an average of 25%) and unfinished drinks as unavoidable food waste (28% compared with 22%). This age group was also similarly split when it came to scraps left on the plate after a meal with 47% considering this avoidable food waste. This

suggests that the message clarifying the definition of food waste needs to more explicitly target this age group.

Figure 20: Avoidable vs. unavoidable waste (age 18–34)
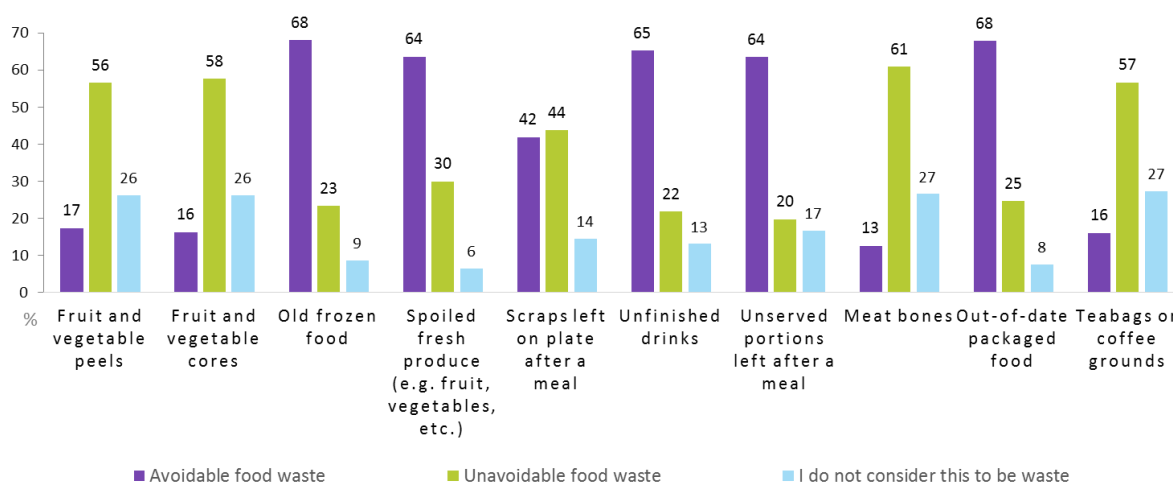
Q18a. If each of the following foods were to be thrown into the garbage bin at home, which would you consider to be waste that could have been avoided, or waste that could not be avoided? **Note:** this question was removed after 2012, and added again in 2017
***Base:** Total sample 2017 (n=1389)*

Further analysis showed that there were some misunderstandings about food waste among certain audiences namely:

- The CALD community also had mixed understandings of what constitutes food waste. Households of Arabic speakers were more likely to consider fruit and vegetable peels as unavoidable waste (63% Arabic speakers compared with an average 56% of NSW households). Arabic speakers were also more likely to see spoiled fresh food as unavoidable waste (45%).

- Italian speakers were also most likely to consider spoiled fresh food unavoidable waste (42%).

- European language-speakers were more likely to consider uneaten scraps after a meal to be unavoidable waste (54%).

What is avoidable as opposed to unavoidable food waste also showed the following variations by demographic types:

- Single households were most likely to say they do not consider out-of-date packaged food to be waste (14% compared with an 8% average).

- Those with a household income of $100,000 or more were most likely to believe unfinished drinks (75%), unserved portions (70%) and out-of-date packaged food (75%) to be 'avoidable food waste'.

- Residents aged 35–54 were most likely to consider unfinished drinks to be avoidable food waste (71%).

What is counted in the food waste estimate?

A question to determine what items respondents included in their estimate of weekly food waste was included in the 2017 survey.

Seventy-two percent had included fruit and vegetable peels, cores, bones, etc. in their estimate, while 66% included spoiled items from their fridge (see Figure 21).

About a third of respondents did not include items like bones, peels, and fruit cores (28%). When asked why they did not include them in their estimate, 40% said they did not consider these items to be food waste, 25% said it was because they could not use or reuse them in any way and 33%

reported putting them into compost or a worm farm, indicating that items that can be composted were not being considered as food waste.

Figure 21: Items included in weekly food waste estimates

What did you include in your estimate of food waste?

Item	%
Fruit and vegetable peels/cores, bones etc	72
Spoiled/expired items from the fridge	66
Leftovers for my pet to consume	26
None of the above	7

Did not include fruit and vegetable peels/cores, bones, etc. (28%)

Reason	%
I wouldn't think of those items as food waste	40
I can't use/re-use them in any way	25
I compost them	24
I can't eat them	23
I put them in a worm farm	9
Other	3

Did not include leftovers for pets (74%)

Reason	%
I don't have pets	55
I wouldn't think of that as food waste	18
I can't use/re-use them in any way	8
I can't eat them	8
Other, please specify	13

Q11b. Which of the following have you included in your estimates of food waste [in Q11a]? *Base: Those who admit to regularly throwing out uneaten food (n=1273)*
Q11ci. Why were things like fruit and vegetable peels, bones, coffee grounds, tea bags, shells, bones, etc. **not** included? *Base: Those who did not include peels, bones, grounds etc. in their estimate: 2017 (n=331)*
Q11cii. Why were leftovers for your pet not included? *Base: Those who did not include leftovers given to pets: 2017 (n=949)*

Other reasons for not including leftovers for pets included:

'Our pet does not eat our leftover food.'

'Our leftovers aren't appropriate pet food.'

'We don't usually have leftovers.'

Further analysis found that 18% had included *only* fruit and vegetable peels, bones etc. in their estimate of food waste volume; 13% had included *only* spoiled items from the fridge and 6% had included *only* leftovers for their pets. Thirty-six percent had included both fruit and vegetable peels and bones, etc. and spoiled items from the fridge and 15% included peels, bones, spoiled items from the fridge and leftovers for their pets.

This question was designed to understand what residents included in their food waste estimate, when they are asked: 'In a normal week, please estimate how much of the following food types your household throws away (including going to the compost, worm farm, tipped down the sink or fed to pets).' The categories provided for estimates include fresh food, packaged and long-life food, and leftovers.

The results suggest that residents' own definitions of food waste impact on what they will include in their estimate; for example, 40% of those who did not include fruit peels and bones did not include it in their estimate because they do not consider it as waste. However, over half did include fruit and vegetable peels and spoiled items from the fridge (i.e. fridge clean-out) so these should be included

as part of volume calculations, with the understanding that different definitions impacted the measurement and estimate overall when interpreting results.

While the proportions of residents who included these items in their estimate were varied, the items listed were included in residents' volume estimates. NSW residents' estimates of food waste could be further understood by looking at how often they checked their fridge for spoiled items.

Figure 22 illustrates the different combinations of food types that were included in residents' estimates with the overlapping circles indicating that a combination of those food types were included.

Figure 16: What was included in your food waste estimate?

18% included peels, bones, etc. only

36% Included peels, bones, and spoiled fridge items

13% included spoiled items from fridge only

15% included peels, cores, bones etc. spoiled items from the fridge and leftovers for pets

6% included leftovers for pets only
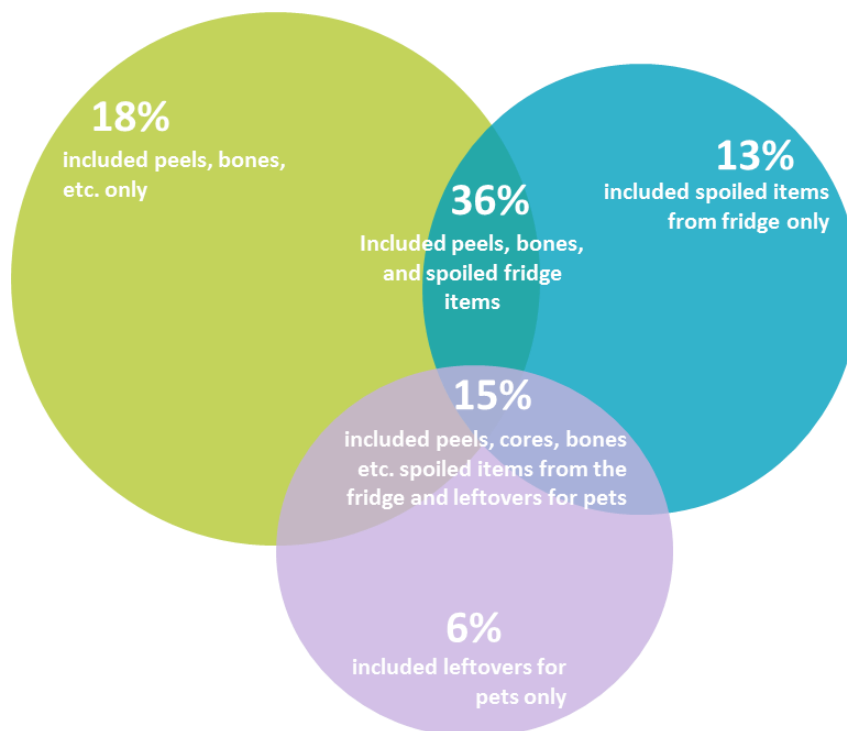
Reasons for household food waste

Main reason for household food waste

From a list of various reasons for food waste, the highest proportion (17%) of residents said that their 'main reason' for food waste was food being left too long in the fridge/freezer, up from 16% in 2015 and in 2009).[3] This was in line with results seen in previous waves (see Figure 23). This reason was followed by household members not finishing their meal, which increased from 12% in 2015 to 15% in 2017. Fifteen percent claimed they did not waste any food in their household.

Detailed analysis of the data showed that:

- NSW residents living in Wollongong were more likely to say their preference for fresh food was the main reason for food waste (18% compared with an average of 5%).
- Residents of Newcastle said family members changing plans was the main reason for food waste (10% compared with an average of 4%).

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[3] 13% of residents claimed to have included 'spoiled items from the fridge' in their self-reported food waste estimate.

- Families with children tended to be more likely to cite that some household members don't always finish their meal (23% compared with an average of 15%) as the main reason food is wasted.
- Households where Hindi was spoken were more likely to say they weren't sure how to store food properly (8% compared with an average of 1%).

Figure 17: Main reason for household waste (1)
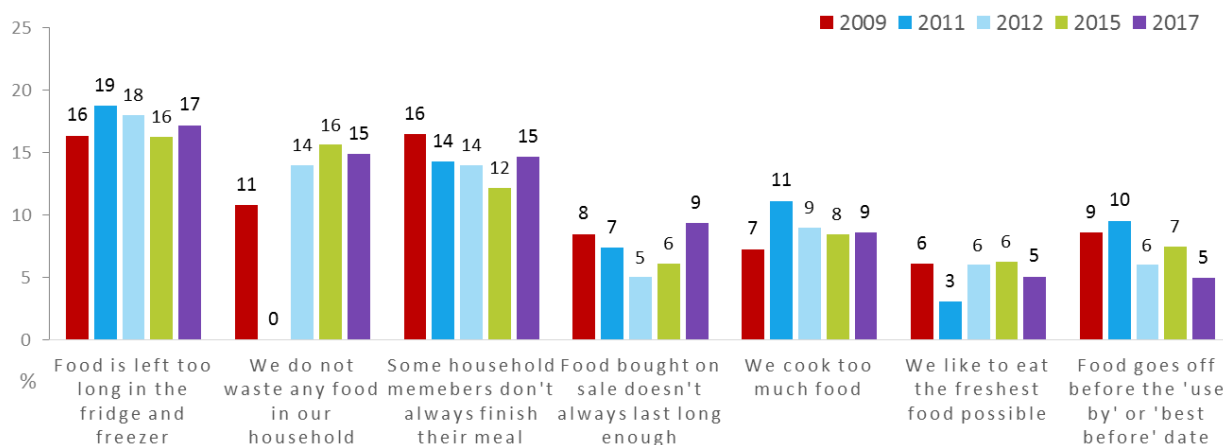
Q12a/13a. Please think about why food gets wasted in your household. Firstly, select **the main reason** that food gets wasted in your household. *Please select one*
Base: *Those who admit to regularly throwing out uneaten food: 2009 (n=1113), 2011 (n=1080), 2012 (n=1197), 2015 (n=1229), 2017 (n=1273)*

Figure 18: Main reason for household waste (2)
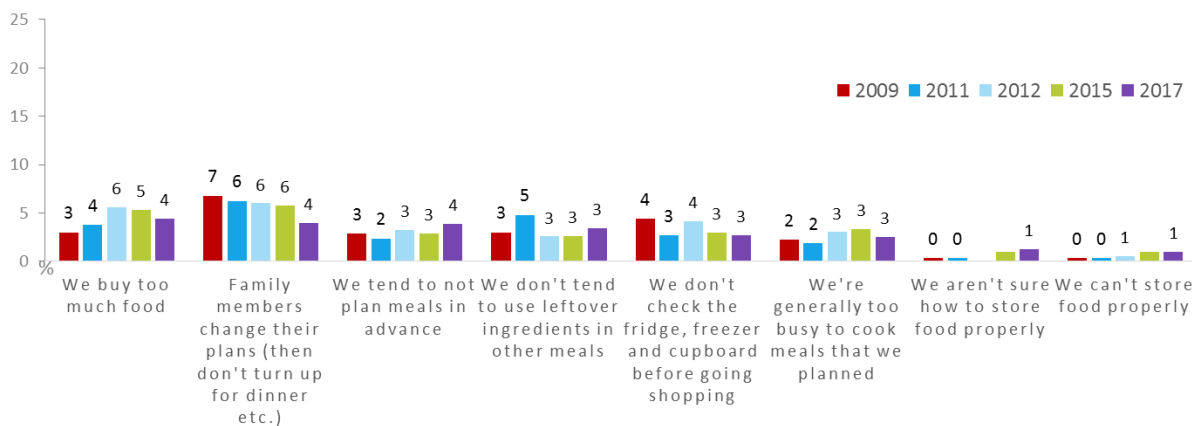
Q12a/13a. Please think about why food gets wasted in your household. Firstly, select **the main reason** that food gets wasted in your household. *Please select one*
Base: *Those who admit to regularly throwing out uneaten food: 2009 (n=1113), 2011 (n=1080), 2012 (n=1197), 2015 (n=1229), 2017 (n=1273).*

Review of all reasons for household food waste

The most common reason for food waste in this survey was food being left in the fridge too long (40%, up from 30% in 2015), followed by household members not finishing their meals (29%, up from 23% in 2015) and food going off before the use-by or best-before date (29%, up from 24% in 2015) – see Figure 25. Increases in these reasons suggest a heightened awareness of why food was being wasted compared with 2015.

Analysis of the data showed that:

- Residents in large country towns were more likely than the average NSW resident to cite food being left too long in the fridge or freezer (55%) as the reason for food waste.

- Households who spoke Vietnamese were more likely to say they weren't sure how to store food properly (16% compared with an average of 4%).
- No other significant differences were found.

Figure 19: All reasons for household waste (1)
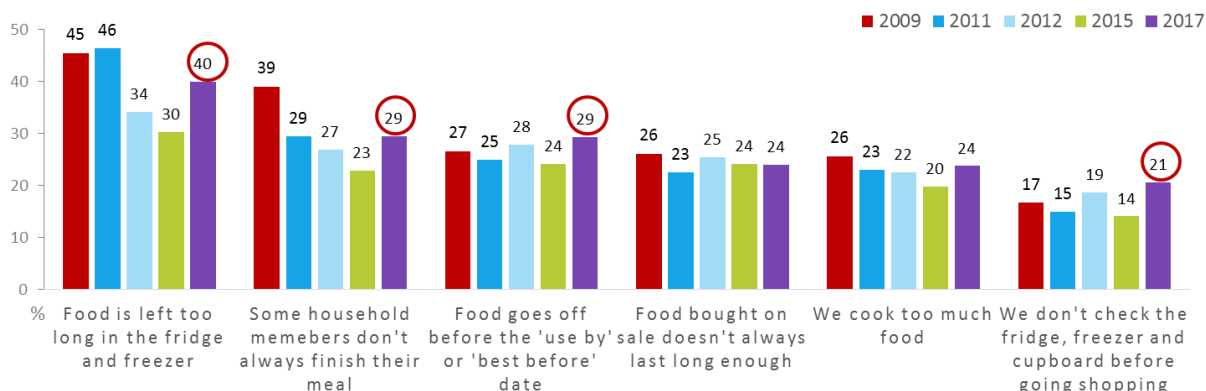
Indicates a statistically significant difference from previous measure

Q12b/13b. Now select all **other reasons** that apply.
Base: *Those who admit to regularly throwing out uneaten food: 2009 (n=1113), 2011 (n=1080), 2012 (n=1197), 2015 (n=1229), 2017 (n=1273)*

Figure 20: All reasons for household waste (2)
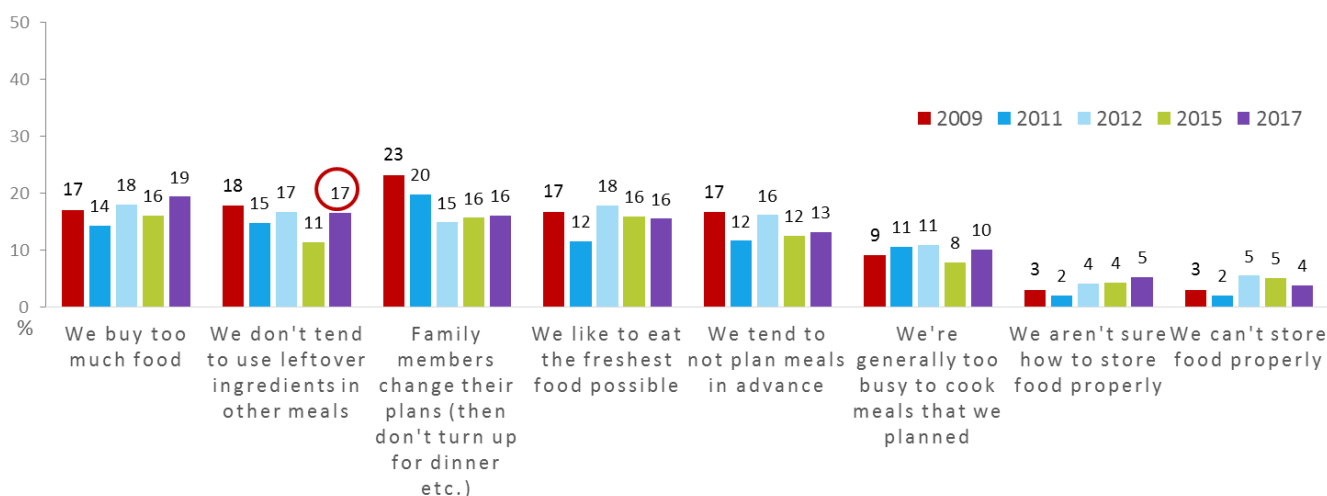
Q12b/13b. Now select all **other reasons** that apply.
Base: *Those who admit to regularly throwing out uneaten food: 2009 (n=1113), 2011 (n=1080), 2012 (n=1197), 2015 (n=1229), 2017 (n=1273)*

Shopping and planning food

Food planning before shopping

The frequency of food planning behaviours that reduce food waste have decreased.

In this survey, only 63% said they 'always' or 'most times' checked what food was already in the house before shopping (down from 71% in 2015 – see Figure 27). Those who said they 'always' performed this action remained steady (29% in 2015 and 30% in 2017), suggesting that it has become a strongly embedded habit.

Figure 21: Food planning behaviour before shopping ('always/most times')
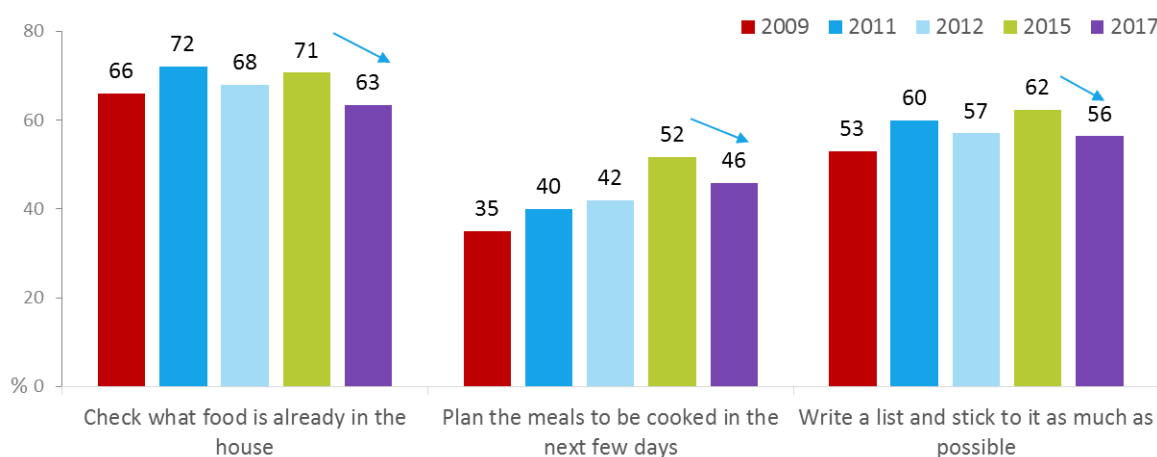
Q13/14. Before you or a member of your household does your main food shopping, how regularly do you or they do the following? (Most/Always)
Base: *Total sample 2012, (n=1300); 2015, (n=1337); 2017 (n=1389)*

While the frequency of checking what is in the house and writing a list have fluctuated since 2009, the proportion of residents who said they planned meals 'always/most times' increased from 35% in 2009 to 52% in 2015, before decreasing to 46% in 2017. In the 2017 survey, those saying they planned meals 'most times' dropped 6% from 36% to 30%, shifting to 'sometimes' and 'never/rarely' (see Figure 28). In light of the gradually rising awareness of the food waste issue shown earlier in the report, this shift to reporting less frequent behaviours could indicate respondents are growing critical of their own food waste avoidance behaviours or that they are simply following these behaviours less frequently than previously recorded.

Figure 22: Frequency of food waste avoidance behaviours in 2015 and 2017
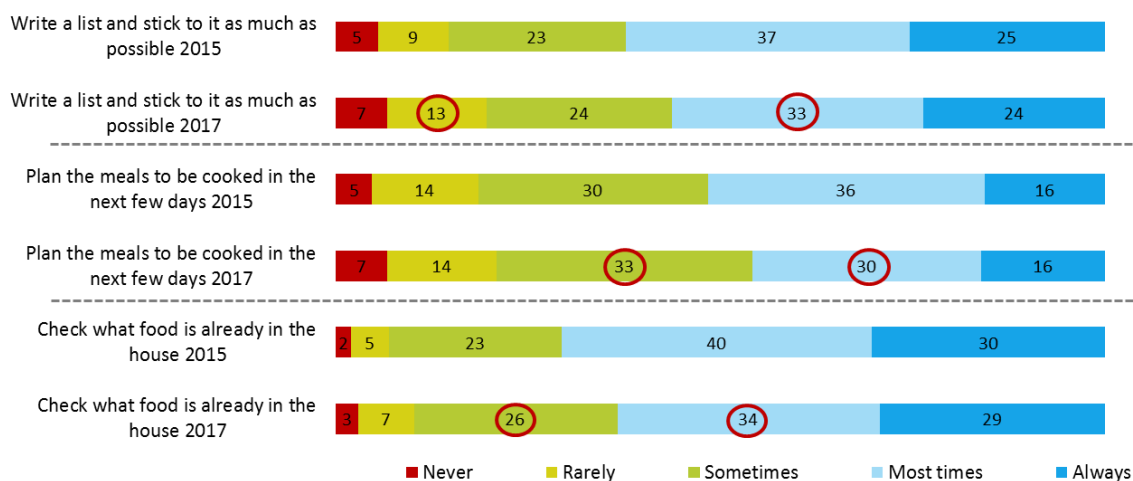
◯ Indicates significantly different from previous wave

Q13/14. Before you or a member of your household does your main food shopping, how regularly do you or they do the following? (Most/Always)
Base: *Total sample 2015, (n=1337); 2017 (n=1389)*

Detailed review of the data showed that:

- Couples were most likely to 'always/ most times' check what is in the house before grocery shopping (72%), along with women (67%), residents of small country towns (79%) and those aged 55+ (74%).

- Families with children were more likely to report checking what is already in the house before shopping 'sometimes' (33% compared with a state average of 26%).

- Women and residents aged 55+ were also more likely to write a list and stick to it 'always/most times' (61% and 69%, respectively, though women decreased from 67% in 2015).

- People in Wollongong and small country towns were more likely to check what food is already in the house (79% for both – see Figure 29) while Newcastle residents were least likely (58%).

- People in large and small country towns (65%, 68%) and country rural areas (64%) were most likely to write a list and stick to it. However, those in country rural areas were least likely to plan meals for the next few days (35% down from 43% in 2015).

Figure 23: Food planning behaviour before shopping by regions
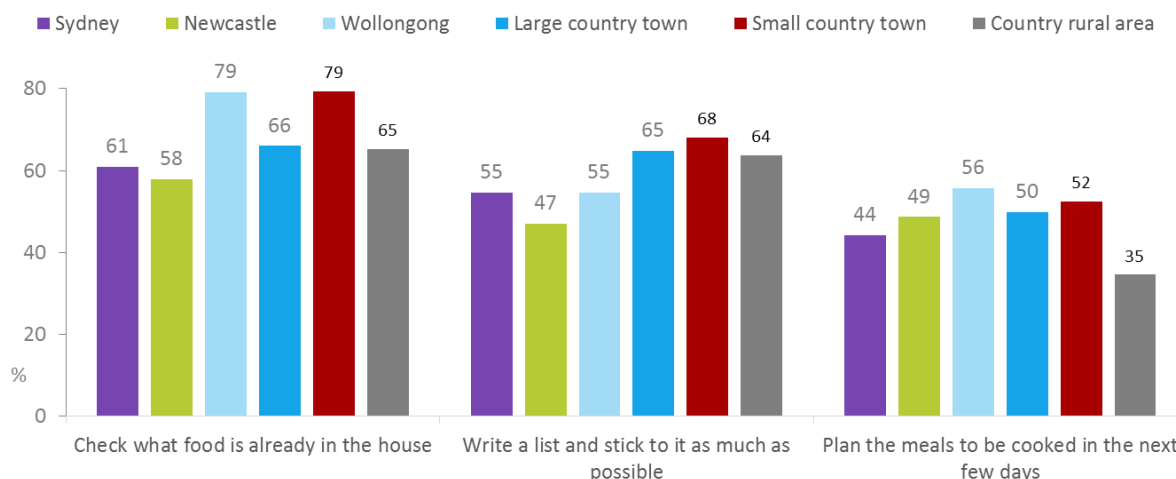
Q13. Before you or a member of your household does your main food shopping, how regularly do you or they do the following? (NETT Most/Always)
Base: Sydney, (n=863); Newcastle, (n=116); Wollongong, (n=58); Large country town, (n=171); Small country town, (n=110); Country rural area, (n=71)

Behaviour while shopping

Compared with the previous survey, the frequency of NSW households shopping to a budget has decreased to 46% from 51% in 2015 (see Figure 30) as has checking use-by or best-before dates before making a purchase (63%, down from 69% in 2015). Fewer households were buying in bulk (20% vs. 23% in 2015). Buying food on special has remained within the statistically insignificant range and is consistent with 2015 results (41%, down from 43%).

The decrease in planning behaviours while shopping coincides with the reduced frequency of meal planning also seen in this survey (see previous section), suggesting residents are adhering less to menus or budgets and being more spontaneous in their shopping. There were no significant decreases in planning behaviours by demographic groups between 2015 and 2017.

The detailed analysis revealed that:

- Families with children were more likely to buy items on sale (49%).

- Women and residents aged 55+ were more likely to claim they checked use-by dates before purchasing food (68% and 76%, respectively).

- There were no significant differences among the CALD respondents or between CALD and average NSW residents.

Figure 30: Behaviour while shopping

2009 **2011** **2012** **2015** **2017**

	Buy food according to a set budget	Buy food based on what is on special (including 2 for 1 deals)	Buy items 'in bulk'	Check the 'use by' or 'best before' dates before purchasing food items
2009	46	42	18	66
2011	44	50	17	71
2012	43	39	18	66
2015	51	43	23	69
2017	46	41	20	63
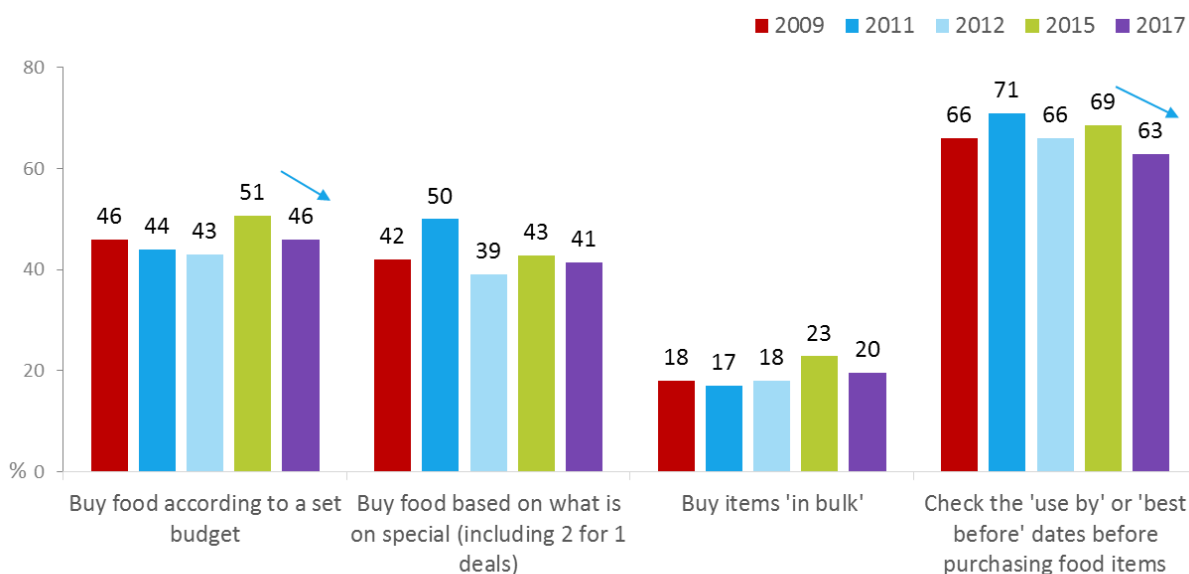
Q14/15. How regularly do you or a member of your household do the following when doing the grocery shopping? (Most/Always)
Base: *Total sample 2012, (n=1300); 2015, (n=1337); 2017 (n=1389)*

Food preparation behaviour

There has also been a decrease in the frequency of NSW residents considering portion size when preparing a main meal (dropping from 56% in 2015 to 48% in 2017 – see Figure 31). The proportion of residents preparing extra for planned meals or 'just in case' both also decreased (from 35% to 31% and 24% to 20%, respectively).

Those who cite the main reason for food waste as 'we cook too much' were also more likely to admit to rarely/never thinking about portion size or only making as much as needed (37% compared with an average of 19% who admitted to this). The results suggest that while respondents were aware of the reason for food waste, they had not managed to change their behaviour by thinking about portion size or linking 'cooking too much' to incorrect portion size. Forty percent of these residents are motivated to reduce waste (31% are neutral), suggesting that engaging them with effective tools and education could help to reduce food waste. Of those who 'cook too much food', 54% would find cook books 'useful' or 'extremely useful' and 65% would find food portion measuring aids 'useful' or 'extremely useful'.

Figure 31: Food preparation behaviour

2009 **2011** **2012** **2015** **2017**

	Consider portion sizes and only make as much as you need	Make extra for a future planned meal (e.g. lunch or dinner the next day)	Make extra just in case it is needed
2009	46	28	20
2011	47	34	14
2012	47	32	17
2015	56	35	24
2017	48	31	20
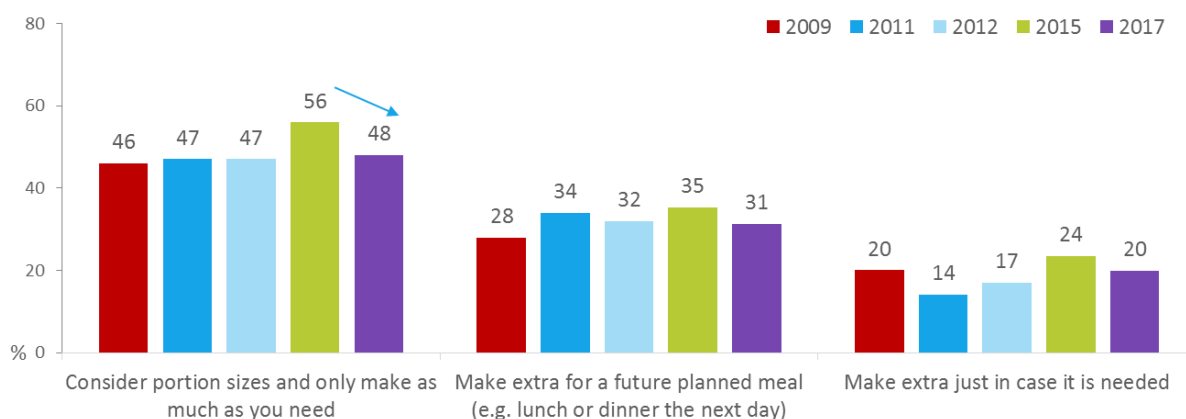
Q15/16. How regularly do you or a member of your household do the following when preparing a main meal? (Most/Always)
Base: *Total sample 2012, (n=1300); 2015, (n=1337); 2017 (n=1389)*

Detailed analysis of the data showed that:

- Residents of small country towns and people aged 55+ were most likely to consider portion size and only make as much as needed (63% and 58%, respectively).
- Residents in share houses were more likely to make extra for a future planned meal (50%), while a family with children was more likely to make extra 'just in case' (26%). While not statistically significant compared to the average, 19% of share house residents nominate 'food being left too long in the fridge or freezer' as the main reason for food waste.
- Residents aged 18–34 were most likely to make extra for planned meals or just in case (37% and 29%, respectively). While not statistically significant compared to the average, 19% of 18–34 year olds nominate 'food being left too long in the fridge or freezer' as the main reason for food waste.
- There was a significant decrease in residents who lived in families with children saying they 'consider portion size and only make as much as needed' from 51% in 2015 to 43% in 2017. No other significant decreases were noted.

Food leftovers behaviour

Saving leftovers in the fridge remained the most common way of storing leftover food from meals (56%, but it was down from 59% in 2015), while fewer stored their leftovers in the freezer (35%, down from 41% in 2015) – see Figure 32.

As seen in the previous section, intentional preparation of extra food had also decreased, accounting for the small fall in those saying they stored leftovers for consumption afterwards.

Figure 24: Food leftovers behaviour
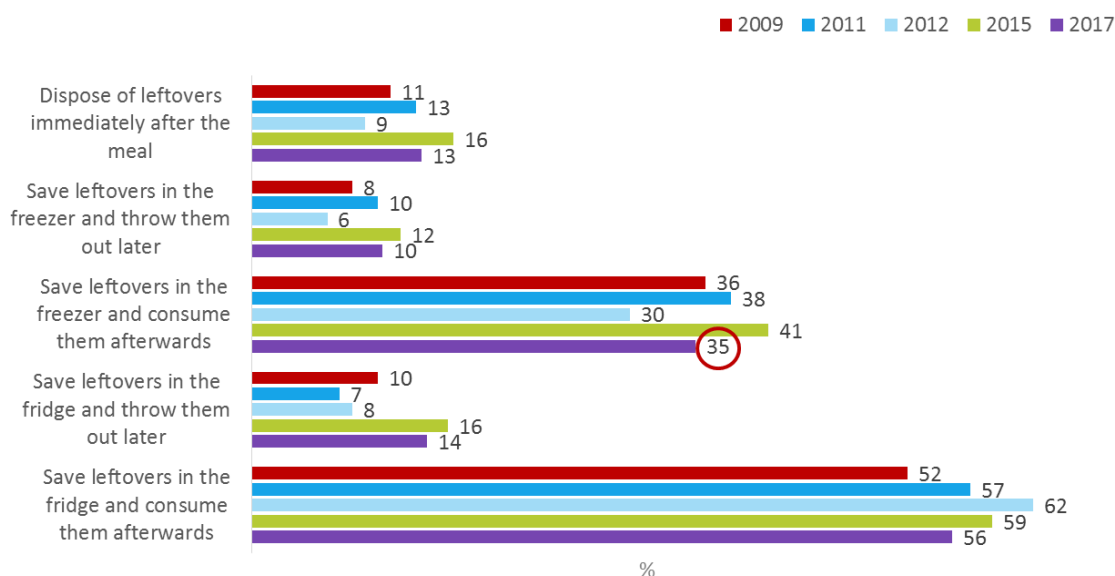
Q16/17a. When you have leftovers, how regularly do you or a member of your household do the following? (Most/Always)
Base: Total sample 2012, (n=1300); 2015, (n=1337) 2017 (n=1389)

Detailed review of the data showed that:

- Women and residents aged 55+ were more likely to say they stored leftovers in the fridge for later consumption (61% for both groups).
- Those aged 18–34 were more likely to admit that they stored leftovers in the fridge or freezer and threw them out later (19% and 15%, respectively). In this survey, 18–34 year olds were more likely to be living in Sydney (70%) and Newcastle (14%), speak Cantonese (9%), Hindi (6%) or Vietnamese (7%) and have an annual income of $60,000–$79,000.

- Residents aged 18–34 were also most likely to admit to disposing of leftovers immediately (18%).

As Figure 33 shows, residents of small country towns were most likely to store leftovers in the fridge and consume later (66%) or to make use of their freezer for storing leftovers (41%). Among small country town residents, 22% said their main reason for food waste was food being left too long in the fridge or freezer and 23% nominated 'some household members not finishing their meals' as a reason for leftovers.

Wollongong residents also make use of their freezer for storing leftovers (41%) with only 8% nominating 'food left too long in the fridge or freezer' as the main reason for food waste, indicating they likely do consume their leftovers.

Residents of country rural areas (7%), small country towns (10%) and Newcastle (11%) were the least likely to throw out leftovers after storing them in the fridge.

Figure 25: Food leftovers behaviour by region
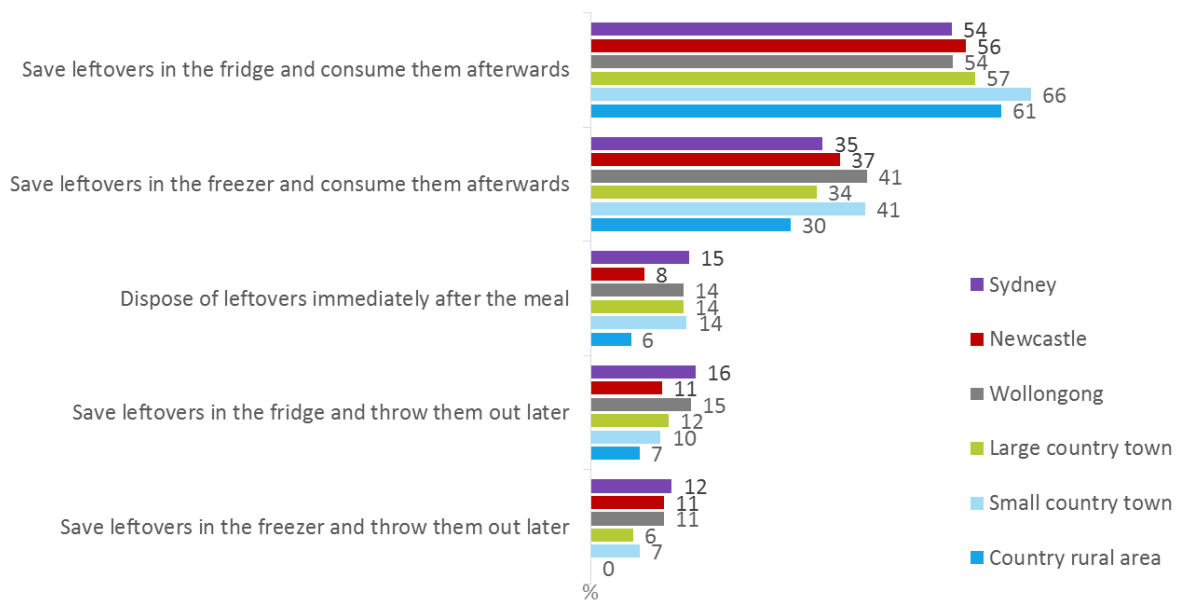
,

Q17. When you have leftovers, how regularly do you or a member of your household do the following? (NETT Most/Always)
Base: Sydney, (n=863); Newcastle, (n=116); Wollongong, (n=58); Large country town, (n=171); Small country town, (n=110); Country rural area, (n=71)

More than half of couples (62%), families of adults (58%), families with children (55%) and people living in share houses (57%) said they saved leftovers in the fridge for later consumption (see Figure 34). A lower proportion of single households reported doing this (45%). Shared households were also more likely to use the freezer to store leftovers for later consumption (43%). About one in five families with children were likely to save leftovers in the fridge, only to throw them out later (19%).

Figure 26: Food leftovers behaviour by household composition
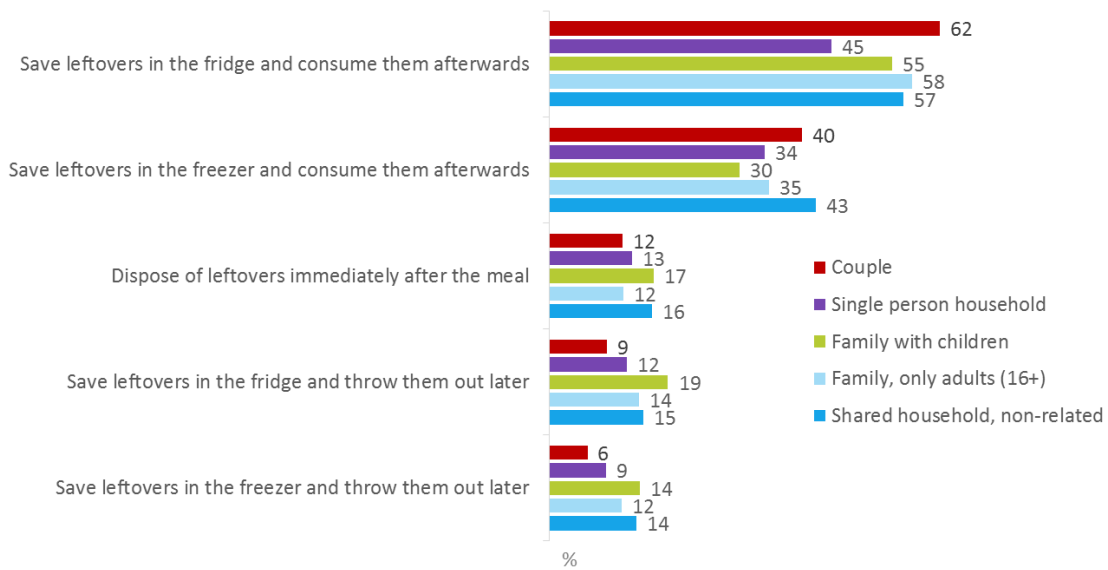
	Couple	Single person household	Family with children	Family, only adults (16+)	Shared household, non-related
Save leftovers in the fridge and consume them afterwards	62	45	55	58	57
Save leftovers in the freezer and consume them afterwards	40	34	30	35	43
Dispose of leftovers immediately after the meal	12	13	17	12	16
Save leftovers in the fridge and throw them out later	9	12	19	14	15
Save leftovers in the freezer and throw them out later	6	9	14	12	14

Q17. When you have leftovers, how regularly do you or a member of your household do the following? (NETT Most/Always)
Base: Single person household, (n=278); Family with children, (n=392); Family, only adults, (n=230); Shared household, non-related, (n=68); Couple, (n=368)

Practising food waste avoidance behaviours

The proportion of NSW households engaging in food waste avoidance behaviours has decreased since the 2015 tracking survey.

Figure 27: Food waste avoidance behaviour actions and awareness of food waste in the media

% following five or more food waste avoidance actions

Total	61
Aware of any food waste media (14%)	70
Not aware of food waste media (86%)	61
Aware of LFHW (n=58)	60
Aware of Great NSW Food Waste Study (n=32)	58
Aware of Food Smart (n=71)	56
Aware of War on Waste (n=179)	66
Aware of Ugly Bunch (n=147)	67
Aware of OzHarvest (n=142)	68
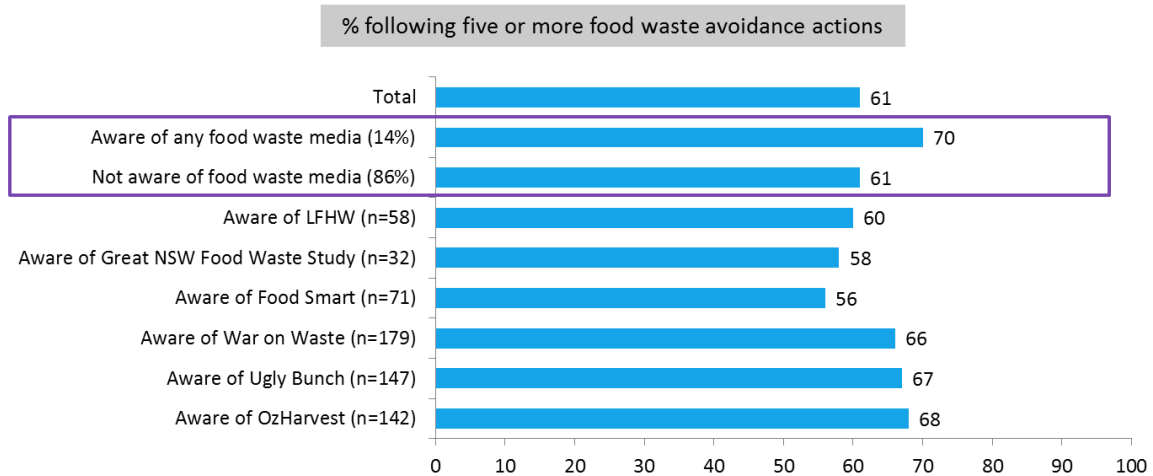
Q20a. Have you seen, read or heard any media, advertising or promotion about the issue of food waste in the past 12 months?
Q20di. Have you seen, read or heard about any of the following in the last 12 months? Please select all that apply
Base: Total sample 2017, n=1389

The detailed analysis showed that:

- The proportion of residents who reported at least one food waste avoidance behaviour remained steady at 96% (97% in 2015).
- The proportion of those reporting five or more food waste avoidance behaviours decreased from 68% in 2015 to 61%, similar to the proportion seen in 2012 (see Figure 35).

- NSW households that reported 10 or more food waste avoidance behaviours decreased from 10% in 2015 to 6%.
- Residents who were aware of food waste in the media were more likely to report more food waste avoidance behaviours. Of those who were aware of food waste in the media (14% of respondents), 70% followed five or more food waste avoidance behaviours, compared with 61% who were not aware of any food waste initiatives or food waste in the media. This suggests that the presence of the issue keeps it front of mind and can act as a call to action or reinforce the behaviours of those already engaged with the issue of food waste.

Further analysis found that:

- Residents who performed no food waste avoidance behaviours (4% of those surveyed) were most likely to say they did not consider any of the following as food waste: old frozen food (27% compared with an average of 9%); spoiled fresh produce (21% vs. an average of 8%); scraps left on the plate (32% against an average 14%); and out-of-date packaged foods (26% vs. an average of 8%).
  - These residents were most likely to live in Newcastle (21%) and be aged 18-34 (57%). There were no other demographic differences.
  - While not statistically significant, the highest proportion of these residents believed they waste 'very little' (34%) and their average estimate for weekly food waste was 7.65 litres (compared with an average 5.46 L).
- Residents who performed fewer than five food waste avoidance behaviours (28% of those surveyed) were most likely to be aware that they wasted 'more' or 'much more' than they should (48% compared with an average of 20%).
  - These residents were also most likely to not plan meals in advance (64% rate 4 or 5 out of 5 where 5 represents poor food waste avoidance behaviours compared with an average of 38% of others who rated the same way).
  - Residents were also most likely to agree or strongly agree that busy lifestyles make it difficult to avoid food waste (47% compared with an average 38%).
  - They were most likely to be aged 18–34 as well (40% compared with an average of 10%).
  - Residents who reported doing fewer than five waste avoidance behaviours estimated a weekly food waste average of 6.15 L.

Attitudes towards the NSW Government role in reducing food waste

The proportion of residents agreeing that the NSW Government has a role to play in assisting NSW residents to reduce their food waste increased significantly from 59% in 2015 to 66% (see Figure 36). This is the highest proportion of the community supporting the NSW Government's intervention since the benchmark study in 2009, when support was 73%.

Detailed analysis of the data showed that:

- 18–34 year olds were most likely to support the government having a role in reducing food waste (79%), along with families with children (74%), share households (84%) and those with an income between $60,000 and $79,000 (74%) and $150,000 or more (75%).
- The CALD audience was also likely to be in favour of the government playing a role in reducing food waste (77%), in particular those who speak Asian languages (82%).

Figure 28: Attitudes towards the NSW Government role
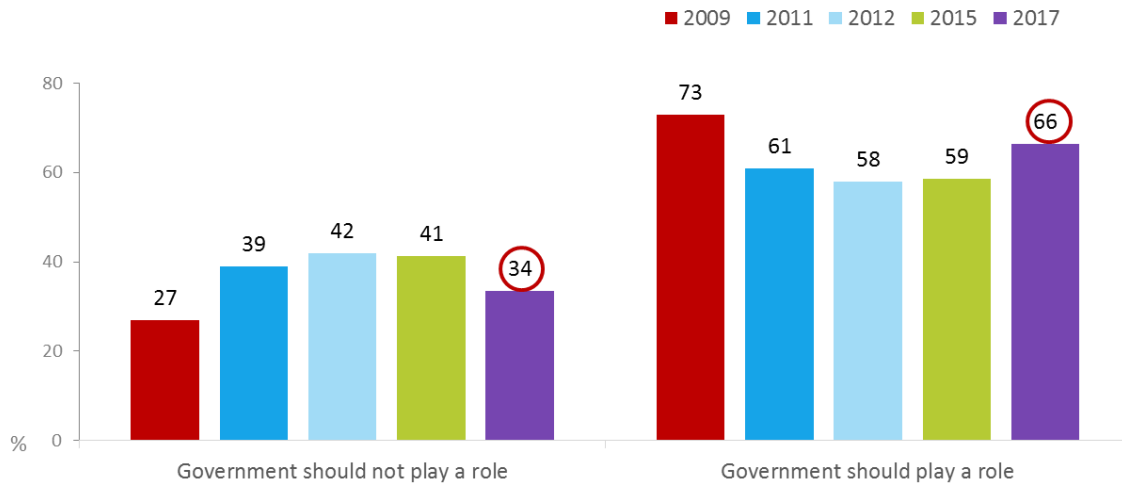
Indicates a statistically significant difference from previous measure

Q17/19. Do you think the NSW Government should have a role in assisting the people of NSW to reduce the amount of food they waste?
Base: *Total sample: 2009 (n=1200), 2011 (n=1200), 2012 (n=1300) 2015 (n=1337), 2017 (n=1389)*

Motivations for reducing food waste

In 2017, a question was added to understand NSW residents' motivations for reducing food waste.

Three-quarters (75%) of respondents agree/strongly agree that reducing food waste is simply 'the right thing to do', followed by 74% who were motivated by saving money (see Figure 37). Sixty-six percent agree that reducing waste was 'easy to do' and 59% were motivated by environmental concerns. For about half (48%), saving time was also a motivation. Almost a fifth (18%) were not very motivated to reduce their food waste – these were more likely to be families with children (23%).

Figure 29: Motivations for reducing food waste
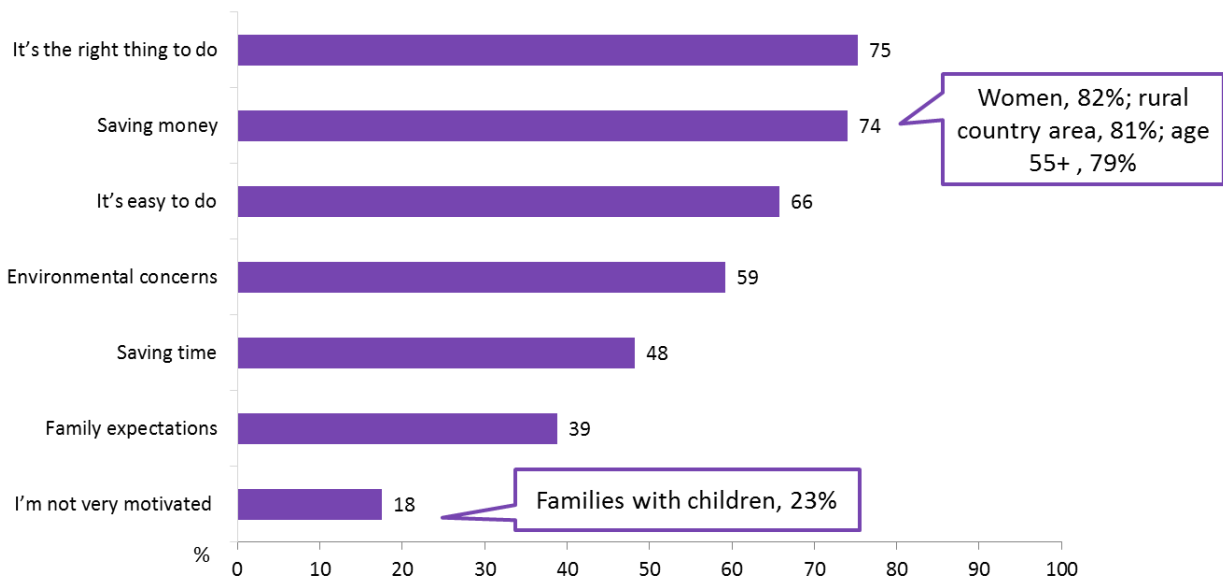
Q18b. Thinking about reducing food waste, how strongly do you agree or disagree that your motivations include the following: (Agree/strongly agree)
Base: *Total 2017, n=1389 *New question in 2017*

36

Detailed analysis of the data showed that:

- Households of couples were more likely to see reducing food waste as easy to do (73%).
- Women (82%), residents of rural country areas (81%) and residents aged 55+ (79%) were the most likely to be motivated by saving money.
- Saving time was a key motivator for female residents (55%) and residents aged 35–54 (56%).
- Women were also more likely to agree that environmental concerns motivated them to reduce food waste (65%).
- Those who were most likely to agree that reducing food waste was 'the right thing to do' included residents of Wollongong (81%), large country towns (81%) and country rural areas (83%) and respondents aged 55+ (83%).

Media awareness of food waste

General awareness of food waste communications

Awareness of media, advertising or promotions related to food waste dropped in 2017 from 17% to 14% (see Figure 38).

Awareness of food waste in the media has fluctuated over the life of this tracking study. This section reports results from new and untracked questions about awareness of food waste issues or initiatives in the media and the influence of seeing or hearing about food waste in the media.

Figure 30: Seen, read or heard anything in the past 12 months?

Awareness of food waste media

17 — 11 — 17 — 14

2011   2012   2015   2017

%
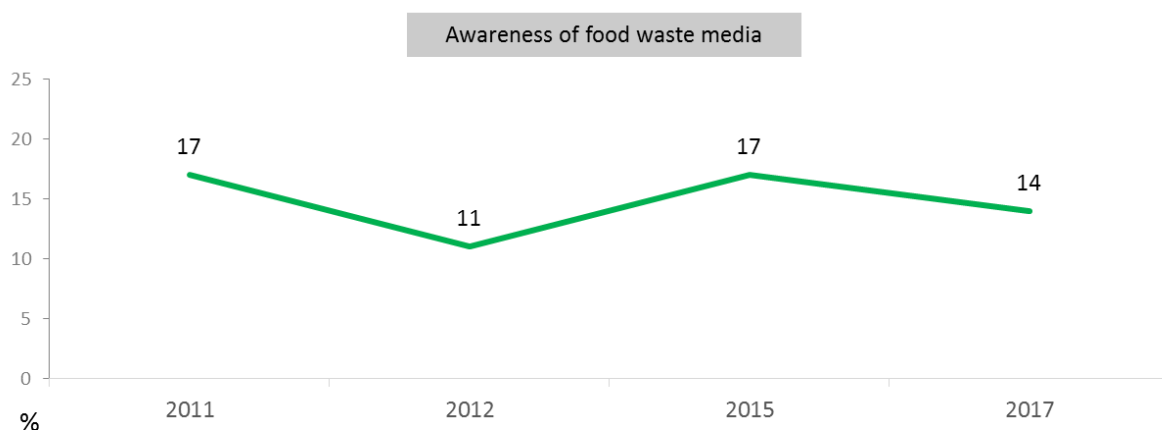
Q18/20a. Have you seen, read or heard any media, advertising or promotion about the issue of food waste in the past 12 months?
Base: Total sample: 2009 (n=1200), 2011 (n=1200), 2012 (n=1300) 2015 (n=1337), 2017 (n=1389)

Key takeaways from food waste in the media

As outlined above, 14% of respondents indicated they had seen, read, or heard something about food waste in the media in the last 12 months. When asked what they remembered about information they came across on food waste in the media, respondents recalled seeing things on TV, television segments on morning programs and panel shows like *The Living Room*. *War on Waste* was also cited frequently.

There was also a general awareness of supermarkets promoting 'imperfect', 'ugly' or 'wacky' fruit and vegetables and of food distribution organisations like Foodbank and OzHarvest.

Figure 31: Remember seeing/hearing/reading about food waste in the past 12 months?

Q20b. What do you remember about what you saw, read, or heard? For example, its name, its main message, a tagline, images, logos etc.
Base: *Those who remember seeing something about food waste in the media in the last 12 months, n=197*

Below is a brief summary of key respondents' comments:

- Facebook posts about the amount of food that goes to the rubbish dump.
- *War on Waste*, ABC program on waste and consumption in Australia and how to reduce impact.
- There was a television program dealing with the amount of food that people waste.
- There has been quite a lot of talk about food wastage. Food in supermarkets that people will not buy because it may be the wrong shape or have a spot on it.
- Story on OzHarvest reusing food destined for waste.
- Food waste is huge.
- Food waste can be avoided.
- Big names like Woolworths, Coles, etc. throw out good food that can be used to give to the homeless or struggling families.
- Half price compost bins from council.

Recognition of images

Environment Protection Authority (EPA) logos were recognised by only low proportions of respondents. The logo with the highest level of recognition was the Love Food Hate Waste (LFHW) squares, with 8% of respondents saying they had seen it in the last 12 months (see Figure 40).

Detailed analysis of the data showed that:

- Those most likely to have seen any of these items were aged 18–34.
- Those aged 18–34 were more likely to have seen the tea towel (12%), video (14%) and bag clips (10%).
- CALD audiences[4] were most likely overall to have seen the video in the last 12 months (12%), particularly Hindi (25%) and Vietnamese speakers (23%).
- The CALD audience was also likely to have seen the tea towel (12%) and, again, these were more likely to be Hindi and Vietnamese speakers (23% and 22%, respectively).

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[4] Further profiling of the CALD audience is provided towards the end of this report.

Figure 40: Seen any logos?

Source of food waste images awareness

Online sources of the images shown in the survey appear to be the most recognised. Approximately one in four respondents were aware of the food waste images via the internet, with 23% also reporting Facebook as a source (see Figure 41). Love Food Hate Waste appeared on a segment on Channel 9 in May 2017 and 24% of respondents recognised an item from television. Almost one-fifth (17%) recognised the item from in-store promotions like recipe cards or check-out screens. Only one in 10 reported local or community newspapers as sources and 17% were unable to remember where they saw the item.

Figure 41: Where were logos seen?

Source	%
Internet	27
Television	24
Facebook	23
Don't know/ can't remember	17
In-store promotion e.g. check out screen or recipe card	17
Magazine	15
Newspaper	13
Community newspaper	11
Festival/event	10
Local council communication e.g. newsletter	10
Other social media (e.g. Twitter, Instagram)	6
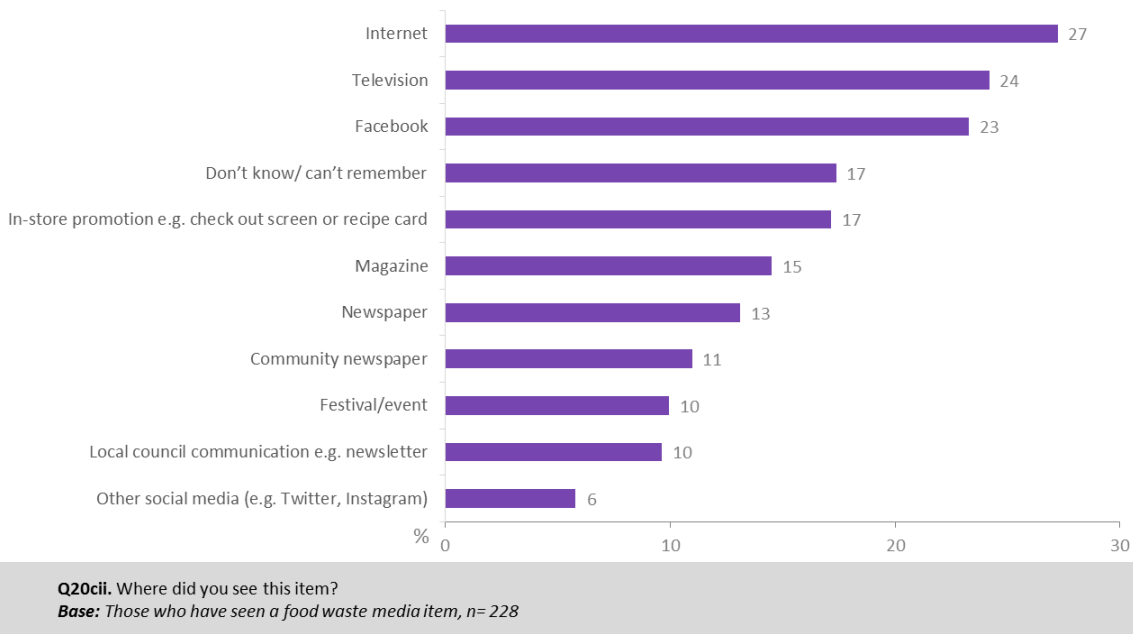
Food waste reduction as a result of taking action

Overall, 52% of those who took some action noticed a reduction in their food waste, with the majority estimating that they reduced their food waste by less than 4 litres and 38% saying their food waste stayed the same (see Figure 42). The average estimate for food waste reduction observed was 0.62 L. More than half of those respondents who saw a reduction estimated they saved less than $12.50 (56%), while 16% believed they managed to save at least $28.

Figure 32: Reduction of weekly food waste

Did you reduce your food waste?

52	38	3	7

■ Yes ■ No, it stayed the same ■ No, it increased ■ Don't know/not sure

Eight or more 4L containers — 0
Five to seven 4L containers — 4
Two to four 4L containers — 24
One 4L container — 24
Less than one 4L container — 46
None at all — 3

21a. Did you reduce your food waste? **Base:** Those who took some action, n= **Q21b.** How much food waste do you think you avoided? Please give your best estimate. Please use a 4 Litre (4L) ice cream container as the way of estimating this total. Only include the amount that would have gone to landfill.
Base: *Those who had reduced their food waste, n=233*

Those who saw a reduction in food waste were most likely to:

- 'Most times/always' buy food according to a set budget (56%); check the use-by or best-before date before purchase (77%); and make extra for a future planned meal (38%) or 'just in case' (26%).
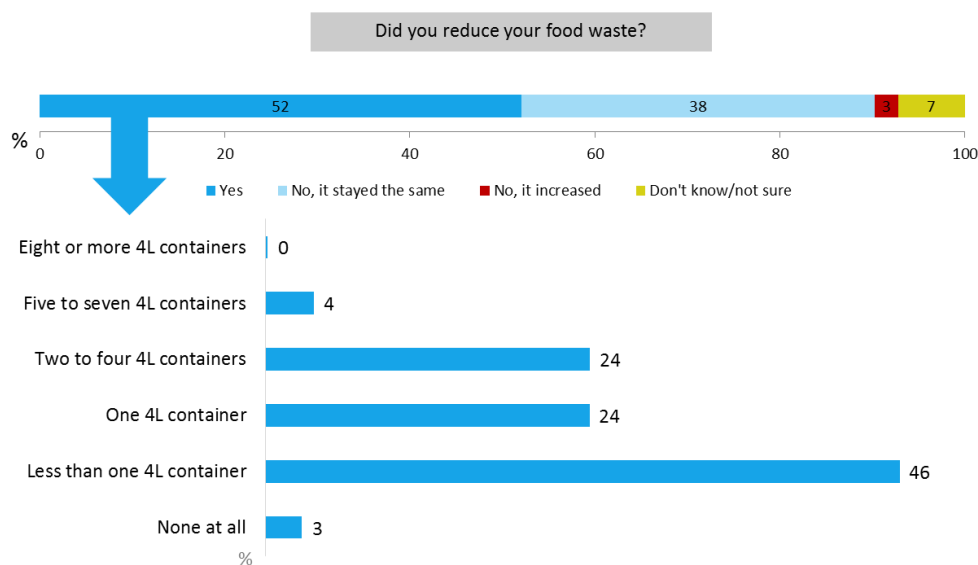
- Their average weekly estimation of food waste was $87.59 compared with an average of $73.19, suggesting they were already aware they wasted food (23% said they wasted more or much more than they should compared with an average 20%).

Higher proportions of respondents saw reductions of food waste when what they saw in the media was connected to some advice on food waste avoidance behaviour, that is, the media provided some information about how they could reduce their food waste (e.g. LFHW 64% and Food Smart 60% – see Table 5). Of respondents who saw initiatives related to awareness of food waste, proportions who saw a reduction in their food waste were slightly lower (e.g. *War on Waste* 53%). While it is important to continue to raise awareness and knowledge about the food waste issue through different initiatives, providing advice on food waste avoidance behaviour can lead to greater reduction in food waste.

Table 5: Estimate of food waste reduction by volume and dollar amount

Took action %	Total	Love Food Hate Waste (n=49)	Great NSW Food Waste Study (n=21)*	Food Smart (n=57)	I Love Leftovers (n=24)*	War on Waste (n=145)
Yes, reduced food waste	52	64	52	60	43	53
How much food waste do you think you avoided?						
<4L container	76	67	52	71	74	72
1 x 4L container	15	24	30	23	14	13
2–4 x 4L containers	7	5	9	2	0	12
5–7 x 4L containers	0	0	0	0	0	0
>8 x 4L containers	1	4	9	4	12	3
Estimated dollar value of the food you avoided wasting?						
<$12.50	56	49	38	58	61	48
$12.50–$27.99	28	22	24	25	13	36
$28.00–$54.99	12	22	20	13	6	10
$55.00–$84.99	3	2	9	0	8	3
$85.00–$114.99	1	4	9	4	12	2
>$115.00	0	0	0	0	0	1
>$115.00	0	2	0	0	0	0

Food Smart

Food Smart was a trial of a food waste avoidance kit provided by the EPA and its partners. The trial involved asking people to measure food waste twice, once before using the kit and once after.

For those aware of Food Smart, it encouraged 38% to think about reducing their food waste and 45% were motivated to do something about it (see Table 6). As a result of being motivated by Food Smart, 29% considered how much food they had to buy and a quarter wrote shopping lists (25%), while 24% used leftovers in other meals.

Table 6: Influence of Food Smart

Food Smart (n=71) 5% awareness	Key channels %				Impact %	
	Television	33	Other print	29	Made me think	38
	Internet	22	Other online	6	Motivated me a bit/a lot	45
	Facebook	15	Other (radio, events, in-store, etc.)	35	Not motivated	9
			Don't know/ can't remember	24		

What happened with those who thought about it, or were motivated? (n=57)		
Action	Actually did this %	Motivated to do this %
Consider how much food I needed to buy	29	18
Write a shopping list	25	20
Use leftovers for other meals	24	27
Cook correct serving sizes	23	18
Plan meals in advance	20	22
Check use by and best before dates in store	20	14
Think about portion size or taking leftovers home when eating out	19	17
Buy less food more regularly	18	17
Visit their website	16	4
Talk to family and/or friends about the issue of food waste	13	9
Read storage instructions on packaging	13	13
Check the temp. of fridge/freezer	10	4
Find out more about the issue of food waste	9	9
Like/ follow on Facebook	8	12
Start compost/worm farm	6	7

What was it about Food Smart that motivated you?

Key respondent comments included:

'It makes me think that there are so many uses for the leftovers rather than throwing it.'

'Got me to start a compost bin.'

'I always try to feed my family with as little waste as possible and Food Smart helped with ideas and discussions.'

'It makes me think that there are so many uses for the leftovers rather than throwing it.'

'Well, the idea that food can harm you when it is not properly stored and checked for bacteria is a wake-up call.'

'Only buy food to consume that week.'

Love Food Hate Waste

Love Food Hate Waste (LFHW) was recognised by 4% of those surveyed. Of those aware, it was seen online by 37%, on television by 26% and on Facebook by 25%. LFHW motivated 54% of those aware to reduce their food waste and 27% thought about how they could reduce their food waste (see Table 7).

The top three actions as a result of seeing LFHW were using leftovers (39%), considering how much they needed to buy (30%) and planning meals in advance (26%).

Table 7: Influence of Love Food Hate Waste

Love Food Hate Waste (n=58) 4% awareness	Key channels %				Impact %	
	Internet	37	Other print	30	Made me think	27
	Television	26	Other online	9	Motivated me a bit/a lot	54
	Facebook	25	Other (radio, events, in-store, etc.)	48	Not motivated	10
			Don't know/ can't remember	12		

What happened with those who thought about it, or were motivated? (n=49)		
Action	**Actually did this %**	**Motivated to do this %**
Use leftovers for other meals	39	30
Consider how much food I needed to buy	30	23
Plan meals in advance	26	20
Talk to family and/or friends about the issue of food waste	25	21
Cook correct serving sizes	25	27
Buy less food more regularly	25	26
Write a shopping list	20	20
Think about portion size or taking leftovers home when eating out	17	22
Check use by and best before dates in store	16	15
Visit their website	14	26
Find out more about the issue of food waste	14	21
Read storage instructions on packaging	12	23
Start compost/worm farm	11	13
Check the temp. of fridge/freezer	9	11
Like/ follow on Facebook	8	3

What was it about Love Food Hate Waste that motivated you?

Key respondent comments included:

'Don't throw your food away, help pair them up with other lonely foods for a perfect match in simple, tasty meals.'

'Not to waste any food, plan meals ahead, bring home the leftovers from takeaway, buy only what is needed.'

'It really shows how much money is being wasted by throwing away perfectly good food.'

'I have always tried to waste as little food as possible so I find it interesting that it is now a topic of national conversation ... The name sends that message to think about it.'

I Love Leftovers

Only 3% of NSW residents surveyed were aware of I Love Leftovers via print media (63%), online (45%) and Facebook (29%). Table 8 shows the initiative resulted in residents using their leftovers for other meals (50%), planning meals (40%) and checking use-by dates in store (36%).

Table 8: Influence of I Love Leftovers

I Love Leftovers (n=34) 3% awareness	Key channels %				Impact %	
	Internet	45	Other print	63	Made me think	17
	Facebook	29	Other online	10	Motivated me a bit/a lot	43
	Festival/event	28	Other (radio, events, in-store, etc.)	53	Not motivated	32
			Don't know/ can't remember	8		

What happened with those who thought about it, or were motivated? (n=24)*		
Action	**Actually did this %**	**Motivated to do this %**
Use leftovers for other meals	50	29
Plan meals in advance	40	17
Check use by and best before dates in store	36	17
Cook correct serving sizes	32	14
Think about portion size or taking leftovers home when eating out	26	17
Buy less food more regularly	25	13
Start compost/worm farm	21	10
Visit their website	18	3
Talk to family and/or friends about the issue of food waste	18	14
Write a shopping list	18	17
Consider how much food I needed to buy	18	14
Find out more about the issue of food waste	14	0
Read storage instructions on packaging	11	8
Check the temp. of fridge/freezer	11	12
Like/ follow on Facebook	11	3

What was it about I Love Leftovers that motivated you?

Key respondent comments included:

'The variety of ways to use foods in every day recipes, e.g. using lettuce in stir fry.'

'We can always do something with the leftovers to change a bit to be more attractive.'

'It motivated me to check the food that I buy for the use-by date. Put leftovers in the freezer 'til I am out of something to eat.'

'I already do not waste food, but it was very good to see campaigns which encourage people to use leftovers so that they don't waste so much food.'

'Made me think about how much goes to waste when we don't finish our meals.'

Great NSW Food Waste Study

The Great NSW Food Waste Study was a study run by the EPA that asked NSW residents to measure their food waste. It was seen in a variety of print media by 55% of those who were aware of the study. While 43% saw something about it online, 37% recalled seeing it on television and 29% saw something about it on Facebook.

Of those who were aware of the study, 73% said it made them think about or were motivated to reduce their food waste (see Table 9). The study influenced meal preparation and shopping behaviours, with the most performed actions being cooking correct serving sizes (53%), writing a shopping list (52%) and considering how much food they needed to buy (46%).

Table 9: Influence of the Great NSW Food Waste Study

The Great NSW Food Waste Study (n=58) 3% awareness	Key channels %				Impact %	
	Television	37	Other print	55	Made me think	22
	Facebook	29	Other online	43	Motivated me a bit/a lot	51
	Festival/Event	28	Other (radio, events, in-store, etc.)	63	Not motivated	18
			Don't know/ can't remember	9		

What happened with those who thought about it, or were motivated? (n=25)*		
Action	**Actually did this %**	**Motivated to do this %**
Cook correct serving sizes	53	32
Write a shopping list	52	31
Consider how much food I needed to buy	46	25
Plan meals in advance	41	42
Buy less food more regularly	38	22
Find out more about the issue of food waste	37	21
Read storage instructions on packaging	34	27
Use leftovers for other meals	32	20
Check the temp. of fridge/freezer	32	30
Check use by and best before dates in store	31	35
Think about portion size or taking leftovers home when eating out	28	15
Talk to family and/or friends about the issue of food waste	24	33
Start compost/worm farm	24	20
Visit their website	20	21
Like/ follow on Facebook	14	10

What was it about the Great NSW Food Waste Study that motivated you?

Key respondent comments included:

'It made me happy to know about the campaign, especially as so many people in our own affluent society actually go hungry.'

*'It is friendlier to the environment to consume only what we really need.'*

'Throwing away avoidable waste meant throwing away some of my money as well.'

'I want to save money and help the environment.'

Potential food waste avoidance resources

Survey respondents considered the following as the three most useful resources for reducing food waste at home: aids for storage (62% useful/very useful), meal planning (59%) and shopping lists (57%) – see Figure 43. While 10–11% considered online content like social media, websites and recipes sites to be extremely useful, a further 15% of NSW residents surveyed believed school activities would be extremely useful, potentially embedding good food waste avoidance habits at a young age.

Figure 43: Usefulness of resources
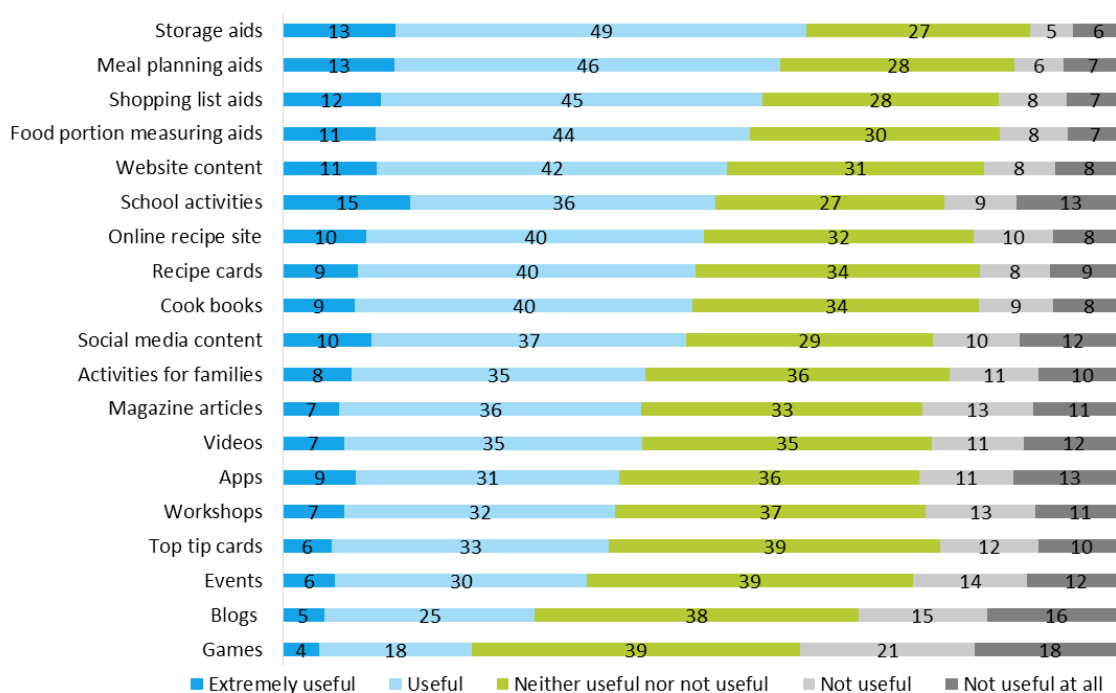
Q23. How useful or not useful do you think the following would be to help you reduce food waste at home?
Base: Total sample 2017 (n=1389)

Detailed analysis showed that:

- Women were more likely to consider recipe cards and cookbooks to be useful for reducing food waste (53% for both resources), while men were more likely to be neutral (39% and 38%, respectively).

- Residents aged 18–34 were more likely to consider videos (52%), apps (48%) and blogs (37%) to be useful resources for reducing food waste.

- Families with children were more likely to consider workshops (47%), events (44%), games (29%), activities for families (54%), school activities (64%), social media content (57%) and apps (48%) to be useful resources for reducing food waste.

4. Relationship between awareness, behaviour and estimates of food waste

Segmentation analysis of the 2015 tracking study results and the findings of the Great NSW Food Waste Study confirmed that high awareness of food waste results in higher estimates of food waste. This same analysis was applied to the 2017 tracking results which showed that measures of respondents' awareness could be split into the four segments profiled in Figure 44.

Figure 33: Segment profiles

LOVE FOOD hate waste	Food wasters (40%)	Sensitive to food waste (6%)	Low perceived food waste (32%)	No perceived food waste (22%)
Shopping	Mostly unplanned	Make an effort to plan	Unplanned - by choice	Will usually shop to a list
Concerns about environment	Prioritise quality of life	Prioritise quality of life	Prioritise quality of life	Prioritise maintaining ecosystems
Attitude to food waste	Too busy to do much about avoiding food waste	Concerned about the food waste issue	Do not consider food waste to be particularly relevant to them	Believe they are already avoiding food waste well
Demographic skews	Age 18-34; families with children	University-educated	Age 55+; retired; single household or couple; lower income	Age 55+; retired; single household or couple
Food opportunity	Need additional motivating factors such as saving time and/or money	Attuned to the problem of food waste and would be receptive of education and tools	Likely to believe they're doing what they can, could be encouraged further through reinforcement	Likely to believe they're already doing what they can, could be receptive to innovative or new ideas

Who are the segments?

The segments and relationship between awareness and estimates were confirmed by the Great NSW Food Waste Study and the most current data from the 2017 tracking was used to profile the segments because of the bigger sample size. The questions used from the tracking were: Q4. 'How much uneaten food would you say that your household usually throws away?' and self-ratings for Q8. 'When shopping for food, I think carefully about how much I will use.' Using these measures of awareness, the respondents were clearly split into the following four groups or segments:

- 'Food wasters' (40%): aware they waste 'more' or 'much more' than they should or 'a reasonable amount' and aware they do not shop carefully ('I rarely think about how much I will use').
- 'Sensitive to food waste' (6%): aware they waste 'more' or 'much more' than they should or 'a reasonable amount' and say they 'think carefully about how much I will use when shopping'.
- 'Low perceived food waste' (32%): aware they waste 'very little' or 'none' and know they do not shop carefully.
- 'No perceived food waste' (22%): aware they waste 'very little' or 'none' and say they 'think carefully about how much I will use when shopping'.

Based on these results, LFHW programs and communications would have the most positive impact on two of the segments: the 'Food wasters' and 'Sensitive to food waste' segments, as these two groups are aware that they waste 'more/much more' than they should or 'a reasonable amount'.

Potential strategic approaches by segment

Table 10 outlines potential strategic approaches to targeting these segments.

Table 10: Possible strategic approaches

Priority segment	Strategic implications
1. 'Food wasters' (40%)	• **Motivation:** both intrinsic and extrinsic; e.g. this segment reported the highest dollar value of self-reported food ($5739) and 67% agree or strongly agree saving money is a motivation to reduce food waste; 68% agree or strongly agree reducing food waste is 'the right thing to do' • **Facilitation:** 53% agree/strongly agree that busy lifestyles make it hard to avoid food waste; encouraging simple strategies to start avoiding food waste is a first step
2. 'Sensitive to food waste' (6%)	• **Reinforcement:** providing more information about the food waste issue, reinforcing desired food waste avoidance behaviours • **New ideas:** while this group already shops carefully, they were most likely to say they their reason for food waste was not knowing how to store food properly
3. 'Low perceived food waste' (32%)	• **Reinforcement:** providing more information about the food waste issue, reinforcing desired food waste avoidance behaviours • **New ideas:** 39% 'sometimes' plan meals for the next few days; further resources or education could help increase this behaviour • **Challenge:** This groups is most likely to be 'neutral' about reducing food waste being the 'right thing to do'; providing education and information relevant to them (e.g. saving money, as this group skews to low household income) may encourage them to continue to avoid or reduce their food waste
4. 'No perceived food waste' (22%)	• **Challenge:** this group already believes they do not waste food; however, further communication or education can challenge them to further reduce their household food waste

Further analysis of the two key strategic target audiences found that:

Those in the 'Food wasters' segment were more likely than average to –

- believe that use-by and best-before labels both mean that food must be eaten or thrown away by this date, suggesting a need for clearer education about food labels
- believe that leftovers kept in the fridge for more than one day are unsafe to eat, suggesting a need for more education about leftovers storage and food safety
- say their main reason for food waste was 'we cook too much' or 'too busy to cook planned meals'
- agree that busy lifestyles make it difficult to reduce food waste

- 'sometimes' or 'rarely/never' –
  - write a list and stick to it
  - plan meals for the next few days
  - consider portion size and only make what is needed
- 'sometimes' or 'always' –
  - save leftovers in the fridge/freezer and throw them out later
  - dispose of leftovers immediately
- believe 'unavoidable food waste' to be old frozen food, unserved portions, unfinished drinks or out-of-date packaged food
- agree that the NSW Government has a role to play in helping residents reduce food waste.

Those in the 'Sensitive to food waste' segment were more likely than average to –

- plan meals in advance and shop to a strict list
- say their main reasons for food waste is 'we don't know how to store food properly' and would find workshops or apps useful resources for reducing food waste
- disagree that Australians don't waste much food
- 'sometimes' or 'always'
  - buy food according to a budget
  - make extra for a planned meal or 'just in case'
  - save leftovers in the fridge and throw them out later or dispose of leftovers immediately
- agree that the NSW Government should play a role in helping residents reduce food waste.

Further analysis of the other segments found:

- Those in the 'Low perceived food waste' segment were more likely than average to 'rarely' or 'never' throw out leftovers immediately after a meal (66%) and to be 'neutral' about the statement that reducing food waste is 'the right thing to do' (25%) and most likely to only 'sometimes' plan meals for the next few days (39%).
- Those in the 'No perceived food waste' segment were more likely than average to live in a single person household (27%) or as a couple (31%); be concerned about the environment 'a great deal' or a 'fair amount' (75%); disagree that busy lifestyles make it hard to avoid wasting food (53%); write a list and stick to it 'always' or 'most times' (79%); plan meals a few days ahead 'always' or 'most times' (71%); 'strongly agree' or 'agree' that motivation for avoiding food waste is to save time (58%) and save money (85%).

The same analysis applied to the tracking in 2012 and 2015 found the relationship between awareness and estimates to be consistent across surveys (see Figure 45). It also showed that those who were aware they waste more food than they should and are aware they are not shopping for food carefully has grown from 22% in 2012 to 40% in 2017. This indicates while the food waste message is cutting through for them to acknowledge it is more than they should be wasting, there is a need for effective tools and education for reducing food waste to continue.

Love Food Hate Waste Tracking Survey 2017

Figure 34: Segments from 2012–2015

LFHW Food Waste tracking

Q4 Throw out more food than they should

—   **—**

+ | **Sensitive to food waste**
2012: 9%; $3603; 7.3L
2015: 10%; $5690;7.73L
2017: 6%; $3822; 5.75L

Food wasters
2012: 22%; $5287; 7.74L
2015: 32%; $5955; 8.2L
2017: 40%; $5739; 7.33L | **—**

Q8 Shop carefully ←————————————————————→ **Q8 Don't shop carefully**

+ | **No perceived food waste**
2012: 43%; $2236; 3.89L
2015: 27%; $1908; 3.93L
2017: 22%; $1920; 3.45L

Low perceived food waste
2012: 27%; $3050; 4.68L
2015: 31%; $3064; 4.78L
2017: 32%; $2720; 4.51L | **—**

+   **Q4 Don't throw out food**   **+**

5. CALD community differences

In general, those speaking a language other than English tended to live in metropolitan areas of Sydney, fall into the age bracket of 18–34, were university-educated and had a family with children.

They believed food was the largest type of waste in the average NSW household bin and were most likely to be concerned about the health effects of pollution. They were also more likely than the average to only 'sometimes' have checked what food was already in the house before going shopping and were more likely to consider old frozen food and unfinished drinks to be 'unavoidable' food waste. More CALD respondents also feel that the NSW Government should play a role in assisting people to reduce the amount of food they waste.

Those speaking an Asian language also tended to live in Sydney, fall into the age bracket of 18–34 years, were educated with a degree (or higher) and were Vietnamese, Filipino, Chinese or Korean. Asian-language respondents were more likely to be 'neutral' about their motivation to reduce food waste. While not statistically significant (compared with the 2015 results), Asian-language respondents were more likely (11% vs. 5% of all respondents) to report not knowing how to store food correctly as a reason for food waste and less likely to always/most of the time write a shopping list (40% vs. 56% of all respondents).

There were no significant differences in demographic or food waste-related behaviours among those speaking European languages in the 2017 tracking research.

The following is an overview of key skews among CALD audiences.

Asian languages

This audience analysis included households with Mandarin, Cantonese, Vietnamese, Tagalog and Korean speakers only. They were more likely than average to …

Demographics

- Live in Sydney (89% compared with the average of 64%)
- Be aged 18–24 (25% cf. 10%)
- Describe their household composition as family with children (41% cf. 28%)
- Have completed a diploma, degree or higher degree (64% cf. 42%)

Attitudes

- Disagree that most cooked food items can be stored for up to three months in the freezer without compromising the quality (19% cf. 14%)
- Agree that the NSW Government should have a role in assisting the people of NSW to reduce the amount of food they waste (82% cf. 66%)
- In terms of reducing food waste at home, find blogs useful (43% cf. 30%)

Behaviours

- Only sometimes check what food is already in the house before going shopping (41% cf. 26%)

European languages

This audience analysis included households with Italian, Greek, Macedonian and Spanish speakers only. They were more likely than average to …

Attitudes

- Estimate that the average NSW household wastes $3000–$3499 on unused food annually (11% cf. 4%)
- Understand the best-before date to mean that food must be eaten or thrown away by this date (35% cf. 20%). While not statistically significant, European language respondents were also more likely to understand that same definition for use-by date (67% vs. 61% of all respondents).

6. Key target groups – household compositions

The following is a summary of major skews among key target audiences.

18–34 year olds

Concern about environmental problems

- 18–34 year olds are more likely on average to be concerned about the health effects of pollution (18% compared with the average of 9%).

Areas of household waste

- 32% of 18–34 year olds believe they waste more or much more uneaten food than they should (an increase from 19% in 2015) and that food is the largest type of waste in NSW household bins (41%).

Knowledge of food labels

- 25% of 18–34 year olds believe that 'best before' means food must be eaten or thrown away by this date.

General attitudes to storing and using food

- Nearly half (48%) of 18–34 year olds agree that 'busy lifestyles make it hard to avoid wasting food' and a quarter (24%) agree that 'leftovers that have been kept in the fridge for more than one day are unsafe to eat'.

Value and quantity of food wasted

- Volume of waste estimated by 18–34 year olds in three categories was higher than that of the average NSW resident: 2.37 litres of fresh food, 1.76 L of packaged food and 2.43 L of leftovers.
- Estimated dollar value of food waste was higher than the average in a number of categories: $23.31 of fresh food; $16.25 of packaged/long-life food; $14.87 of frozen food; $20.21 of home-delivered food; and $20.04 of leftovers.

Shopping behaviours

- 15% of 18–34 year olds rarely or never check what food is already in the house before going food shopping, though 35% will sometimes do this. 35% will also sometimes write a list and stick to it.

Cooking and leftovers behaviours

- 37% of 18–34 year olds tend to always/most times make extra for planned future meals and 29% will always/most times make extra just in case.

Attitudes to waste

- One-quarter (25%) of 18–34 year olds consider fruit and vegetable peels to be avoidable food waste, along with 21% who think the same for tea bags/coffee grounds and 22% for fruit and vegetable cores. Almost a third of this age group (28%) consider unfinished drinks to be unavoidable food waste and 31% consider out-of-date packaged food to be unavoidable.

- Almost four in five (79%) 18–34 year olds agree that the NSW Government should have a role in assisting NSW residents to reduce food waste.

Awareness of food waste in the media

- 18–34 year olds were more likely to have seen the I Love Leftovers video (14%) or the tea towel (12%).
- They are also more likely to have participated in the Great NSW Food Waste Study (10%) or Food Smart (12%).
- 52% of 18–34 year olds consider videos to be useful in helping reduce food waste at home. Games were considered a useful resource for 30% of residents in this age group, school activities for 58%, apps for 48% and blogs for 37%.

Families with children

Concern about environmental problems

- Families with children were more likely than average to be concerned for future generations (31%) when it came to the environment.

Areas of household waste

- 28% of families with children believe they waste more or much more uneaten food than they should and that food is the largest type of waste in NSW household bins (41%).

Knowledge of food labels

- 69% of residents who live in families with children were more likely to define 'use by' to mean 'food must be eaten or thrown away by this date'.

General attitudes to food waste

- Nearly half (44%) of families with children agree that 'busy lifestyles make it hard to avoid wasting food' and almost a quarter (23%) agree that 'leftovers that have been kept in the fridge for more than one day are unsafe to eat'.

Value and quantity of food wasted

- Estimates of food waste volumes by families with children was higher than that of the average respondent at 6.28 litres per week (compared with an average of 5.46 L).

Shopping behaviours

- Shopping for food on special was more commonly done by families with children than the average respondent (49% compared with an average 41%).

Cooking and leftovers behaviours

- Families with children more commonly tend to make extra just in case (26%) and save leftovers in the fridge and then dispose of later (19%).
- Household members not finishing their meal was the most common reason for food waste among families with children (23%).

Attitudes to waste

- Almost a quarter (23%) of families with children agree that they are not very motivated to reduce food waste.

- Almost three in four (74%) families with children agree that the NSW Government should have a role in assisting NSW residents to reduce food waste.

Resources for reducing food waste

- 47% of families with children consider food waste reduction/avoidance workshops to be useful in reducing food waste. Events were also considered useful to help reduce food waste for this audience (44%), along with games (29%), activities for families (54%), school activities (64%), social media content (57%) and apps (48%).

Share households

Knowledge of food labels

- Residents of share households surveyed are more likely to believe that 'use by' means 'food must be sold at a discount after this date' (12%).

Value and quantity of food wasted

- Two in three (69%) share households were more likely to not include bones, peels, etc. in their food waste estimates as they are not considered waste.

Cooking and leftovers behaviours

- Being too busy to cook planned meals was more commonly a reason for wasting food in share households compared with other households with 9% reporting this.
- Half (50%) of share households tend to always/most times make extra for a planned future meal.

Attitudes to waste

- 84% of share households agree that the NSW Government should have a role in assisting NSW residents to reduce food waste.

Awareness of food waste in the media

- Residents of share households were more likely to have seen or heard about ThinkEatSave (9%).

Annual income above $100,000

- Those earning $100,000 to $150,000 or more were most likely to live in Sydney (74% compared with the 64% average) and be aged 35–44 (28%) or 45–54 (19%).
- Those earning $100,000+ were most likely to be living in families with children (42% compared with a 28% average) and be university-educated (58% compared with a 42% average).

Attitudes to food waste

- Those earning $100,000 to $150,000 or more believe they waste 'more' or 'much more' than they should (27% compared with 20% on average); disagree/strongly disagree that Australians don't waste much food (73% vs. 66% average); and agree/strongly agree that the energy, water and nutrients that are used to grow, process and transport food are 'lost' if food is purchased but not eaten (68% compared to an average 59%).
- Three in four (73%) of those with an income of $100,000+ disagreed that Australians don't waste much food.

- 8% say their main reason for food waste is 'we buy too much food' (compared to an average of 4%).
- Respondents with incomes above $150,000 throw away more fresh food (2.66 litres) and leftovers (2.28 L) than the average NSW respondent (vs. 2.18 and 1.90 L, respectively).
- Nearly three in 10 (28%) of those with an income of $150,000+ spend more than $200 per week on groceries and two in five (39%) rarely/never buy food according to a set budget.

7. Demographic differences

Location

- Large country town residents tended to agree (73%) that most cooked food can be stored in the freezer for up to three months and disagree that leftovers kept in the fridge for more than one day are unsafe (72%).
- Country rural area residents tend to claim they waste very little/no uneaten food (77%).
- Four in five (79%) small country town residents will check what is at home before shopping always/most of the time.
- 63% of small country town residents consider portion size always/most of the time and 57% will rarely/never make extra just in case it is needed.
- Almost nine in 10 country rural area residents were more likely to rarely/never save leftovers in the freezer and throw them out later.
- Nearly half (48%) of small country town residents surveyed disagree that the NSW Government should have a role in assisting NSW residents to reduce their food waste.
- One in three (36%) country rural residents would not find food portion measuring aids to be useful and almost half (47%) would not find apps useful.

Gender

- Women were more likely to agree that most food can be stored in the freezer for three months (68%).
- 61% of women stated that they always/most times will write a list and stick to it.
- Nearly half (46%) of women always/most of the time buy food according to what is on special and about two in three (68%) check the use-by or best-before date before purchasing.
- Three in five (61%) of female respondents state that they always/most times save leftovers in the fridge to consume afterwards, with 65% saying they rarely/never would dispose of leftovers immediately after a meal.
- Four in five (81%) of women agree that saving money is a motivation for reducing food waste and 55% agree that saving time is a motivator, while men are more likely to disagree with this (16%).
- Two in three (67%) of women think that storage aids would be useful in helping to reduce food waste at home, 64% think meal planning aids and shopping list aids would be useful, along with web content (59%), an online recipe site (56%), social media content (54%) and magazine articles (49%).
- Men were more likely to disagree that social media content would be useful for reducing food waste at home (28%).
- Men were more likely to estimate wasting higher values of frozen food ($11.70), home-delivered food ($13.23) and drink ($13.62).

Age

- Those aged 35–54 were more likely to agree that saving time (56%) is a motivator for reducing food waste, while one in four (23%) agree that they are not very motivated. Meanwhile, over 55s are more likely to agree that their motivations for reducing waste is that it is easy (72%) and it's the right thing to do (83%).
- Just over two in three (69%) aged 35–54 understand that 'use by' means 'food must be eaten/thrown away by that date'. 72% agree that 'best before' means 'food is still safe to eat

after this date as long as it is not damaged, deteriorated or perished' (compared with 73% of all respondents).

- Unfinished drinks were most likely to be considered avoidable waste by those aged 35–54 (71%).

- For those aged 35–54, the main reasons for food waste were 'some household members don't always finish their meal' (20% compared with a 15% average).

- Residents aged 35–54 tended to agree that their motivations for reducing food waste included saving money (78% compared with an average of 74%); saving time (56% vs. an average 48%); and family expectations (44% compared to 39%); but 23% are not very motivated (23% compared with 18% average).

- 35–54 year olds agree that apps would be useful to help reduce food waste at home (46%), while over 55s were most likely to disagree that any of the suggested aids would be useful at all.

- Participants aged 55+ were much more likely to believe that their household throws away very little or no uneaten food (78%).

- Approximately two in five (43%) respondents aged 55+ understand 'use by' as 'food is still safe to eat after this date as long as it is not damaged, deteriorated or perished'. Seventy-eight percent of over 55s believe this to also be true of the best-before label, suggesting some confusion about the label.

- Those aged 55+ were more likely (41%) to think about how much they will use when shopping and 38% hardly ever find that food they've bought doesn't get used.

- 70% of over 55s agree that most cooked food items will last three months in the freezer and 80% agree it is easy to make meals from assorted leftover ingredients.

- 44% of residents aged 55+ disagree that busy lifestyles make avoiding waste hard, 71% disagree that leftovers in the fridge for more than one day are unsafe and 25% disagree that food waste contributes to climate change.

- Shopping and food preparation habits most likely performed by residents aged 55+ included always/most times checking what food is in the house (74%); writing and sticking to a shopping list (69%); checking use-by/best-before dates (76%); considering portion sizes (58%); and saving leftovers in the freezer and consuming them later (42%).

- Residents aged 55+ were also more likely to rarely/never buy in bulk (49%); make extra just in case (55%); save leftovers in the fridge and throw out later (66%); save leftovers in the freezer and throw out later (79%); and dispose of leftovers immediately after a meal (72%).

- Those aged 55+ were more likely to not consider the following to be food waste: fruit and vegetable peels (35%); unserved portions (23%); meat bones (35%); tea bags/coffee grounds (39%); and fruit and vegetable cores (36%).