

City of Edmonton Food Waste Research Review FINAL REPORT

Prepared by



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Acknowledgement

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We also would like to extend a special thank you to staff from the Metro Vancouver Region, the National Zero Waste Council, and the City of Calgary's Waste and Recycling Services for sharing and permitting the use of their food waste research for reference purposes.

Executive Summary

In 2016, the City of Edmonton conducted a small-scale food waste research project, to investigate the types and quantities of food waste being thrown away in household garbage, and to determine how residential habits and behaviours may impact the amount of food waste produced at the household level. The purpose of this research is to use the findings to develop a future education and social marketing program to help residents reduce their household food waste. Pivotal Research Inc. was contracted by the City of Edmonton to conduct an analysis of this food waste research, across six data collection instruments, and to report on key findings and provide recommendations.

This report contains an analysis of the research with a focus on identifying types and amounts of residential food waste produced, food waste perceptions and behaviours among residents, and barriers and opportunities to minimize food waste. The study also includes: a jurisdictional scan across municipalities to provide insights into food waste reduction research and programming best practices; and recommendations to bolster Edmonton's current food waste research framework for development of future educational and social marketing programs.

Key Findings and Analysis

Below are top findings from various data sets:

Level of Awareness and Perceptions of Food Waste: Seventy-four (74) per cent perceive food waste as an issue in Edmonton. Forty-nine (49) per cent thought about wasted food once a week. Males and youth ages 15-24 years thought the least about reducing food waste.

Disposal Habits: Total weight of garbage associated with food was 2.6 kilograms per household per week. Fifty-six (56) per cent of food waste was avoidable and 40 per cent of food waste volume came from produce. The majority disposed of food waste in the garbage and 85 per cent threw away food because it was spoiled.

Shopping Habits: Sixty-two (62) per cent checked the fridge/freezer/cupboards and 60 per cent prepared a list prior to shopping. Shopping lists not determined by meals generated 3.8 times more food-related garbage, and so did shopping at warehouse-type stores, which generated 1.7 times more total avoidable food waste. Four-member households were more likely to shop once a week. Forty-two (42) per cent were less likely to buy imperfect produce ("no, never" or "no, but would consider"); however, low-income households were more likely to make such purchases.

Cooking Behaviours: Ninety (90) per cent cooked and ate at home 3 or more days a week. Females were more likely to cook based on foods that needed to be used up quickly and to plan meals in advance. Youth ages 15-24 were least likely to make just enough food for their meals.

Storage and Leftovers Behaviours: Seventy-three (73) per cent used the fridge to store leftovers and 85 per cent used all leftovers for future meals. Sixty (60) per cent stored food/drink in original packaging.

Food Waste Reduction Behaviours: Fifty-eight (58) per cent have tried to reduce food waste. Families with children generated 80 per cent more garbage associated with food waste, as well as older youth ages 25-34 who produced 30 per cent more avoidable waste. Households that home compost also generated 1.6 times more total food waste.

Top Challenges/Barriers to Food Waste Reduction: Seventy-seven (77) per cent want to buy a wide range of food for healthy eating options and 66 per cent like to have lots of variety/choices on hand.

Opportunities for Food Waste Reduction: Ninety (90) per cent want to save money; 76 per cent are concerned about the environment; and 61 per cent want to eat healthy.

Top Ways to Minimize Food Waste: Respondents report cooking at home (94 per cent); cooking from scratch (91 per cent); saving leftovers for future meals (83 per cent); and buying just enough for the week (71 per cent) to minimize food waste.

Recommendations for Future Food Waste Research

The current research completed to date provides a preliminary snapshot of residents' food waste behaviours and perceptions and amounts of food waste households generated in Edmonton; however, more needs to be done.

Conduct Large-Scale Research: To address varying sample and methodological limitations, we recommend conducting a large-scale food waste research with an expanded and more representative sample that will enable extrapolation of results across Edmonton's population and better connect self-reported behaviours with observable waste data.

The recommended framework would entail conducting kitchen diary challenges, pre- and post-kitchen diary surveys, and food waste audits to assess changes in perception, behaviours and amounts of food waste produced, all while examining a single sample of households. The research could potentially be repeated every three to five years and assist the City in developing a food waste reduction target, as well as measuring progress towards reaching that target.

Conduct Market Research to Define Campaign Messaging and Scope: We recommend conducting market research to define/refine messaging and identify effective interventions to reinforce desired food waste behaviours among residents, prior to launching any potential educational or social marketing program. Market research would encompass: 1) conducting focus groups among all residents and with targeted groups; 2) tapping into the Edmonton Insight Community panel and other survey methods; and 3) conducting key informant interviews with key influencers and partners in Edmonton.

Recommendations for Potential Development of Educational and Social Marketing Programs

The current research provides sufficient background information and an appropriate baseline that can be used to launch a social marketing and educational pilot program to be further scaled up based on evaluation and success of the pilot. Below are recommendations and considerations for developing this pilot.

Identify Behaviours/Perceptions: We recommend targeting: 1) food waste awareness; 2) shopping habits, including planning, buying just enough and purchasing imperfect produce; 3) cooking habits; and 4) storage habits, including best-before date awareness. Messaging/tools need to primarily promote the top perceived food waste reduction opportunity—saving money—to reach/impact a wider section of Edmonton's population.

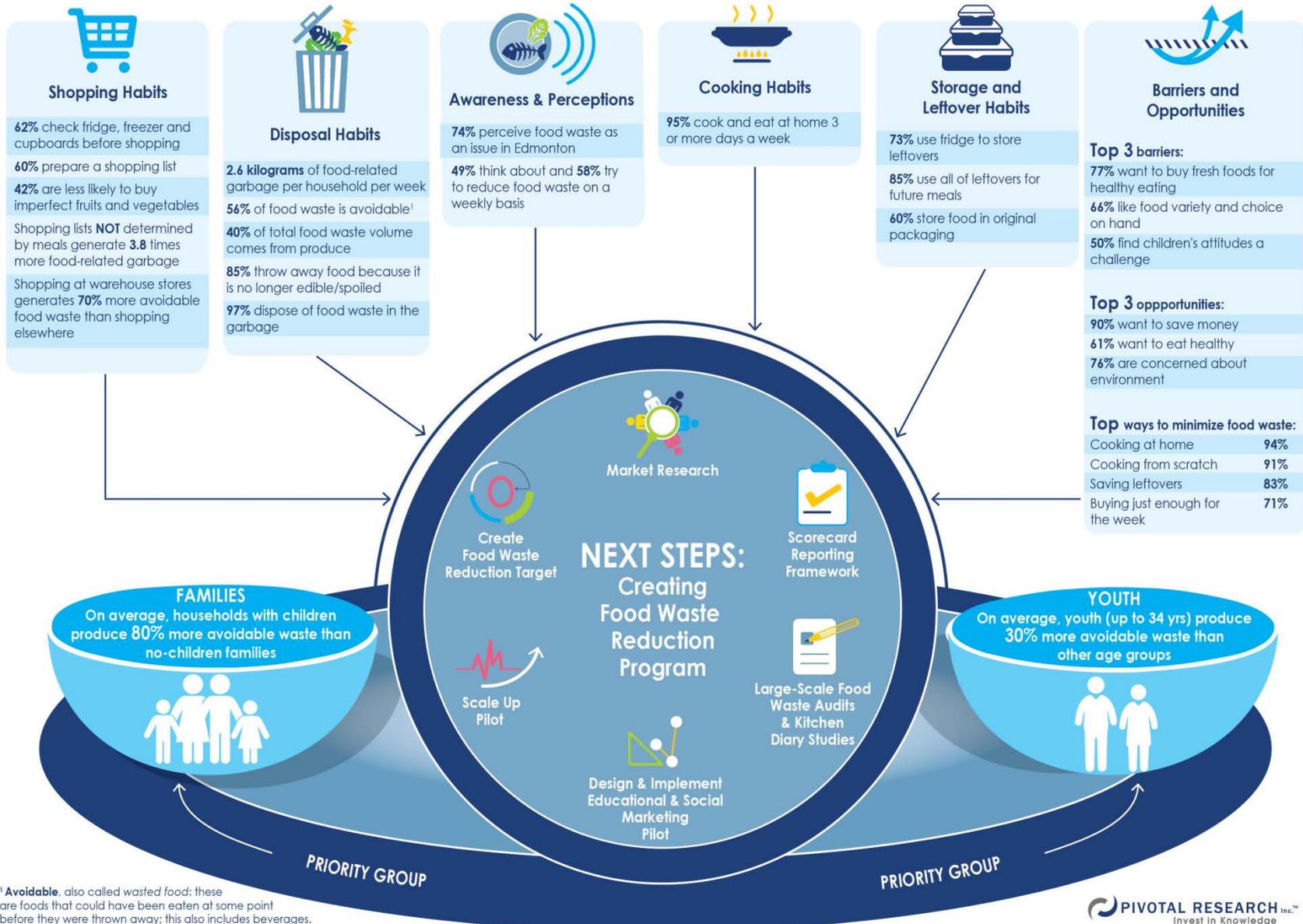
Select Target Groups: According to the research, the most optimal groups to target would be families and youth (up to 34 years). The campaign should also target all residents.

Engage Stakeholders: We recommend aligning the pilot with other municipal initiatives that might have similar/overlapping objectives/goals and actively seeking/leveraging win-win partnerships, as allowable, with local community-based organizations and businesses/retailers.

Design/Implement Pilot: The City should consider a combination of strategies to drive interest, including: rolling out kitchen diary challenges and contests; developing original and/or leveraging content from related initiatives; developing multi-media digital strategy; engaging local celebrities as champions; providing physical gathering space for events and learning/education purposes; and partnering with communities for event-tabling, among other strategies.

Develop a Scorecard: To communicate success, we recommend developing a “scorecard” reporting framework that incorporates reporting of short-term and long-term success measures to assist the City in making a case for scaling up the pilot into a multi-year effort.

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¹ **Avoidable**, also called *wasted food*; these are foods that could have been eaten at some point before they were thrown away; this also includes beverages.

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Chapter 1 – Introduction

Pivotal Research Inc. was contracted by the City of Edmonton to analyze research completed in 2016 related to food waste, across six data collection instruments; to conduct a jurisdictional scan across municipalities and beyond to provide the City with insights into food waste reduction research and programming best practices; and to provide a set of recommended action steps to further bolster the current food waste research framework in the City and develop a potential food waste reduction educational and social marketing program for Edmonton residents.

Research Context and Objectives

In 2016, the City of Edmonton's Waste Services Branch conducted a small-scale research project to gather information from residents about their habits, perceptions, behaviours, barriers, and opportunities that may contribute to or prevent household food waste.

The objectives of the study are as follows:

- Identify the types of residential food-related waste being produced;
- Understand the level of food waste reduction awareness and perceptions among residents;
- Identify the habits/behaviours, factors, and barriers and opportunities that may contribute to or help reduce food waste;
- Identify and recommend strategies to target food waste-generating behaviours, and to overcome barriers/challenges to achieve healthy food waste reduction habits/behaviours by residents; and
- Recommend robust research strategies/frameworks to apply in future research and evaluation of food waste reduction programs undertaken by the City of Edmonton.

This research, its outcomes and recommendations, and the results of any future research will be used to develop a future food waste research framework and a potential social marketing and education program for residents.

Background on Food Waste

Canada's quantifiable food waste loss amounts to \$31 billion with 170,000 tonnes of food wasted annually, nearly half of which is generated by consumers¹. Canada ranks second to last in terms of total household waste out of the 17 Organisation for Economic Cooperation and Development (OECD) countries², with Alberta ranking low compared to other provinces in terms of diversion of organic food materials and ranking high in the number of households disposing of the equivalent of at least one bag of groceries weekly.³

In response, Canada's National Zero Waste Council has recently rolled out the national, multi-year food waste reduction strategy to help cut the amount of food waste being sent to landfills. One of the three pillars of the strategy is behaviour change. The strategy specifically singles out the need by Canadians to adopt new habits related to food purchasing, preparation, and

¹ "27 Billion" Revisited: The Cost of Canada's Annual Food Waste, Martin V. Gooch, Abdel Felfel, 2014

² Canada's Food Report Card 2015: International Comparison, Le Vallee and Grant, the Conference Board of Canada, 2016

³ Canada's Food Report Card 2016: Provincial Performance, Le Vallée, MacLaine, Lalonde, Grant, the Conference Board of Canada, 2017

storage to “reduce the amount of food that is bought and never eaten.”⁴ The strategy also recommends developing a national food waste reduction target, which Canada currently does not have, despite various municipalities’ and regions’ efforts across Canada to create local targets to gauge success of their strategies.

The Federal government has initiated efforts to articulate a Food Policy for Canada through public consultations around four thematic areas: 1) increasing access to affordable food; 2) improving health and food safety; 3) conserving soil, water and air; and 4) growing more high-quality food.⁵

In 2017, the Government of Alberta held public consultations in support of the Food Policy for Canada. However, there are currently no specific food waste reduction strategies or targets set at the provincial level. In 2015, Alberta Agriculture and Forestry attempted to understand the volume of organic waste generated in Alberta and most recently issued a study focused on food waste mitigation opportunities. The report found that data related to food waste in Canada and Alberta are “scarce, fragmented, and disaggregated”.⁶ One of the opportunities identified is launching consumer education campaigns for food waste reduction.

Prior Food Waste Related Research in Edmonton

In Edmonton, efforts to address food waste began in 2012 with the creation of the City’s Food and Urban Agriculture Strategy, *Fresh*, which established the Edmonton Food Council and produced a report advocating for the creation of an infrastructure for food waste reduction, including reducing packaging and the amount of wasted food generated by households and businesses.⁷ Currently, the City has not developed a food waste reduction target to guide its efforts.

Several studies were commissioned by the City to better understand and quantify waste, including food waste.

- In 2013, a City-commissioned study was conducted for residential large-volume producers, which found that approximately 10 per cent of households dispose of 6-10 bags of garbage a week, 45 per cent of which includes food-related waste.⁸
- In 2014-2015, a small-scale triannual waste audit was conducted in four Edmonton neighbourhoods to determine what types of waste could be further diverted from landfill. Results showed that 11 to 18 per cent of total waste was food-related waste, depending on time of year.⁹
- In 2015-2016, the City conducted a four-season composition study of residential waste. Results showed that compostable organic matter comprised the majority of all waste in single-unit (70.4 per cent) and multi-unit (40 per cent) households. Avoidable food waste represented 8.7 per cent and 19.1 per cent, respectively, of the organic compostable waste.

⁴ National Food Waste Reduction Strategy, National Zero Waste Council, 2017

⁵ <https://www.canada.ca/en/campaign/food-policy.html>

⁶ Food Waste Study, Alberta Agriculture and Forestry, 2017

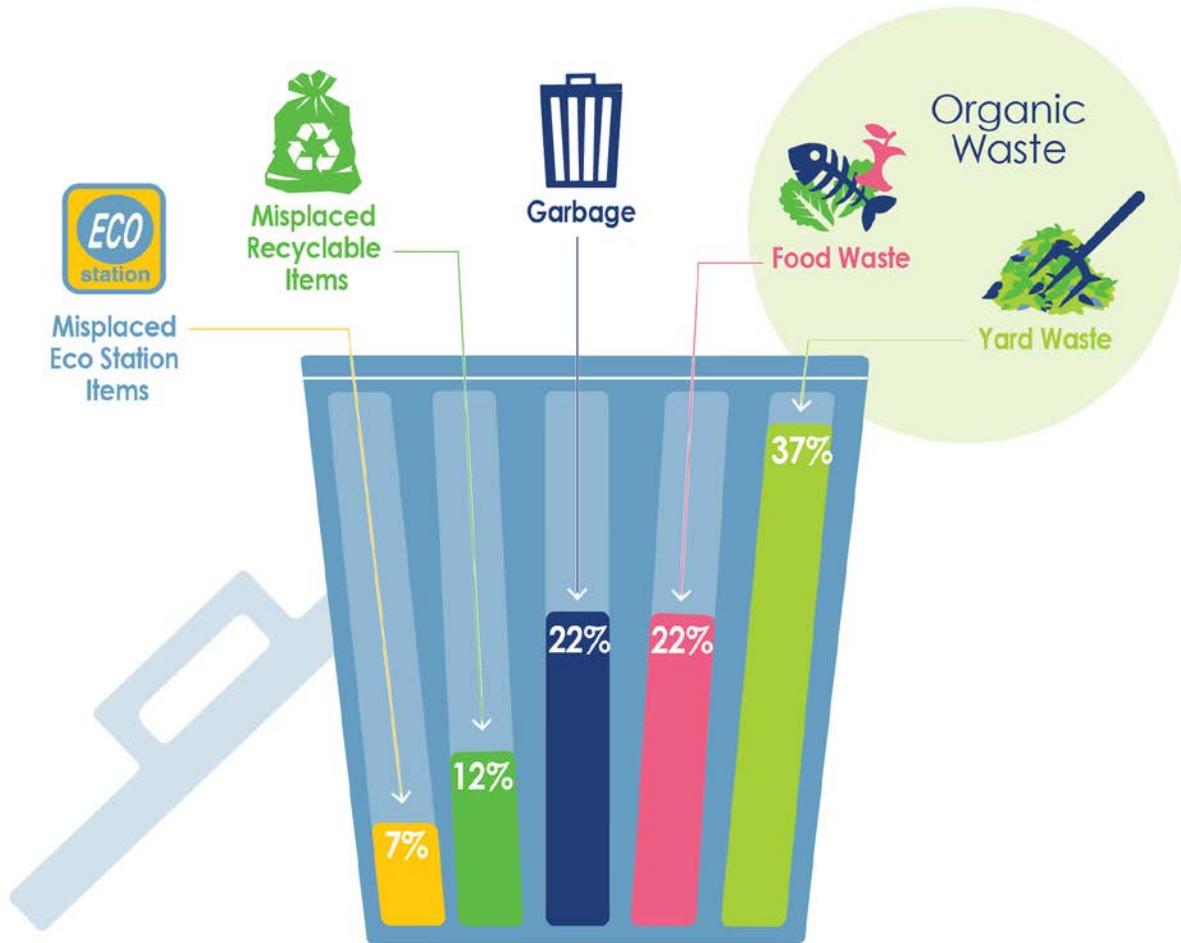
⁷ *Fresh: Edmonton’s Food and Urban Agriculture Strategy*, City of Edmonton, 2012

⁸ 2013 High Volume Waste Producers Research, Waste Management Services, City of Edmonton, Curry, M., & Paquette, J., 2013

⁹ Measurement Route – Audit Results 2014/15, Utility Services, City of Edmonton, Henderson L., 2015 and Curry, M., 2016

The lowest amount of food waste was found during the summer season.¹⁰ See Figure 1 below depicting the average annual breakdown of food waste in Edmonton’s single-unit households.

Figure 1. Average Annual Breakdown of Food Waste in Edmonton’s Single-Unit Households, 2015-16



Source: City of Edmonton Four Season Waste Characterization Study (2015-16)

And more recently in 2016, launched a study to quantify and examine residential food waste habits and behaviours.

What is Food Waste?

Food waste may be classified into two main categories:

- **Unavoidable:** these are the foods that we do not usually eat, such as home compostable waste (vegetable and fruit peels, cores, coffee grounds, and egg shells) and waste that is not usually composted at home, including bones, fats and oils; and

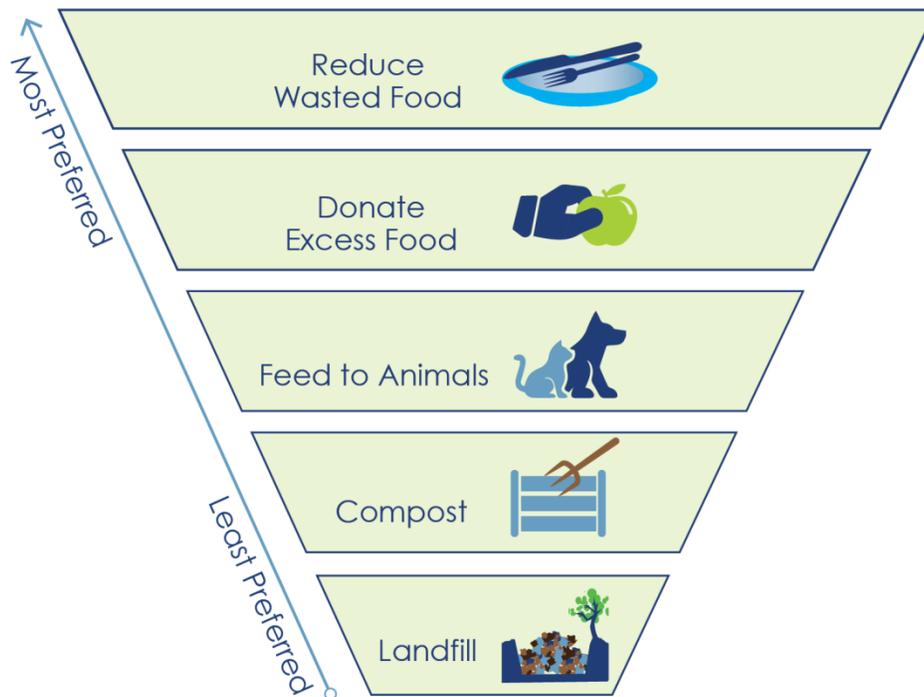
¹⁰ City of Edmonton Four-Season Waste Composition Study, City of Edmonton Utility Services, 2016

- **Avoidable**, also called wasted food. These are foods that could have been eaten at some point before they were thrown away; this also includes beverages.

Another category related to food waste is **food packaging** defined as wrappings and containers that are used to sell, contain, and store food. Such items may be recyclable or non-recyclable, including beverage and food containers, serving trays, and plastic and foil wrap.

Figure 2 below depicts an inverted pyramid showing the food recovery hierarchy¹¹, with the most preferred food recovery and prevention actions at the top—reducing wasted food and donating excess foods—cascading down to the least preferred actions, including composting, which may result in more food waste being produced¹², and sending organic waste to landfill. Research also shows that food waste prevention strategies that start with reducing the amount of wasted food, instead of composting or throwing in the garbage, creates “three times the societal net economic value of recovery and recycling combined”¹³ and is the most environmentally-friendly and cost-effective option¹⁴.

Figure 2. Food Recovery Hierarchy



¹¹ <https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy>

¹² <https://www.biocycle.net/2017/09/07/measurement-motivations-opportunities-waste-less-food/> and <https://news.osu.edu/news/2017/01/03/food-waste-compost/>

¹³ A Road Map to Reduce U.S. Food Waste by 20 Percent, Rethink Food Waste through Economics and Data (ReFED), 2016

¹⁴ Food Waste Study, Alberta Agriculture and Forestry, 2017

Food Waste Reduction Benefits for Individuals

The perceived benefits to food waste reduction and prevention are multi-faceted: social, economic, environmental and personal—ranging from the global, big-picture perspective to that of the local and personal. In fact, the results of Edmonton’s food waste research validate this interplay of perceived benefits, which sets the framework for action to reduce food waste in households. See Figure 3 below.

Figure 3. Perceived Benefits of Food Waste Reduction



Overview of Report

This report further details the study’s design and analytical approach, results from the jurisdictional scan, the study’s key findings by data collection instrument, and the analysis and recommendations for future research and programming:

- **Chapter 2** describes the research design and data collection methodologies and data collection protocols; details the approach to analyze data from the various data sets, and provides a brief discussion on the design and sample limitations.
- **Chapter 3** provides results from the jurisdictional scan of food waste practices and programs in other municipalities to assist the City in implementing effective food waste research and programming.
- **Chapters 4 through 8** present the research findings, separately by each data set, including detailing participant/household characteristics.
- **Chapter 9** provides analysis of the data sets by demographic factors and sheds light on differences according to demographics and specific behaviours related to food waste reduction.
- **Chapter 10** provides recommendations to further bolster the future research framework for food waste in the City of Edmonton.
- **Chapter 11** provides recommended action steps in support of the development of a potential food waste educational and social marketing program for the residents of Edmonton.

Chapter 2 – Research Design and Analytical Approach

This chapter describes the research scope of the study, including target group and neighbourhood selection; the data collection instrument design and protocols; the study's analytical approach; and design and sample assumptions and limitations.

Research Scope

The research conducted from May - November 2016 included collecting data across six data collection instruments:

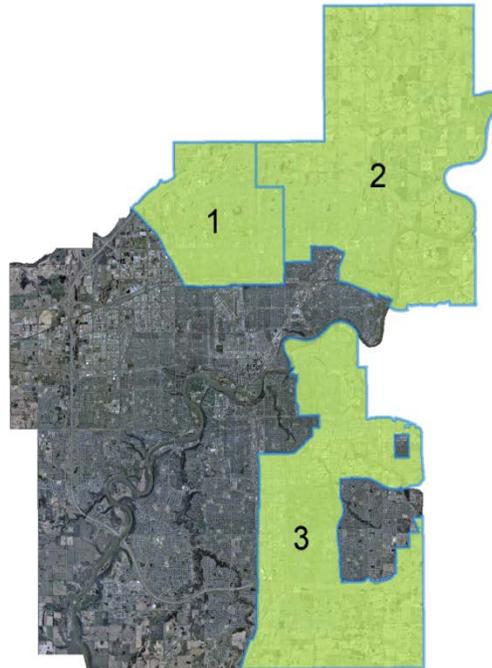
1. Doorstep surveys (314 households);
2. In-depth interviews (65 households);
3. One-week kitchen food waste diaries (32 households);
4. Pre- and post-diary food waste audits (30 households);
5. Single-topic survey (2,341 responses); and
6. Mixed-topic survey (1,513 responses).

The research primarily entailed collecting data and analyzing findings related to food-related waste, including avoidable and unavoidable food waste and food packaging waste. Avoidable waste is comprised of food in original packaging and food that could have been eaten at some point, including leftover meals.

Target Group and Neighbourhood Selection

To ensure that selected households had established food waste routines and to enable waste collection protocols for the food waste audits, the target population for this study included residents living in single-unit households in three neighbourhoods: two in the northern and one in the southern parts of Edmonton. As per the 2014 Municipal Census data, the selected neighbourhoods had a majority of residents living in single-detached homes and a high proportion of residents living at their current residence for at least three years. These were also established neighbourhoods, with garbage and recycling routes collected by City staff. See Figure 4.

Figure 4. Map of Waste Collection Areas in Edmonton with Neighbourhoods Selected for Research Highlighted in Green



The study incorporated written consent forms to all participants who partook in the interviews, food waste audits, and food waste diaries. Participants were able to opt out of participating in any of or all three of these data collection components.

The online surveys' primary target group was members of the Edmonton Insight Community online panel who were asked to participate in the survey research.

Data Collection Instrument Design and Data Collection Protocols

Below is a description of the design for each of the six data collection instruments and the methods used to collect data.

Doorstep Surveys

The intercept doorstep surveys took place between May 16 and June 30, 2016. The doorstep survey collected information about residents' awareness of food waste and the barriers and opportunities for food waste reduction in their households. If participants lived at their current address for at least three years and indicated they cooked and ate meals at home at least three times a week, they were given the option to participate in the in-depth interviews. The number of sampled households was 363, with 314 surveys completed across all neighbourhoods and a response rate of 88 per cent. Survey data were transcribed into ArcGIS software maps using iPad tablets.

In-depth Interviews

In-person interviews entailed a structured, in-depth discussion with participants that lasted up to one hour. Questions included collecting information on food-related shopping, cooking, storage, food waste behaviours and habits and food waste perceptions. Sixty-five (65) interviews were completed across all neighbourhoods. Data collected were transcribed into Google or paper forms. An incentive was provided to participating households in the form of a City Attractions family admission pass or transit tickets. Participating households were then asked to participate in the one-week food waste diary and pre- and post-diary food waste audit.

Food Waste Diaries

Food waste diaries were completed from June 22 to July 19, 2016. Participating households received a paper copy of a one-week food waste diary and a waste measuring kit prior to the start of the food-recording phase. Participants were asked to collect the types and amounts of food thrown away, the reasons for throwing away the food, original quantities and conditions of those items purchased, and methods of food waste disposal. Completed data were entered by City staff into Microsoft Excel sheets for analysis. Food waste quantities were reported in litres (L). Participating households were provided with an incentive to complete the diary in the form of a gift card from a local store and were allowed to keep the waste measuring kit. A total of 32 households completed the food waste diaries.

Pre-Diary and Post-Diary Food Waste Audits

Pre-diary food waste audits were conducted between June 17 and July 8, 2016. Waste audits were conducted for households that participated in both the interviews and the food waste diaries. At least one week prior to the start of the food waste diaries, City staff collected garbage and recycling during the regular collection date for the neighbourhood. Up to six bags of waste, including garbage and recycling, were collected from each household. If there were more than six bags of waste set out on collection day, the additional bags were left behind. Collected waste from all households was taken to Kennedale waste collection facility and sorted into several categories. The amounts of waste in each category were weighed and totaled. Some residents did not set out their waste for collection during waste collection dates, and as such, only 26 households were included in the sample. Post-diary food waste audits were conducted between August 18 and 30, 2016 with a similar methodology to that employed in the pre-diary waste audits.

It is important to note that residents were not told which dates their waste would be audited; they only knew it would be collected once before the diary and once afterward. Additionally, to determine if completing the food waste diary had an impact on food waste, control households that had participated in the doorstep survey but not the food waste diary were randomly-selected from each neighbourhood (around four households per neighbourhood), but not all of the selected control households set out waste during the scheduled collection dates.

Online Surveys

For the single-topic survey, the survey was emailed out to all members of the Edmonton Insight Community (EIC) but was also provided as an open link through various channels, such as social media, a public service announcement, and other public-facing and internal channels for non-EIC members to complete. All links to the online survey were active for the same duration between September 27 and October 11, 2016. Traffic to the survey was tracked using different links to understand which channel was used to drive respondents to the survey.

The mixed-topic survey was only distributed to the members of the Edmonton Insight Community and was active between November 8 and 15, 2016.

Analytical Framework

The analytical framework for this report entailed conducting first level analysis (frequencies) to uncover key findings from each of the data sets. The focus was on key insights to identify types of residential food waste, perceptions, habits, and behaviours, barriers and opportunities. For the seven open-ended questions in the online survey, a sample of 100 responses from each of the questions out of the 2000+ qualitative responses was examined.

In terms of second-level analysis, cross-tabulations were applied across data from the online surveys, doorstep surveys, and interviews to understand how certain demographic factors, such as household size, gender, age, and the presence of children in the household impact food waste behaviours.

To gain a more complete picture of the panoply of food waste behaviours and factors, and their relationship to food waste reduction, data from households that completed the food waste diaries, food waste audits, doorstep surveys and interviews (a total of 28 households) were linked and compared using advanced statistical techniques, such as t-test, z-test, and Analysis of Variance (ANOVA). For such analyses, means or averages are reported. All statistically-significant comparisons are associated with a 95 per cent confidence level (p-value of 0.05).

The outcomes that were tested from the diaries included: 1) the amount (in L) of different categories of food waste generated; 2) the method of which they disposed of waste; 3) the reason for throwing out food; and 4) the amount of avoidable waste, unavoidable waste, and total food waste they generated.

For the pre- and post-diary food waste audits, this analysis also included outcomes from the following data categories. See Table 1.

Table 1. Pre- and Post-Diary Food Waste Audit Data Categories

Total Garbage Sorted PRE- and POST-Diary
Total Garbage Associated Food Waste
Wasted Food
<ul style="list-style-type: none"> • avoidable – in packaging • avoidable – edible food waste
Home Compostable
<ul style="list-style-type: none"> • unavoidable - home compostable
Not Wasted and not Home Compostable
<ul style="list-style-type: none"> • unavoidable - home non-compostable
Recyclable Packaging from Food Waste
<ul style="list-style-type: none"> • recyclable paper • recyclable cardboard • recyclable plastic
Non Recyclable Packaging from Food Waste
<ul style="list-style-type: none"> • non-recyclable plastic • non-recyclable paper

The food waste audit analysis included conducting paired t-tests to uncover any significant statistical differences between the pre- and post-diary results.

Design and Sample Assumptions and Limitations

Sample Size: The total sample size of households participating in the interviews, food waste diaries, and pre- and post-diary food waste audits is small and as such, we were not able to make generalizations about food waste behaviours across Edmonton's general population.

Sampling Technique: Households that participated in the food waste diaries or in-depth interviews, selected through self-recruitment during the doorstep survey phase (and not through random selection) might have possibly skewed results.

Sample Scope: The data from the online surveys primarily came from members of the Edmonton Insight Community. Ideally, using multiple recruitment and sampling approaches, including phone surveys, social media, and intercept surveys, would ensure a more random sampling approach to capture diverse perspectives and food waste habits across Edmonton's population.

Data Collection Timing: The data collection phase of the food waste diaries and pre- and post-diary food waste audits took place during the spring and summer months, which may have impacted waste habits and food waste quantities overall, and may not be representative of year-round habits.

Analysis across Data Collection Instruments: Analysis across data sets was limited due to the incomparability of some question categories and inconsistency of collecting standardized demographic and food waste data across data collection instruments. For example, some demographic variables, such as gender, education level and income were not measured across all instruments. Some data sets collected data starting from age 15, while others started from age 18. Age brackets varied, especially when reporting outcomes for youth, wherein some outcomes were captured for age brackets 15-24 while for others started at 25-34. Also, food waste diaries measured amounts of food thrown away through volume (litres), while the food waste audits measured weight (kilograms).

Chapter 3 - Key Findings from Jurisdictional Scan

This chapter details findings from a jurisdictional scan of efforts and best practices by several Canadian municipalities and beyond to: set food waste-related targets; measure residential food waste; gauge households' food waste reduction perceptions and behaviours; and roll out food waste reduction programs.

The use of a jurisdictional scan in this research context assists the City in considering how certain best practices in residential food waste research and in information campaigns to reduce food waste have been framed in other municipalities and jurisdictions to help inform future food waste reduction planning and efforts in Edmonton.

City of Calgary, Alberta

Food Waste-Related Target

Calgary has set a target of 70 per cent waste diversion across all sectors (including residential and non-residential) by 2025.

Food Waste Research

In 2012, the city of Calgary commissioned a study, *Calgary Eats!*, that provided an assessment and an action plan for the city's food system, including an assessment and recommendations for food waste recovery, and composting and diversion strategies. The report showed that food waste comprised close to 35 per cent of single-family waste.¹⁵ The Calgary Food Action Plan continues to guide the city's approach to food waste recovery.

In 2016, Calgary conducted a kitchen diary study with 450 households selected through a stratified sampling plan across four major regions, to participate in a pre-food waste diary survey to gauge perceptions and attitudes towards food waste, followed by a week-long food waste diary. A monetary incentive was provided to each of the participating households. Researchers ensured that participating households were contacted regularly to ensure completion of the diaries. Nearly 400 households completed the survey. Further weighting of the sample was applied to ensure the sample matched the distribution of the city's demographics. Below are key findings from the study¹⁶:

Table 2. Key Findings from City of Calgary's Food Kitchen Waste Diary Study, 2016

Behaviours and Other Response Categories	Main Findings
Frequency of Shopping	74 per cent grocery shop once a week.
Making a List	Most prepare a list prior to shopping.
Shopping	44 per cent end up purchasing extra food items not on their shopping list.
Meal Planning	13 per cent plan every meal, while 28 per cent plan main meals ahead for the following week.
Food Packaging	28 per cent store cheese in original packaging and 30 per cent store meat in original packaging.

¹⁵ *Calgary Eats!: A Food System Assessment and Action Plan for Calgary*, City of Calgary, 2012

¹⁶ City of Calgary Kitchen Diary Study, City of Calgary, 2016

Best-Before Date Perceptions	79 per cent believe the date does not mean cut-off date after which purchased foods need to be thrown away.
Barriers to Reducing Food Waste	<ol style="list-style-type: none"> 1) Perception of little cost associated with throwing away wasted food 2) Need for healthy food choices 3) Wanting a range of food options for family 4) Not knowing how to reduce food waste 5) Lack of time.
Reasons for Disposing of Food	The food is unavoidable waste (food scraps), followed by spoiled and making too much.
Types of Food Waste Generated	52 per cent avoidable waste of which produce constitutes the largest component and 16 per cent are made up of leftovers.
Home Composting	21 per cent of households compost.

Food Waste Reduction Programs

The city of Calgary maintains a webpage focused on tips to encourage food waste reduction behaviours and sharing of information and toolkits mainly developed by York, Ontario.

Calgary also addresses food waste diversion through municipal composting. In 2017, the City of Calgary’s Green Cart program went into effect, requiring all residential homes and businesses to separately dispose of organics, including food scraps and yard waste. According to the municipality, in communities where the green cart program was piloted since 2012, green carts have shown to cut residential black bin garbage nearly in half. The goal of this program is to keep food and yard waste out of landfills and create nutrient-rich compost.¹⁷

Metro Vancouver Area, British Columbia

Food Waste-Related Target

Metro Vancouver has not set a food waste reduction target at this time.

Food Waste Research

In preparation for the implementation of the Love Food Hate Waste campaign, Metro Vancouver—a regional planning authority with responsibility for managing solid waste—conducted a food waste study in 2014 to establish a baseline for evaluating the impact of the campaign. This involved administering an initial survey to gauge perceptions and attitudes of the region’s residents about food waste followed by household participation in a week-long food waste diary.

Since this methodology has not been used in the region before, a pilot test was conducted prior to roll-out of the survey and diary packages. The sample for the survey and food diaries were selected through a web- and telephone-based random recruitment of 600 households from a panel of households used regularly by the contracted public research firm. Further weighting of the sample was administered to ensure the sample matched the distribution of the household types and sizes with the metropolitan area and to ensure even representation across the four sub-regions. A monetary incentive, as well as regular contact with each of the participant

¹⁷ <http://www.calgary.ca/UEP/WRS/Pages/Recycling-information/Residential-services/Green-cart/How-green-cart-program-works.aspx>

households, was essential in ensuring completion of the food diaries. Out of the 600 selected households, 501 households ended up completing the survey and week-long diary. Table 3 summarizes the key findings from the study¹⁸:

Table 3. Key Findings from Metro Vancouver’s Food Waste Study, 2014

Behaviours and Other Response Categories	Main Findings
Frequency of Shopping	75 per cent do their main grocery shopping once a week.
Making a List	Most prepare a list prior to shopping.
Shopping	1 in 5 “stick to the list”, while the majority make extra purchases not on the list.
Meal Planning	43 per cent plan only a few meals ahead for the following week while 35 per cent plan no meals, and decide what to eat each day.
Food Packaging	Sliced meat is as likely to be stored in its original packaging as put in some other form of packaging, such as a plastic bag.
Best-Before Date Perceptions	80 per cent believe the “best-before date” means that the product will be at its best quality before the date but not necessarily mean the product is unsafe to eat past the date.
Barriers to Reducing Food Waste	<ol style="list-style-type: none"> 1) Wanting fresh food selections 2) Presenting a wide range of food options for a family 3) A perception that households do not waste 4) Kids not finishing their food 5) Not necessary with municipal food scraps collection 6) Not knowing how to reduce food waste.
Reasons for Disposing of Food	Some food waste is unavoidable (peelings, cores, shells or bones). Of the avoidable food waste, spoiled food (past use before date) followed by preparing too much are the main reasons for disposal.
Types of Food Waste Generated	Overall 54 per cent of food waste is avoidable and 46 per cent unavoidable.
Home Composting	25 per cent of households compost (data from 2014).

Food Waste Reduction Programs

In 2015, Metro Vancouver launched a locally-adapted version of the Love Food Hate Waste Campaign developed by the Waste and Resources Action Programme (WRAP) in the U.K. The campaign focused on household habits that have the highest potential for reducing food waste, including meal planning, shopping, portion sizing, and leftover management.¹⁹ Metro Vancouver has developed campaign materials that use data from the baseline study as well as seasonal messages and regional partnerships to expand the campaign’s profile and reach.²⁰

Metro Vancouver will evaluate this program in the latter part of 2018 to assess the impact of the campaign on residential food waste.

¹⁸Metro Vancouver Food Waste Study, Metro Vancouver, 2014

¹⁹ <http://www.lovefoodhatewaste.ca/get-inspired/about/Documents/InfoBooklet.pdf>

²⁰ <http://www.metrovancouver.org/metroudate/issue-9/116/Loveper cent20Food.per cent20Hateper cent20Wasteper cent20Campaign>

City of Guelph, Ontario

Food Waste-Related Target

No target has been set.

Food Waste Research

In 2014, the City of Guelph and the University of Guelph partnered on a food waste pilot project in select neighbourhoods, where they performed a waste audit of 270 randomly-selected households and conducted 60 household surveys to better understand waste-related behaviours. Several of the key findings of the research are summarized below.²¹

Table 4. Key Findings from City of Guelph's Pilot Project on Food Waste, 2014

Behaviours and Other Response Categories	Main Findings
Frequency of Shopping	53 per cent grocery shop once a week.
Making a List and Other Habits Prior to Shopping	80 per cent shop with a list; 80 per cent do a food inventory prior to shopping; and 65 per cent review flyers before shopping.
Shopping	Less than 30 per cent shop within a set budget.
Meal Planning	40 per cent plan their meals prior to shopping.
Food Waste Perceptions	The majority thought of food waste as a social issue; feel guilty about producing garbage and packaging, and see that individuals are primarily responsible for food waste reduction.
Evaluating Food Prior to Disposal	Most common criterion is appearance, followed by smell and best before date. The more criteria, the more food waste generated.
Types of Food Waste Generated	The largest portion of this was organic waste at 12.5 kg per week. Recyclables represented 11.6 kg per week and garbage represented 7.1 kg per week.
Gardening	38 per cent had a vegetable garden and 74 per cent had a flower garden.

Food Waste Reduction Programs

The University of Guelph and the City of Guelph have built on this research by developing food waste reduction strategies. The City also looks to conduct more comprehensive research and to develop future food waste diversion strategies.

Most recently, the University of Guelph was awarded nearly \$1.3 million in grant funding from the Walmart Foundation to: 1) compile best practices from municipalities in two regions across Canada that have rolled out initiatives focused on reducing household food waste and evaluate the effectiveness of these policy interventions and communications campaigns on reducing food waste; and 2) developing a nutritional supplement from waste fruit that would have otherwise been diverted to the landfill. Researchers would be looking at conducting food waste audits pre-intervention and post-intervention to gauge changes in food waste behaviours. The program builds on the retailer's commitment to reduce waste and achieve zero waste in key markets, including Canada, by 2025.²²

²¹ <https://guelphfoodwaste.files.wordpress.com/2014/02/guelph-food-waste-project-newsletter-final.pdf>

²² www.walmartcanada.ca

York Region, Ontario

Food Waste-Related Target

The region aims to reduce food waste in green bins by 15 per cent by 2031 with an additional 5 per cent reduction for each subsequent year, based on food waste reduction rates achieved in the U.K. as a result of its Love Food, Hate Waste campaign.²³ The Waste Generation Rate (kg/capita) was developed as a measure to keep track of the target.²⁴

Food Waste Research

In 2015, the York Region collaborated with the University of Guelph to conduct a study that examined the linkages between the amounts of household waste generated and habits related to shopping and preparation of food. The study included gathering survey data and curbside waste information. Results showed that those who shop more often are more likely to generate more food waste.²⁵ Data also showed that avoidable waste makes up one-third of the region's green bin material, half of which comes from spoiled produce equaling \$1,500 per household of wasted food disposed of each year.

Food Waste Reduction Programs

In 2013, the York Region launched its food waste reduction strategy—SM4RT Living—which recommended the execution of a multi-pronged approach to influence consumer behaviours around food waste, through campaigns, outreach and engagement, and research, pilots and demonstrations. As a result, the region rolled out the Good Food Program in 2015, recognized for excellence locally and in North America, which promotes awareness among residents to reduce food waste thrown away in green bins by 15 per cent.²⁶ The program provides online tips and guidelines for meal planning, shopping, cooking, food storage and leftover management. The campaign also promotes engaging families in the kitchen. In terms of outreach, the campaign uses a combination of community outreach initiatives (events, seminars), media/advertising (print, electronic, transit signage), webpage content, and social media (Pin-to-Win Pinterest contest, Facebook).

Other Countries

United States

There have been considerable efforts focused on food waste reduction in the United States (U.S.) in the past decade, whether spearheaded by the U.S. government—U.S. Department of Agriculture (USDA) and the U.S. Environmental Protection Agency (EPA)—or by non-profit advocacy organizations in partnership with local governments. Similar to Canada, the U.S.

²³ *Sm4rt Living*: York Region's Integrated Waste Management Master Plan, Food Waste Reduction Strategy, York Region, 2013

²⁴ The rate includes all streams of curbside residential waste and materials from schools, municipal facilities and residential and small business visitors to the depots/Community Environmental Centres.

²⁵ *Sm4rt Living*: Balanced Scorecard 2015, York Region, 2015

²⁶ 2015 Diversion Report and Sm4rt Living Integrated Waste Management Master Plan Update, York Region, 2015

generates a large amount of food waste, the majority of which occurs at the household level, “resulting in \$161.6 billion (or \$1,500 per household) loss per year”.²⁷

In 2015, the U.S. government announced their target to reduce food waste by half by 2030, in alignment with the United Nations’ (U.N.) Sustainable Development Goals.²⁸ As a result, the federal government tasked USDA and EPA to collaborate with food leaders in state, tribal and local governments, communities, organizations, and businesses. The collaboration is in the form of providing funding opportunities and challenges to reduce food loss and waste, including helping to organize summits for idea exchanges; providing leadership, technical assistance, outreach, and information-sharing; and developing tools and measuring success of these critical interventions. In the Other Programs section below, the report highlights efforts by EPA to disseminate guides and toolkits to encourage the development of community-based social marketing programs focused on food waste reduction, and another effort led by a national non-profit organization to launch a food awareness campaign.

The U.S. Congress has also introduced legislation related to food waste reduction, the latest of which was the Food Recovery Act of 2017. This recent bill authorizes funding to: reduce food waste at the consumer level, in schools, farms and throughout the federal government; standardize food date labeling; launch national media food waste reduction campaigns; require new research technologies and standards; support states in constructing large-scale composting and “food waste-to-energy facilities”; expand tax deductions for those donating food to charities; and protect businesses donating food from liability, among other provisions.²⁹

United Kingdom

The United Kingdom (U.K.) has been at the forefront of food waste research and education campaigns to reduce food waste in the past decade. The Waste and Resources Action Programme (WRAP), a charity based in the U.K., has led the effort to regularly measure food waste since 2007, in partnership with various branches and levels of the U.K. government, the European Union, the U.N., businesses, and communities.

In 2008, WRAP launched a successful education campaign Love Food Hate Waste, which has resulted in a reduction of residential food waste by 21 per cent over five years.³⁰ The campaign continues to assist local governments to promote food waste reduction through communication materials, including a consumer-facing website with content geared towards households, communities, and organizations, and a partner website with free tools and resources aimed at local authorities.³¹

In 2016, WRAP also spearheaded the Courtauld Commitment 2025, which set a 2025 food waste reduction target across the U.K. by 20 per cent on a per capita basis.³² The Courtauld Commitment 2025 is the third voluntary agreement that WRAP has helped establish with food retailers. The reach of this agreement extends to stakeholders across the food system from

²⁷ The Estimated Amount, Value, and Calories of Postharvest Food Losses at the Retail and Consumer Levels in the United States, Buzby, Wells and Hyman, USDA, 2014

²⁸ <https://www.epa.gov/sustainable-management-food/united-states-2030-food-loss-and-waste-reduction-goal>

²⁹ <https://www.congress.gov/bill/115th-congress/house-bill/3444> and <https://pingree.house.gov/summary-hr-3444-food-recovery-act>

³⁰ <http://www.metrovancouver.org/media-room/media-releases/MediaReleases/2015-05-07-LoveFoodHateWaste.pdf>

³¹ <http://www.wrap.org.uk>

³² Household Food Waste in the U.K., 2015, WRAP, 2017

producers to consumers, with 156 organizations involved, to further cut down food waste and meet domestic and U.N.-led targets.³³

Other Programs

This section sheds light on best practices related to food waste reduction campaigns/programs.

Food: Too Good to Waste

The EPA sponsors Food: Too Good to Waste, which consists of an implementation guide and toolkit designed to assist local governments and community-based organizations in the implementation of community-based social marketing programs focused on behavioural change to reduce wasted food in households.³⁴

In 2016, EPA conducted an evaluation of 17 community-based social marketing programs related to food waste reduction across ten states. Some of the evaluated campaigns combined action-oriented tools to assist in solidifying preferred food waste reduction behaviours with food waste challenges (food waste kitchen diaries) that lasted between four to six weeks to incent behavioural change, while simultaneously helping gather data to gauge effectiveness of the campaigns. The target populations generally focused on families with children and youth but also targeted all residents. The report notes that practices within each target group tend to vary, so behaviours need to appeal to varying perceived values and benefits. The main takeaways from the evaluation are³⁵:

- Even small-budget social marketing campaigns can result in tangible reductions in residential avoidable food waste by approximately half a pound per person per week. However, to influence behavioural change and increase motivation to reduce food waste, campaigns need to integrate research/measurement tools into their strategies, especially having households measure their food waste.
- Campaigns need to strike a balance between “breadth and depth”; media awareness campaigns target breadth, while behavioural change strategies/tools deepen understanding of food waste reduction and inculcate longer-term effects.
- It is critical to “leverage social networks” and conduct “community-scale direct outreach” rather than rely simply on social media reach.
- Engaging the community and leveraging community-based, not-for-profit and business/retail partnerships are key to campaign success. Potential partners could be other government programs running relevant programs, schools and universities, municipal waste management companies, farmers’ markets, food purveyors, and civic groups.

Currently, the British Columbia Ministry of Environment has collaborated with the Food: Too Good to Waste platform to promote food waste reduction by encouraging regional districts and other entities in implementing similar pilots in the province.³⁶

³³ <http://www.wrap.org.uk/content/what-courtould-2025>

³⁴ <https://www.epa.gov/sustainable-management-food/food-too-good-waste-implementation-guide-and-toolkit>

³⁵ Food: Too Good to Waste: an Evaluation Report for the Consumption Workgroup of the West Coast Climate and Materials Management Forum, U.S. Environmental Protection Agency, 2016

³⁶ https://www2.gov.bc.ca/assets/gov/environment/waste-management/organic-waste/food_waste_reduction_toolkit.pdf

Save the Food

The Natural Resources Defense Council (NRDC), a U.S.-based non-profit organization that advocates for clean water and air and healthy communities, launched in 2016 the “Save the Food” social awareness campaign across the U.S. in response to research conducted by NRDC which found that most food waste is generated at the consumer level.³⁷

The campaign’s slogan is “Cook it, store it, share it, but don’t waste it!” among other messaging, such as “Best if used”, are intended to encourage consumers to spend more time using the food they purchase.³⁸ NRDC partnered with the Ad Council—a non-profit organization that specializes in launching communication campaigns—and an advertising company that designed the campaign’s imagery as an in-kind contribution.

In terms of target population, the campaign focuses on mothers and millennials, reaching out to them through media channels they primarily use, such as Pinterest, Facebook, Instagram, Twitter, and the Food Network.

Within a year’s timeframe, the campaign helped increased awareness among mothers from 20 per cent to 26 per cent and among millennials from 31 per cent to 41 per cent. The campaign also shifted opinions among adults about food waste as a major problem in the U.S. by 5 per cent. Close to 60 per cent of those who came across the campaign sought more information.³⁹

³⁷ Wasted: How American is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill, Gunders, NRDC, 2012

³⁸ <https://www.ama.org/publications/MarketingNews/Pages/nrdc-ad-council-raise-awareness-to-fight-food-waste.aspx>

³⁹ <https://www.ama.org/publications/MarketingNews/Pages/nrdc-ad-council-raise-awareness-to-fight-food-waste.aspx>

Chapter 4 – Key Findings from Doorstep Surveys

This chapter details the characteristics of respondents who participated in the intercept doorstep surveys and key findings of their responses by category.

Characteristics of Respondents/Households

Overall, 314 respondents completed the doorstep survey. Respondents were primarily homeowners (89 per cent). Six out of ten respondents reported having no children less than 17 years of age in their households. The most frequent age bracket reported by respondents was 45 to 54 years of age (23 per cent), followed by 35 to 44 (19 per cent), 25 to 34 (18 per cent) and 55 to 64 (18 per cent). The mean household size was 3.16 members.

Results by Category

Level of Awareness and Perceptions of Food Waste

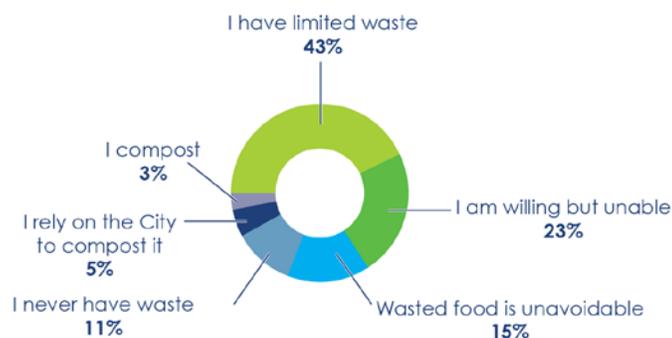
Eighty-four (84) per cent of respondents overall had heard of the term food waste. Food waste is perceived as an issue in Canada (79 per cent) and in Edmonton (74 per cent).

Doorstep survey data indicate that 70 per cent of respondents did not hear about food waste in the news in the past 12 months. Of those who have heard about food waste in the news, TV was the main medium (57 per cent), followed by newspaper (6 per cent) and social media (5 per cent).

Forty-seven (47) per cent of respondents thought about food waste at least once a week in the past year, while about two-thirds (35 per cent) did not think about wasted food at all.

As Figure 5 shows, the most frequent reason for not trying to reduce wasted food was the perception that the respondent's household generated a limited amount of food waste (43 per cent). This was followed by their stated inability to reduce the amount of wasted food, due to lack of knowledge or time, despite their willingness to do so (23 per cent).

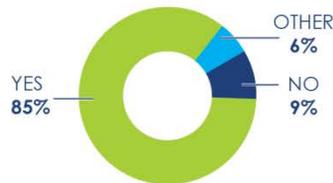
Figure 5. Percent of Respondents Stating Reasons for not Trying to Reduce Food Waste at Home (314 Doorstep Survey Respondents)



Shopping Habits

Eighty-five (85) per cent of doorstep survey respondents went on a shopping trip once or more per week, as shown in Figure 6 below. Fifteen (15) per cent of respondents, who selected “no” and “other”, shopped at different time intervals.

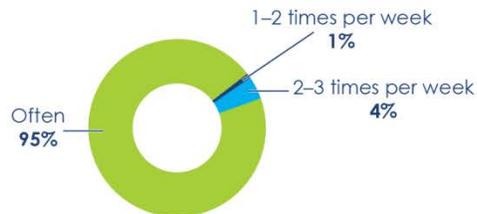
Figure 6. Percent of Respondents Who Grocery Shopped Once or More per Week (314 Doorstep Survey Respondents)



Cooking Habits

Figure 7 shows that the majority (95 per cent) of respondents cooked and ate at home often (more than 3 times a week).

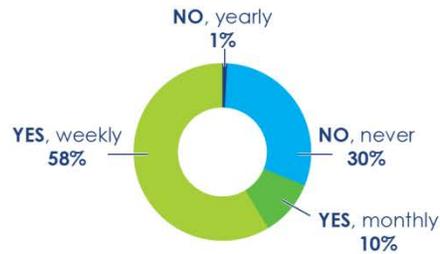
Figure 7. Percent of Respondents Who Cooked and Ate At Home (314 Doorstep Survey Respondents)



Food Waste Reduction Habits

Thirty (30) per cent of respondents had not tried to reduce wasted food in their households in the past year. See Figure 8.

Figure 8. Percent of Respondents Who Tried to Reduce Food Waste in Household in Past Year (314 Doorstep Survey Respondents)



Gardening and Composting

Households were equally split between those who had a home garden (50 per cent) and those who did not (49 per cent). Eight in ten households reported not owning a home composter.

Chapter 5 – Key Findings from In-Depth Interviews

This chapter provides results from the in-depth interview conducted with 65 households.

Characteristics of Respondents/Households

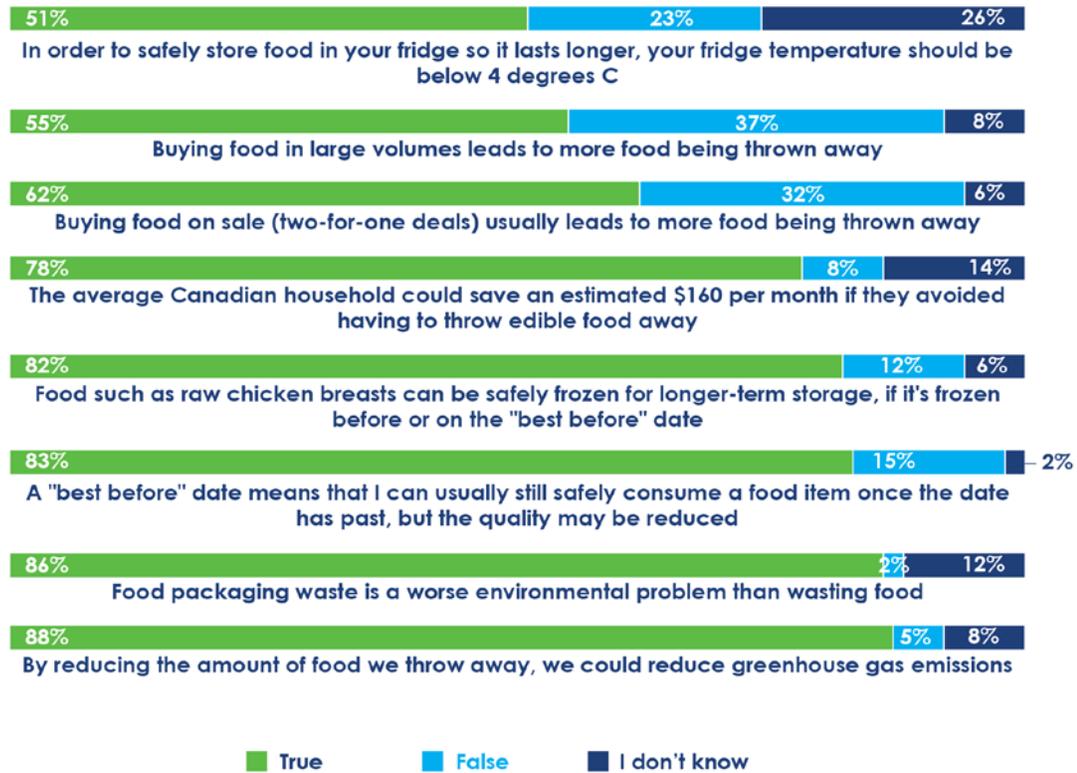
A total of 65 households completed in-depth interviews about food waste May-July, 2016. Three-quarters of respondents had lived in their residences for more than 5 years. Households had a mean of 3.25 residents. Six in ten households (58 per cent) did not have any children less than 18 years of age residing at home at the time of the survey. For households with children, the most frequent category was 0-5 years of age (22 per cent). Just over half of households (55 per cent) had adults in the 55-64 age range (55 per cent), followed by adults in the 45-54 age range (52 per cent).

Results by Category

Level of Awareness and Perceptions of Food Waste

Most respondents thought that reducing food waste decreases greenhouse gas emissions (88 per cent); food packaging is a worse environmental problem than wasting food (86 per cent); food can be consumed after the best before date, but the quality will be reduced (83 per cent); raw chicken can be safely frozen before or on best before date (82 per cent); and the average household could save \$160 per month if they avoided throwing out food (78 per cent). See Figure 9.

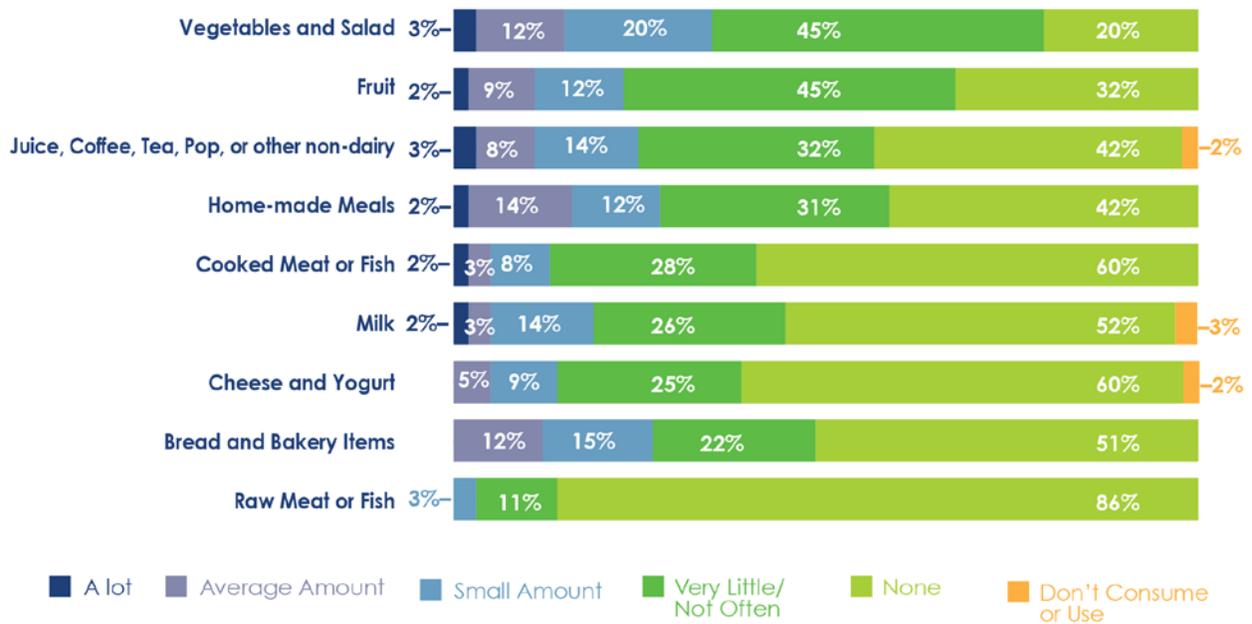
Figure 9. Percent of Respondents Selecting True or False on Statements Related to Food Waste Perceptions (65 Interview Respondents)



Types of Residential Food Waste Generated

When respondents were asked what types of wasted food they had thrown away in the past two weeks, 35 per cent reported throwing away salad and vegetables, with homemade meals being the second highest category of food thrown away (28 per cent). Interview respondents, however, threw away very little to no raw meat or fish (97 per cent); cooked meat or fish (88 per cent); and cheese and yogurt (85 per cent). See Figure 10.

Figure 10. Percent of Respondents Who Reported Throwing Away Quantities of Different Types of Food Within Past Two Weeks (65 Interview Respondents)



Interview data showed food waste types that were thrown away in relatively larger amounts were unavoidable food waste or food scraps not normally eaten (89 per cent of respondents); non-recyclable food packaging (66 per cent of respondents); and leftovers and uneaten food left on plate (65 per cent of respondents).

The majority of interview respondents also reported throwing away very little to no food that was bought and not used (88 per cent); foods past their best-before dates (86 per cent), which primarily consisted of produce and milk; recyclable food packaging (74 per cent); unfinished packaged foods (72 per cent); and spoiled or moldy foods (71 per cent).

Shopping Habits

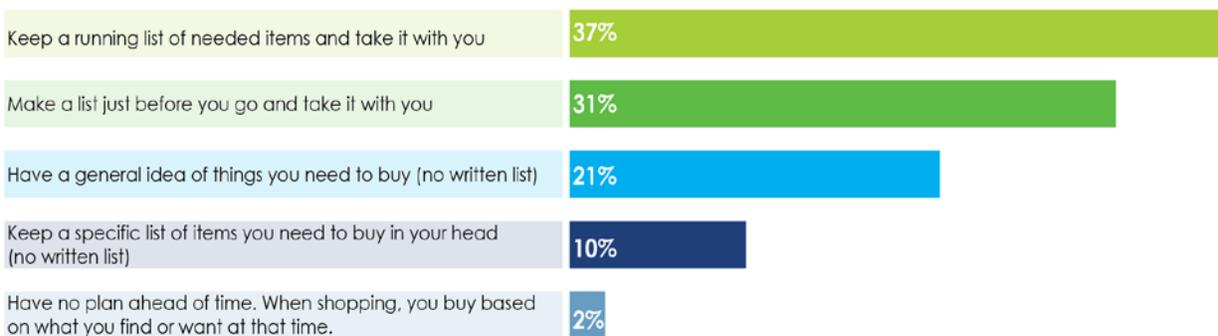
Planning Prior to Shopping

Respondents indicated that they most frequently checked to see if they have fresh fruits (89 per cent), vegetables (88 per cent), and milk and dairy products (82 per cent) on hand before going shopping.

For about two-thirds of respondents (62 per cent), shopping lists that they made were determined all or most of the time by the type of meals they were planning to prepare/cook. Once a week or more, 44 per cent of interview respondents considered household members' schedules to decide how much food was needed for the week.

While over one-third (37 per cent) of respondents indicated that they kept a running list of needed items and took it with them on their shopping trips, about a third (31 per cent) made a list just before they stepped out on their shopping trip. See Figure 11.

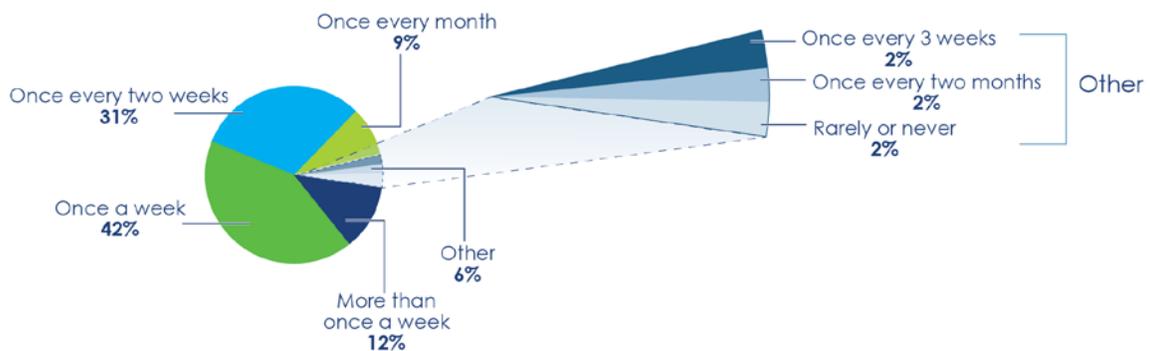
Figure 11. Percent of Respondents' Shopping List Preparation Habits (65 Interview Respondents)



Frequency of Shopping Trips

Figure 12 below shows that households were most likely (57 per cent) to make one major shopping trip and several smaller in-between trips each week. They were also more likely to shop once a week (42 per cent) followed by once every two weeks (31 per cent). One in ten households (9 per cent) reported that they shopped once per month.

Figure 12. Percent of Respondents' Frequency of Shopping Trips (65 Interview Respondents)



Type of Shopping Establishment

Almost all households usually shopped at medium to large supermarkets (97 per cent) while about half (45 per cent) reported shopping at warehouse-type stores, 18 per cent at specialty stores, 8 per cent at farmers' markets, 5 per cent at health and organic food stores, and 3 per cent at local/convenience stores.

Imperfect and Discounted Food

When asked to indicate the main factors for buying discounted foods, three-quarters of respondents reported that they usually buy discounted foods if it is something they usually buy as part of their shopping habits, while about two-thirds (62 per cent) reported that they would buy discounted foods so long they could use it by the best-before date. This was followed by whether or not the food looked to be in a very good condition with no damage (59 per cent).

In general, most respondents (84 per cent) tended to consume the extra food items that were purchased at a discount. While a large portion of respondents reported buying discounted food, they are likely not to make such purchases when the food looks to be in a very bad condition or damaged (85 per cent).

Pre-Made/Convenience Foods

On their last main shopping trip, 84 per cent of respondents either did not purchase or bought a few items that were pre-made, or convenience food items that required little or no preparation before serving.

Purchasing Extra Items

Adding extra items to the shopping list was common among most respondents. Over two-thirds of respondents (69 per cent) bought all or most of the items on their list, plus a few extra items, while 5 per cent bought only some items on their list and some extra items.

Cooking Habits

Cooking and Preparing Meals At Home

Eighty-nine (89) per cent of respondents cooked at home every day or most days of the week and 75 per cent usually planned meals 2-3 days prior to cooking.

Storage and Leftovers Habits

Management of Leftovers

The data indicate a significant portion of respondents used all of their leftovers for future meals (85 per cent).

Best-Before Dates

Sixty-two per cent (62 per cent) of respondents froze foods close to their best-before dates to extend their shelf-life.

Optimal Freezer and Fridge Use

Sixty-two per cent (62 per cent) of respondents used the freezer to store meal leftovers. A large range of interview respondents used the freezer to store uncooked meat and fish (97 per cent) and bread and bakery products (83 per cent). Also, almost half of interview respondents (46 per cent) never or rarely checked the temperature of their fridge in the past 12 months and only half

of respondents knew that the optimal fridge temperature setting for food storage should be at 4 degrees Celsius or lower.

Other Storage Habits

The majority of respondents stored carrots (97 per cent) and apples (68 per cent) in the fridge, and potatoes in the dark (74 per cent) or in a cupboard or shelf (46 per cent). More respondents stored opened cheese (72 per cent) and opened sliced meat (62 per cent) in a plastic bag, than in original packaging (63 per cent for cheese and 38 per cent for meat).

Food Waste Habits

Reasons for Wasted Food

A sizable number of interview respondents' wasted food behaviours were related to lack of planning: over three-quarters of respondents (77 per cent) noted that sudden changes in plans at least once in the past 3 months had led to wasted food, followed by 68 per cent who forgot about food in the fridge and almost half (45 per cent) who indicated they bought food with the intention of making something but did not use all of it.

Method of Disposal

Interview data show that the majority of respondents used the garbage to dispose of their food waste (97 per cent), followed by down the drain (86 per cent), feeding to pets (26 per cent), and home composting (25 per cent).

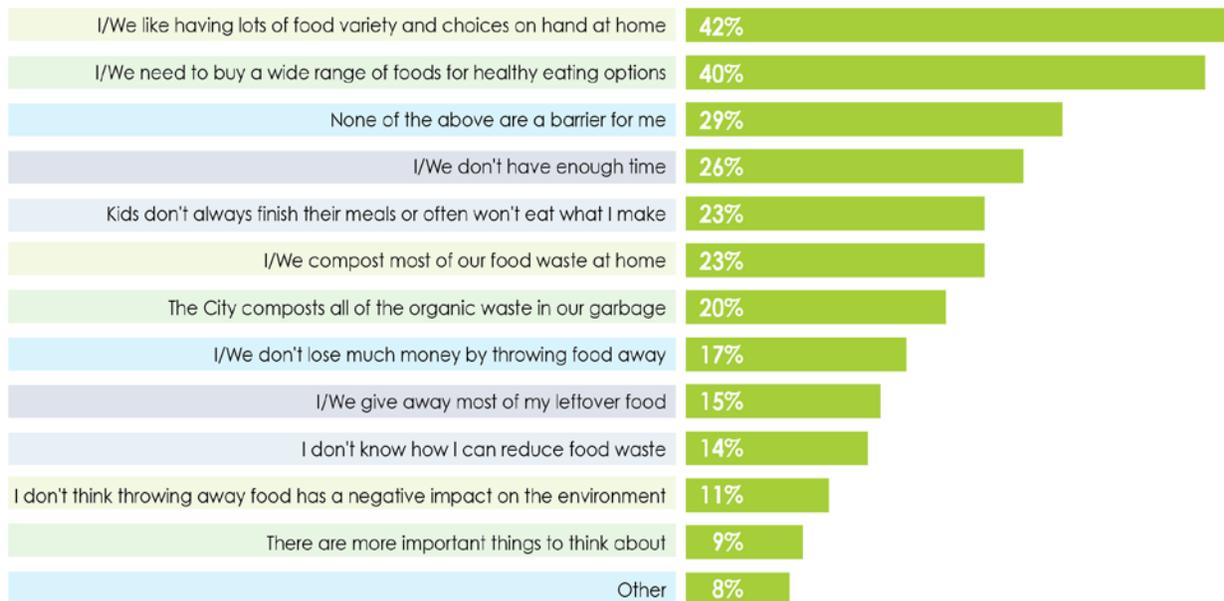
Other Habits

Over 60 per cent of interview respondents reported owning a home garden or plot where they grow produce for their own consumption.

Barriers to Reducing Food Waste

When respondents were asked if there were any factors preventing them from reducing food waste, respondents indicated that the top barriers to reducing food waste in households were both related to buying: 1) the desire to have lots of variety and choices on hand (42 per cent), and 2) wanting a wide range of food for healthy eating options (40 per cent). Almost a fourth of interview respondents agreed that their children’s food attitudes pose a challenge to food waste reduction. See Figure 13.

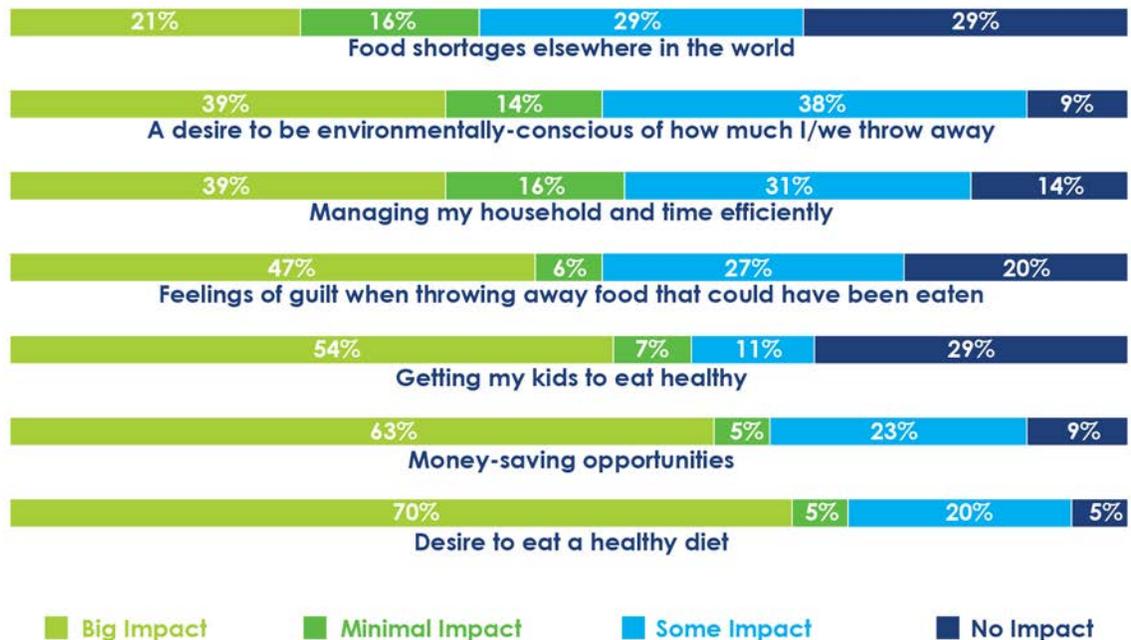
Figure 13. Percent of Respondents Who Identified Various Factors as Barriers to Reducing Household Food Waste (65 Interview Respondents)



Opportunities and Factors to Encourage Reducing Food Waste

Overall data show respondents reporting a range of ways and factors to reduce food waste. Respondents reported that the desire to eat a healthy diet (70 per cent), wanting to save money by throwing away less food (63 per cent), and getting children to eat healthy (54 per cent) have a big impact on motivating their households to reduce food waste. See Figure 14 below.

Figure 14. Percent of Respondents Who Selected the Impact of Various Factors that Encourage Food Waste Reduction in their Households (65 Interview Respondents)



Interview results further shed light on opportunities to encourage food waste reduction. The majority of respondents reported cooking at home (94 per cent) and from scratch (91 per cent), saving leftovers for future meals (83 per cent), and buying just enough for the week (71 per cent) are ways that they try to minimize food waste.

Chapter 6 – Key Findings from Food Waste Diaries

This chapter details key findings from the week-long food waste diaries. The data primarily provide insights into the total amounts and types of food waste generated, the reasons for disposing of food, and the methods of disposal.

Characteristics of Respondents

Thirty-two households across the three neighbourhoods completed food waste diaries. Participating households represented a cross-selection of those who took part in the doorstep survey. Since the number is relatively small, comparison with the original sample of participants is not detailed in this report.

Key Findings

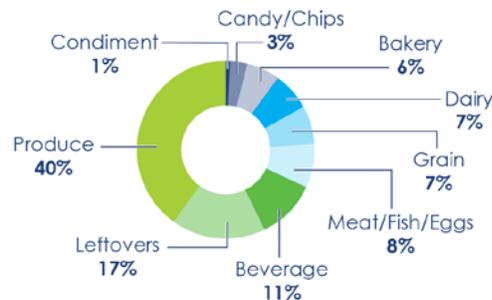
Total Amount of Food Waste

Food waste diary data show that the total amount of food waste generated during the week-long food waste-logging exercise was approximately 206 litres, or 6.4 litres per household, with the highest amount of food generated from avoidable waste (115.23 litres or 56 per cent of total food waste volume). Most of the food, when thrown away, was in small quantities. Seventy-four (74) per cent of instances of food thrown away in diary entries were under 1 cup or 0.25 L.

Types of Food Waste

Produce made up 40 per cent of overall food waste volume followed by leftovers (17 per cent). See Figure 15 below.

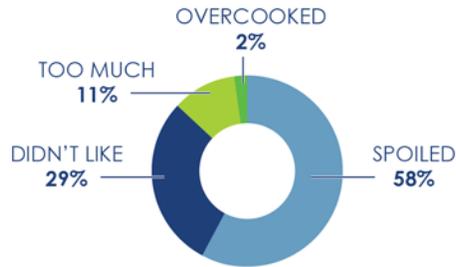
Figure 15. Percent of Food Waste Thrown Away, by Type of Food Waste (Week-Long Diaries by 32 Households)



Reasons for Disposing of Food

The top reason for throwing away food is that it was “spoiled”, followed by not liking the food. See Figure 16.

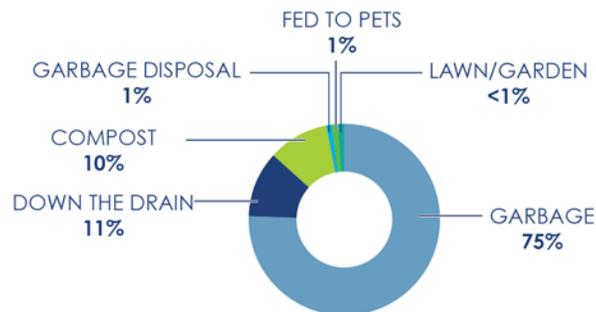
Figure 16. Percent of Avoidable Food Waste Thrown Away, by Reason for Disposal (Week-Long Diaries by 32 Households)



Methods of Disposal

Figure 17 shows that the majority of households used the garbage to dispose of their food waste (75 per cent of volume of total food waste), followed by down the drain (11 per cent of volume of total food waste).

Figure 17. Percent of Total (avoidable and unavoidable) Food Waste Thrown Away, by Disposal Method (Week-Long Diaries by 32 Households)



Chapter 7 - Key Findings from Pre- and Post-Diary Waste Audits

This chapter provides aggregate results of our analysis from the pre- and post-diary food waste audits.

Characteristics of Respondents

Thirty households consented to participate in the food waste audits. Participating households represented a cross-section of those who took part in the doorstep survey. Since the number is relatively small, comparison with the original sample of participants is not detailed in this report.

Key Findings

For pre- and post-diary waste audits, this section includes analysis on garbage and recycling, including conducting paired t-tests to uncover any significant statistical differences between the pre- and post- audit results.

Total Garbage Associated with Food

Waste audit results showed that between the pre- and post-diary data, the total garbage associated with food, including avoidable, unavoidable and food packaging, made up between a third (164 kilograms or 31 per cent for pre-diary) to nearly half (155 kilograms or 46 per cent for post-diary) of total garbage, or 2.6 kilograms per household per week.

Avoidable Food Waste (Wasted Food)

Wasted food, which includes avoidable food in packaging and edible food waste, made up between 16 to 24 per cent of total sorted garbage for pre-diary and post-diary audits, respectively; and more than half of total sorted garbage associated with food (51 per cent for pre-diary and 52 per cent for post-diary).

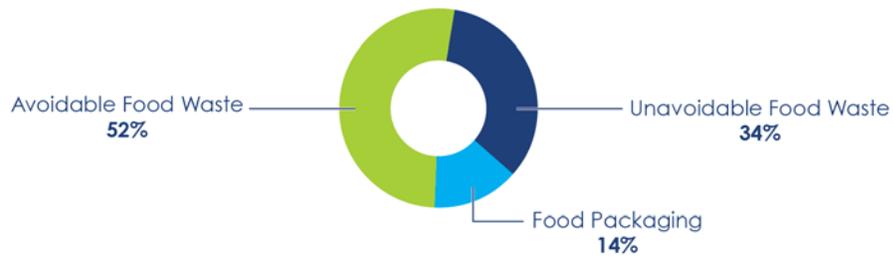
Unavoidable Food Waste

Unavoidable home compostable (vegetable and fruit peels, cores and trimmings) and non-home compostable (bones, fats, oils) waste made up between 11 to 16 per cent of total sorted garbage for pre-diary and post-diary waste audits, respectively; and a little more than a third of total garbage associated with food (34 per cent for pre-diary and 34 per cent for post-diary).

Food Packaging

Recyclable and non-recyclable food packaging made up between 5 to 7 per cent of total sorted garbage for pre-diary and post-diary waste audits, respectively; and an average of 14.5 per cent (15 per cent for pre-diary and 14 per cent for post-diary) of total garbage associated with food. See Figure 18.

Figure 18. Total Garbage Associated with Food, by Food Waste Category (155 kilograms of Food Waste Sorted for 30 Post-Diary Waste Audits)



For a comparison of the weights of various food waste categories between the pre-diary and post-diary waste audits, see Figure 19.

Figure 19. Total Weight (in kg) of Different Food Waste Categories Found in Household Garbage (30 Pre-Diary and Post-Diary Waste Audits)



Pre- and Post-Diary Waste Audit Analysis

Total Garbage

In our analysis of the pre- and post-diary waste audit, less garbage was collected in the post-diary waste audit (about 186 kilograms less) and as a result, there was less total garbage associated with food (8.5 kilograms less) in the post-diary waste audit; however, this difference is not statistically significant. Post-diary waste audit data also showed slight decreases in home compostable waste and in recyclable food packaging.

Avoidable Food in Packaging

Post-diary waste audit data further showed an increase of 10.5 kg of food still in packaging (not statistically-significant).

Food Packaging

Waste audit data indicated fewer recyclables in the post-diary waste audit than the pre-diary (around 60 kilograms less) with 6.5 kilograms less total food packaging collected (not statistically-significant).

There was a statistically-significant increase with 2.6 kilograms more of non-recyclable paper-related food packaging generated in the post-diary waste audit than the pre-diary audit⁴⁰.

⁴⁰ Pre-diary (mean = .10, standard deviation = .13); post-diary (mean = .22, standard deviation = .26), $t(21) = 2.13$, $p = .045$

Chapter 8 - Key Findings from Online Surveys

This chapter details the key findings from the mixed-topic and single-topic online surveys, specifically the characteristics of the respondents by survey type and aggregate results by response category.

Characteristics of Respondents/Households

Single-topic Online Survey

Overall, 2,341 respondents participated in the Edmonton Insight survey which focused on food waste between September 27 and October 11, 2016.

About a third of respondents were 15-40 years of age (compared to 47 per cent as per the 2016 Federal Census), while about one half were between 40 and 65 years old (compared to 32 per cent as per the 2016 Federal Census)⁴¹. The majority (81 per cent) of respondents owned their homes, and reported that they had no children at home (77 per cent). Similarly, most respondents were employed either full time (62 per cent) or part time (8 per cent).

About four in ten respondents reported household income over \$100,000. The majority (87 per cent) of respondents achieved education levels beyond high school, compared with 84 per cent as per the 2016 Federal Census. University education was the most frequent response (35 per cent), followed by college/technical school graduate (27 per cent) and post-graduate degree (21 per cent).

Mixed-topic Online Survey

Overall, 1,513 respondents participated in this survey in November 2016. Females (53 per cent) made up slightly over half the participants.

Respondents' demographics almost mirrored those of the participants of the single topic survey based on gender, age, home ownership and the incidence of having children at home as well as employment status. Respondents in the mixed-topic online survey were not asked additional questions pertaining to their education level and income.

⁴¹ Census population used for comparison encompassed 15+ years.

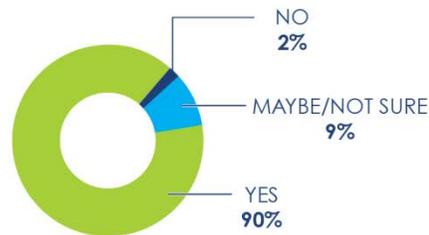
Results by Category

Most of the results in this section are from the single-topic survey, unless otherwise indicated.

Level of Awareness and Perceptions of Food Waste

Figure 20 shows that 90 per cent of online survey respondents had heard of the term 'food waste'. Open-ended responses showed a variation in the understanding of this term, from throwing away "edible" food to disposing of "inedible" food, and related to over-buying, poor planning, and cooking/making more food than needed.

Figure 20. Percent of Respondents Familiar with Term "Food Waste" (2,341 Online Survey Respondents)



Food Waste in Media

Online survey data indicate that respondents heard about food waste through online media (45 per cent), followed by word of mouth (36 per cent) and print media (36 per cent).

Thinking about Food Waste

Forty-nine (49) per cent of respondents thought about food waste on a weekly basis in the past six months. A third thought about food waste once a month, while 17 per cent have never thought about food waste.

Shopping Habits

Planning Prior to Shopping

Online survey respondents engage in planning behaviours prior to shopping, including checking various items to see if they have them and considering other household members' needs before going shopping. Sixty-two (62) per cent of online survey respondents checked the fridge, cupboards, and freezer for foods on hand before shopping. Sixty (60) per cent made a list of items before shopping and a third planned ahead for meals.

Frequency of Shopping Trips

Forty-eight (48) per cent went on a major shopping trip, to purchase at least half of their groceries, once a week.

Buying Imperfect/Discounted and Packaged Foods

Forty-two (42) per cent of online survey respondents reported "no, never" or "no, but would consider" to buying discounted or imperfect fruits and vegetables. Thirty-two (32) per cent bought foods with less packaging. See Figure 21.

Figure 21. Percent of Respondents Who Indicated They Engaged in Various Shopping Habits (2,341 Online Survey Respondents)



Cooking Habits

As Figure 22 shows, 84 per cent of online survey respondents cooked and ate at home at least 3-4 times a week, while only 20 per cent of respondents usually planned meals at least 2-3 days ahead of time. Data further indicate that half of survey respondents made enough food for the current meal plus planning for leftovers; 46 per cent decided what to prepare based on food that needs to be used up quickly; and 11 per cent made just enough food for each meal.

Figure 22. Percent of Respondents Who Engaged in Various Cooking Habits (2,341 Online Survey Respondents)



Storage and Leftovers Habits

Storage

The majority of online survey respondents used the fridge all the time to store produce (71 per cent) and stored food and drink in original packaging (60 per cent). See Figure 23 below.

Figure 23. Percent of Respondents Who Engaged in Various Storage Habits (2,341 Online Survey Respondents)



Leftovers

Figure 24 shows that the majority of respondents used the fridge to store leftovers (73 per cent), 68 per cent used leftovers for future meals, and 67 per cent stored the leftovers in clear containers. Open-ended responses also indicate that leftovers on average are stored in the fridge for a week before throwing them out, unless these leftovers are stored in the freezer to extend their storage-life.

Only 28 per cent of respondents used the freezer to store meal leftovers and a small 10 per cent labelled leftovers with storage dates.

Figure 24. Percent of Respondents Who Engaged in Various Leftover Habits (2,341 Online Survey Respondents)



Best-Before Dates

Close to a third (29 per cent) of respondents often kept foods past the best before dates and half sometimes did so. Responses from open-ended online survey questions show that on average the majority keep food past the best-before date depending on the food item—for instance, dried goods might keep longer than canned food items, dairy products, and uncooked meat and fish—which can vary in duration from days, to weeks, months and years. Respondents also follow the “look-smell-taste” test to determine whether a particular food item is still edible.

Only 36 per cent of respondents regularly checked the best-before dates to make sure foods are used before they have spoiled and close to half (48 per cent) consistently froze foods close to their best-before dates to extend their shelf-life (see Figure 23).

When asked what the best-before date means, the majority of online survey respondents indicated that the best-before date is simply a guideline or recommendation and not necessarily the cut-off date after which a food item needs to be disposed of, while others believed that it is “bogus” science and “fictitious” (from responses of open-ended questions).

Food Waste Reduction Habits

Attempts to Reduce Food Waste

Close to 60 per cent of single-topic and 64 per cent of mixed-topic online survey respondents had tried to reduce food waste on a weekly basis in the past six months (see Figure 25). Of those who had not tried to reduce food waste previously, over half (57 per cent) of respondents thought their household had very little or no food waste.

Figure 25. Percent of Respondents Who Tried to Reduce Food Waste in Past Six Months (2,341 Online Survey Respondents)

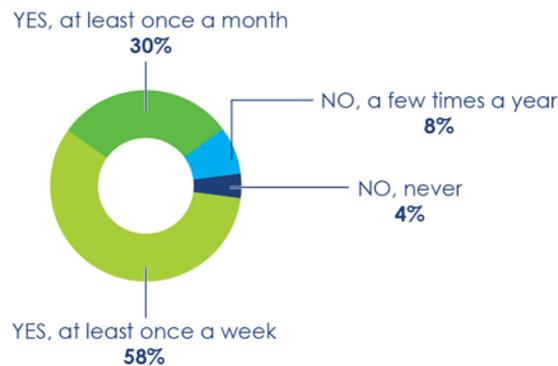
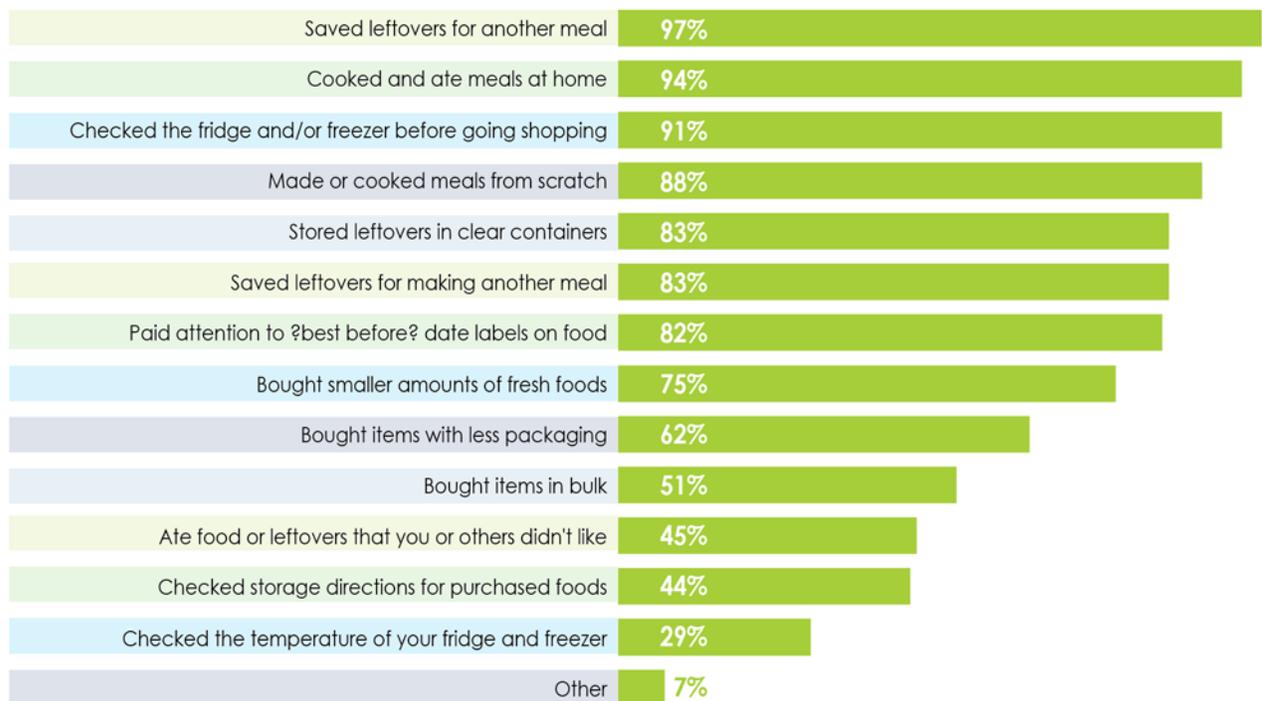


Figure 26 shows that of those who have attempted to reduce food waste in the past six months, the majority reported saving leftovers for another meal (97 per cent); cooking and eating meals at home (94 per cent); checking the fridge/freezer before going shopping (91 per cent); and cooking from scratch (88 per cent) as the top actions to reduce food waste in their household.

Figure 26. Percent of Respondents Who Selected Various Food Waste Reduction Actions Attempted in Past 6 Months (1,443 Mixed-Topic Online Survey Respondents out of 1,513 Completed Surveys)



Reasons for Throwing Away Food

A large percentage of respondents reported the top reason for throwing away food is because it is no longer edible (85 per cent), followed by it is past its best-before date (42 per cent) and there was a small amount left, it was not worth saving (39 per cent).

Food Waste Behaviours in Last Six Months

In the last six months, 40 per cent of respondents always consumed produce, even if they are not in the best condition and 40 per cent regularly cleaned out the fridge/cupboards/freezer to remove food that has spoiled. A very small percentage of respondents threw out food that is still edible "all the time" because no one will eat it (3 per cent) and a third did so sometimes. See Figure 27.

Figure 27. Percent of Respondents Who Engaged in Various Food Waste-Related Actions in Past 6 Months (2,341 Online Survey Respondents)



Challenges/Barriers to Food Waste Reduction

Most respondents have a good grasp of how they can reduce food waste. When respondents were asked if there were any factors preventing them from reducing food waste, respondents indicated that the top barriers to reducing food waste in households were both related to buying: 1) wanting to buy a wide range of food for healthy eating options (77 per cent); and 2) wanting to have lots of variety and choices on hand (66 per cent). Half of survey respondents agreed that their children's food attitudes (not finishing their meals or wanting to eat what is cooked) pose a challenge to food waste reduction. See Figure 28 below.

Figure 28. Percent of Respondents Who Agreed/Disagreed on Barriers that Prevent Reducing Food Waste (2,341 Online Survey Respondents)

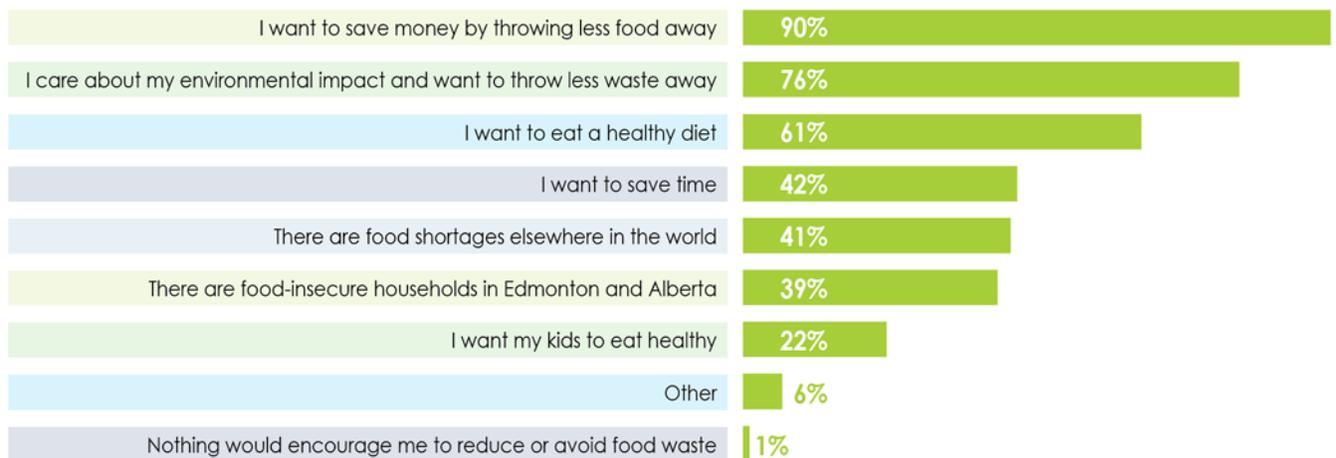


Other challenges reported in responses to open-ended questions, included: the complexity of coordinating food preferences and food waste behaviours/philosophies in multi-member households; lack of planning; desire for convenience; small-household size challenges related to portion sizes, cooking-for-one, and the inevitable presence of leftovers; not knowing how to cook; food packaging and retail strategies; and barriers to composting (responses to open-ended questions).

Opportunities for Future Education and Communications

When asked if any of the following reasons or factors would encourage your household to reduce food waste, respondents indicated that the biggest motivators were wanting to save money by throwing away less food (90 per cent); the desire to eat a healthy diet (61 per cent); and environmental concerns (76 per cent). See Figure 29.

Figure 29. Percent of Respondents Who Selected Various Reasons/Factors that Would Encourage Food Waste Reduction in Households (2,341 Online Survey Respondents)



In terms of educational opportunities that can potentially help reduce food waste, approximately half of online survey respondents reported wanting: clearer information about best before dates (50 per cent); information about where, how, and what kinds of foods can be donated (49 per cent); a list of businesses that donate leftovers to charity (46 per cent) and that divert wasted food from donors to organizations in need (46 per cent); and a list of retailers that sell imperfect/discounted produce (46 per cent).

When presented with several food waste reduction ideas, some online survey respondents would very likely engage in distributing leftovers to guests after a party (49 per cent); regularly donate unused still-edible food to friends or charity (37 per cent) and set up a “use me first” areas in the fridge (24 per cent). Only 9 per cent would very likely consider organizing shopping trips with family and friends to buy and split larger amounts of fresh foods.

Chapter 9 - Analysis of Food Waste, Waste Behaviours and Demographic Factors

This chapter reports analysis conducted across data collection instruments and cross-tabulations by demographic factors.

Cross-tabulations were applied across online survey, doorstep survey, and interview data to understand how certain demographic factors, such as household size, gender, age, and the presence of children in the household impact food waste behaviours and how these factors combine to impact the production of food waste.

To gain a more complete picture of the panoply of food waste behaviours and factors, and their relationship with food waste reduction, data of households that completed the food waste diaries, food waste audits, doorstep surveys and interviews (a total of 28 households) were linked and compared using statistical techniques that include the z-test, t-test and Analysis of Variance (ANOVA). For such analyses, means or averages are reported.

Most comparisons included in this report are statistically-significant at the 95 per cent confidence level (p-value of 0.05). Comparisons that are not statistically-significant at the 95 per cent confidence level are indicated.

It is important to note that our analysis was limited due to the inconsistency of collecting standardized demographic and food waste data across data sets. For example, gender, education level and income were not measured across all instruments. Some data sets captured age of respondents starting at 15 years and others starting at age 18 years. Age brackets varied, especially when reporting outcomes for youth, wherein some outcomes were captured for age brackets 15-24 while for others started at 25-34 years.⁴² Further, food waste diaries measured amounts of food thrown away through volume (litres), while the food waste audits relied on measured weight (kilograms). These variations in reporting of results are noted below in our analysis.

⁴² Analysis in this chapter considers youth age 15 to 34 years, where applicable.

Food Waste Perceptions

Results show that gender and age were statistically-significant factors in thinking about reducing food waste.

Single-topic online survey results show that 52 per cent of females thought about reducing avoidable food waste at least once a week, compared to 42 per cent of males. Males, on the other hand, were more likely to say they “never” think about reducing food waste. See Figure 29 below.

Figure 30. Percent of Respondents Who Thought about Reducing Avoidable Food Waste in Past 6 Months, by Gender (2,341 Online Survey Respondents)

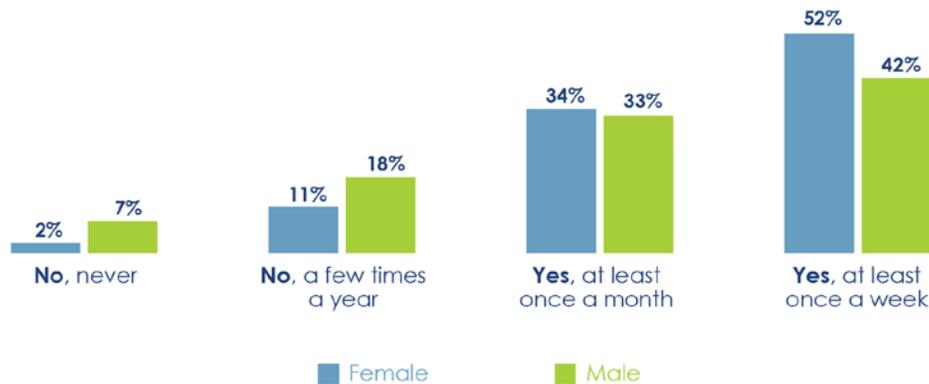
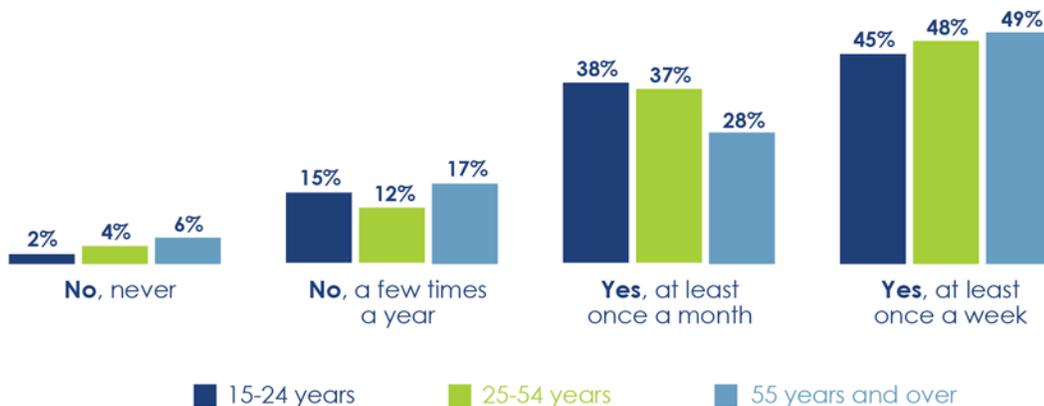


Figure 31 below shows that youth between the ages of 15-24 years thought the least about reducing avoidable food waste.

Figure 31. Percent of Respondents Who Thought about Reducing Avoidable Food Waste in Past 6 Months, by Age (2,341 Online Survey Respondents)



Shopping Habits

Planning Prior to Shopping

Our analysis shows that planning meals prior to shopping has a statistically-significant effect on food waste reduction. Respondents whose shopping lists were never determined by meals generated 3.8 times the total amount of total garbage associated with food waste than those whose shopping list was determined by meal planning “all the time”. See Figure 32 below.

Figure 32. Average Weight of Food Waste (in kg), by Frequency of Preparing Shopping List Determined by Meals (Total of 28 Pre-Diary Waste Audits Combined With Interviews)



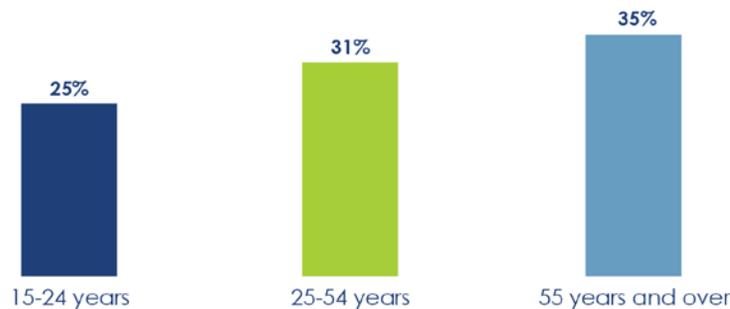
Table 5 below shows that even respondents whose shopping lists were “sometimes” determined by their meals, are significantly more likely than their counterparts to generate food waste, such as meat, fish, eggs, candy, and chips.

Table 5. Average Volume of Food Waste (in L), by Frequency of Preparing Shopping List Determined by Meals (Total of 28 Household Food Waste Diaries Combined with Interviews)

	Average Volume of Waste (in L)			
	Preparing Shopping List Determined by Meals			
	All the time	Sometimes	Occasionally	Never
Type of Wasted Food: Meat/fish/eggs	.283	1.408	.034	.020
Type of Wasted Food: Candy/chips	.057	.653	.080	.080

In terms of demographics, youth between the ages of 15-24 years were least likely than their older counterparts to consistently plan ahead for their meals prior to going shopping. See Figure 33 below.

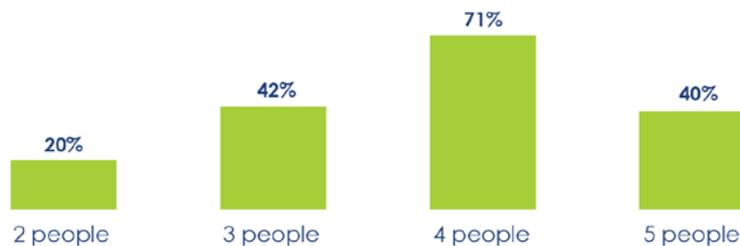
Figure 33. Percent of Respondents who Replied “Yes, all the time” When Asked if They Planned Ahead for Meals Prior to Shopping, by Age (2,341 Online Survey Respondents)



Frequency of Shopping Trips

Household size plays a role in determining frequency of shopping trips. Interview data show that four-member households were more likely to go shopping once a week (72 per cent) than households with a higher or smaller number of members. See Figure 34 below.

Figure 34. Percent of Respondents Who Reported Going Shopping “Once per week”, by Household Size (65 Interview Respondents)



There is no statistically significant difference between frequency of shopping trips and avoidable and unavoidable food waste produced. However, those who did their weekly shopping in one big trip generated 3.5 times the amount of non-recyclable food packaging than those who did their shopping over several trips. See Table 6 below.

Table 6. Average Weight (in kg) per Household of Non-Recyclable Food Waste Packaging, by Shopping Trip Size and Frequency (Total of 28 Pre-Diary Waste Audits Combined with Interviews)

	Shopping Habits		
	One Big Trip per Week	One Big and Some Smaller Trips per Week	Several Small Trips per Week
Average Weight (kg) of Non-Recyclable Food Waste Packaging	1.20	.34	.31

Type of Shopping Establishment

Respondents who shopped at larger grocery stores generated more food waste than those who did not.

Respondents who shopped at warehouse stores are significantly more likely to generate more waste from produce, total avoidable waste, and to throw out food because it was spoiled compared to their counterparts. In fact, warehouse-type store shoppers generated 1.7 times more total avoidable waste than those who shopped at other stores or the farmers' market. See Table 7 below.

Table 7. Average Volume of Food Waste (in L), by Shopping at Warehouse-Type Stores (Total of 28 Household Food Waste Diaries Combined with Interviews)

	Average Volume of Waste (in L)	
	Non-Warehouse Shopper	Warehouse-Shopper
Type of Wasted Food: Produce	0.66	2.33
Reason for Disposal: Spoiled	1.13	2.61
Total Avoidable Waste	2.84	4.82

Those who shopped at medium to large supermarkets also generated 64 per cent more avoidable food waste than those who did not frequent supermarkets (the difference is not statistically-significant).

Respondents who usually shopped at the farmers' market generated 5.4 times more recyclable cardboard food packaging than those who did not.

Tables 8 and 9 show that although those who shopped at specialty stores significantly generated more total food-related garbage (68 per cent) than those who did not, they generated 60 percent less avoidable waste than non-specialty store shoppers.

Table 8. Average Volume of Avoidable Food Waste (in L), by Shopping at Specialty Stores, (Total of 28 Household Food Waste Diaries Combined with Interviews)

	Shopping at Specialty Store	
	Non-Specialty Store Shopper	Specialty Store-Shopper
Average Volume of Avoidable Waste (L)	4.36	1.74

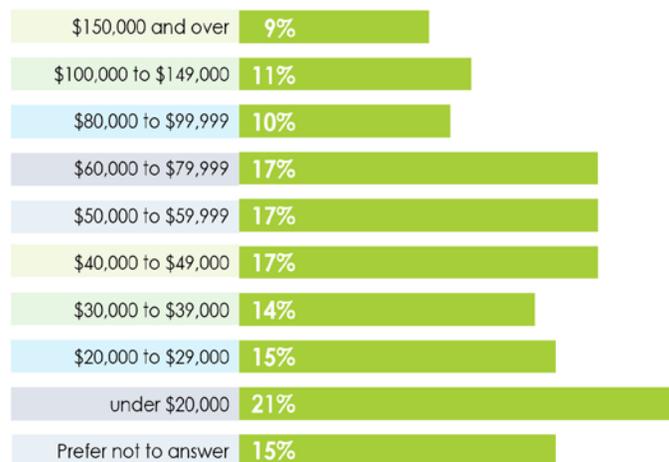
Table 9. Average Weight of Total Garbage Associated with Food Waste (in kg), by Shopping at Specialty Stores (Total of 28 Pre-Diary Waste Audits Combined with Interviews)

	Shopping at Specialty Store	
	Non-Specialty Store Shopper	Specialty-Shopper
Average Weight (kg) of Total Garbage Associated with Food Waste	5.33	9.00

Buying Imperfect and Discounted Produce

As Figure 35 shows, households that earn under \$20,000 were more likely than households earning higher incomes to consistently purchase imperfect and/or discounted vegetables and fruits.

Figure 35. Percent of Respondents Who Replied “Yes, all the time” When Asked if They Bought Imperfect and/or Discounted Produce, by Household Income (2,341 Online Survey Respondents)



Respondents who often bought additional discounted food produced 6.9 times the dairy waste than those who only purchased discounted food if they usually consume it. See Table 10 below.

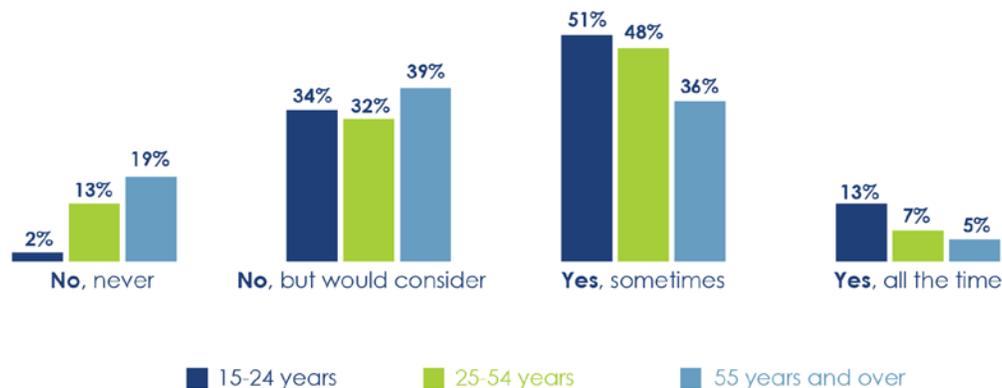
Table 10. Average Volume of Dairy Waste (in L), by Frequency of Purchasing Additional Discounted Food (Total of 28 Household Food Waste Diaries Combined with Interviews)

	Frequency of Buying Additional Discounted Food			
	All the time	Often	Only if I usually buy	Never
Average Volume (L) of Dairy Food Waste	0.36	0.76	0.11	0.00

Buying Pre-Packaged/Pre-Made Foods

Youth ages 15-24 years were the most likely to buy pre-packaged, pre-made foods and the least likely to purchase food with less packaging among their counterparts. Figure 36 shows that 13 per cent of online survey respondents ages 15-24 years reported buying pre-packaged foods “all the time”, compared to 7 per cent of respondents between 25-54 years and 5 per cent of those 55 years and over. They are also the least likely to say “never” to buying pre-packaged foods.

Figure 36. Percent of Respondents Who Reported Buying Pre-Packaged, Pre-Made Foods, by Age (2,341 Online Survey Respondents)



Only seventeen (17) per cent of youth ages 15-24 years reported purchasing food with less packaging “all the time”, compared to 36 per cent of respondents 55 years and over and 29 per cent of those between 25-54 years.

Shopping for Extra Items

Interview data show that households with children were more likely to stick to their shopping lists with the same items purchased each week. Households with no children were more likely to purchase all or most items on their list and a few extra items than those who have children. See Figure 37.

Figure 37. Percent of Respondents Who Replied “Yes, all the time” When Asked if they Shopped for Extra Items, by Household with Children (65 Interview Respondents)



Cooking Habits

People who cooked and ate at home every day generated 78 per cent less non-recyclable paper food packaging waste than those who cooked and ate at home 3-4 times a week. These statistics may be explained by the notion that those who do not eat at home every day might be bringing into their homes pre-packaged and convenience foods, or packaged leftover restaurant food that tend to generate food packaging waste. See Table 11.

Table 11. Average Weight (in kg) of Non-Recyclable Paper Food Packaging, by Frequency of Cooking and Eating at Home (Total of 28 Post-Diary Waste Audits Combined with Interviews)

	Frequency of Cooking and Eating At Home	
	Cook Every Day or Most Days	Cook 3-4 Times Per Week
Average Weight (kg) of Non-Recyclable Paper Food Packaging	0.20	0.90

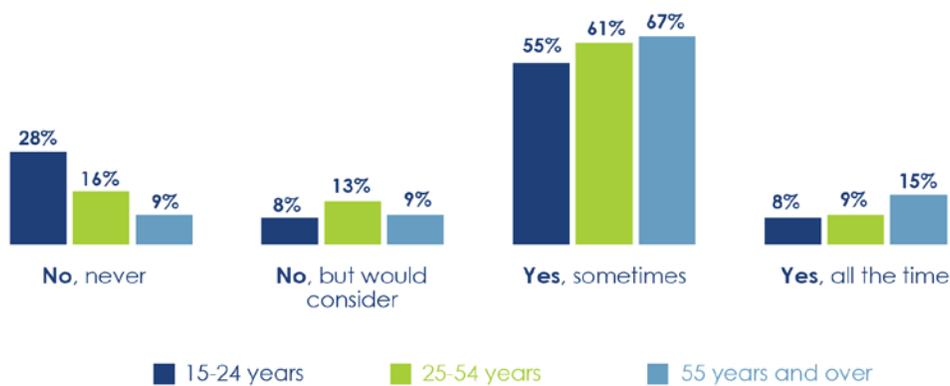
Females were more likely than males to decide what to cook based on foods that need to be used up quickly, and plan meals at least 2-3 days ahead, as shown in Figure 38.

Figure 38. Percent of Male and Female Respondents Who Replied “Yes, all the time” When Asked if They Plan Meals Ahead of Time, and Decide What to Cook Based on Food That Needs to be Used Quickly (2,341 Online Survey Respondents)



Our analysis also shows that youth ages 15-24 years were more likely to answer “never” to making food that is just enough for the current meal, compared with other age groups. See Figure 39 below.

Figure 39. Percent of Respondents Who Reported Making Just Enough Food for Current Meal, by Age (2,341 Online Survey Respondents)

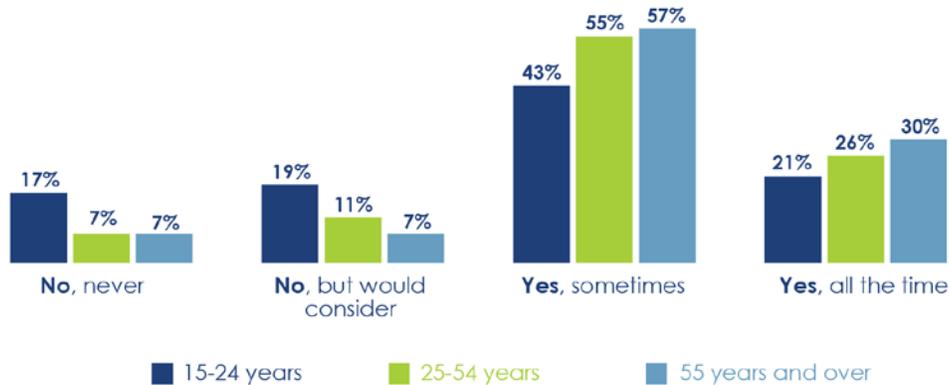


Storage and Leftovers Habits

Management of Leftovers

Online survey results point to age playing a significant role in leftover habits. Respondents between the ages of 15-24 years were less likely to store leftovers in the freezer, compared with those who are older. See Figure 40.

Figure 40. Percent of Respondents Who Reported Storing Leftovers in the Freezer, by Age (2,341 Online Survey Respondents)



Females, on the other hand, were more likely to engage in this behaviour than males (30 per cent for females who do this “all the time” compared with 23 per cent for males).

Youth were also least likely to label leftovers with storage dates, compared with their older counterparts. Forty (40) per cent of respondents, ages 15-24 years, would “never” label leftovers compared to 34 per cent of those ages 25-54 years and 27 per cent of those 55 years and older.

Best-Before Dates

Females were more likely than males to consistently freeze foods close to their best-before dates to extend their shelf-life (51 per cent for females and 43 per cent for males). This habit, in general, is shown in our analysis to reduce the incidence of generating unavoidable waste and total food waste (the difference is not statistically-significant).

Food Waste-Related Habits

Attempts to Reduce Food Waste

Single-topic survey data show that 60 per cent of females tried to reduce food waste on a weekly basis compared to 51 per cent of males. Males were more likely to answer “never” to trying to reduce food waste (7 per cent for males and 2 per cent for females).

Influence of Children

Families with children generated on average 80 per cent more garbage associated with food waste, including avoidable and unavoidable waste, than households with no children. See Table 12 below.

Table 12. Average Weight (in kg) of Total Garbage Associated with Food Waste, by Presence of Children in Household (Total of 28 Post-Diary Waste Audits Combined with Doorstep Surveys)

	Presence of Children	
	Without Children	With Children
Average Weight (kg) of Total Garbage Associated with Food Waste	4.52	8.08

Interview respondents with children (47 per cent) were also more likely to purchase food or drink but not use it all, compared to respondents with no children (41 per cent).

Influence of Youth

As Figure 41 shows, on average, older youth ages 25-34 years produced 30 per cent more avoidable food waste than other age groups.

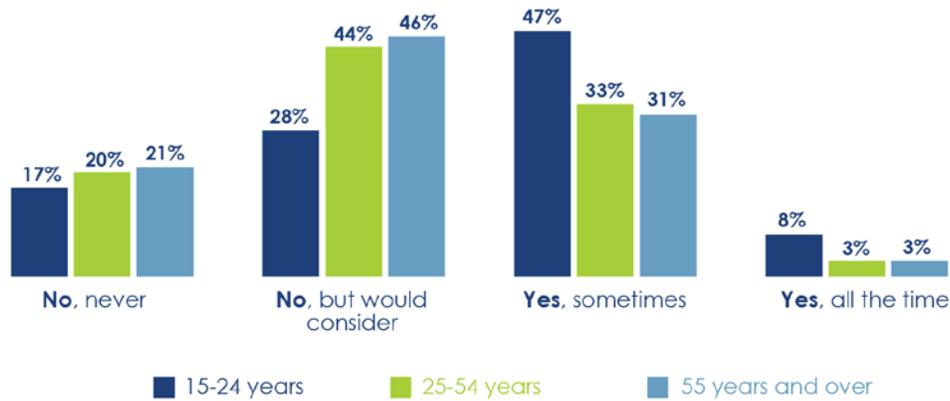
Figure 41. Average Volume (in L) of Avoidable Waste and Total Food Waste Produced, by Age (Total of 28 Food Waste Diaries Combined with Doorstep Surveys)



They also produced 4.4 times the dairy waste than those ages 35-44; 7.5 times the dairy waste than those ages 45-64; and 6.3 times the dairy waste for those ages 55 and older.

Youth ages 15-24 years were more likely to throw out food that is still edible because no one will eat it, compared to older respondents. See Figure 42 below.

Figure 42. Percent of Respondents Who Reported Throwing Away Edible Food, by Age (2,341 Online Survey Respondents)



Influence of Household Size

Research shows that the larger the household, the smaller the amount of waste “per capita” as food gets eaten up faster.⁴³ Our analysis shows that two-member households generated more avoidable food waste than households with 3, 4, or 5 members (the difference is not statistically-significant).

Influence of Home Composting and Gardening

The analysis indicates that 94 per cent of those who own a garden also compost, compared to 6 per cent of those who do not own a garden. However, not many respondents reported owning a home composter (only 22 per cent of doorstep survey and a third of interview respondents). Of those who own a home composter, our diary linkage analysis shows that they generated 1.6 times the total food waste than those who do not compost. See Table 13 below.

Table 13. Average Volume of Total Food Waste (in L) Produced, by Owning a Home Composter (Total of 28 Food Waste Diaries Combined with Doorstep Surveys)

	Owning a Home Composter	
	Non-Composter	Composter
Average Volume (L) of Total Food Waste Produced	5.18	8.50

⁴³ Food: Too Good to Waste: an Evaluation Report for the Consumption Workgroup of the West Coast Climate and Materials Management Forum, U.S. Environmental Protection Agency, 2016

Barriers and Opportunities for Food Waste Reduction

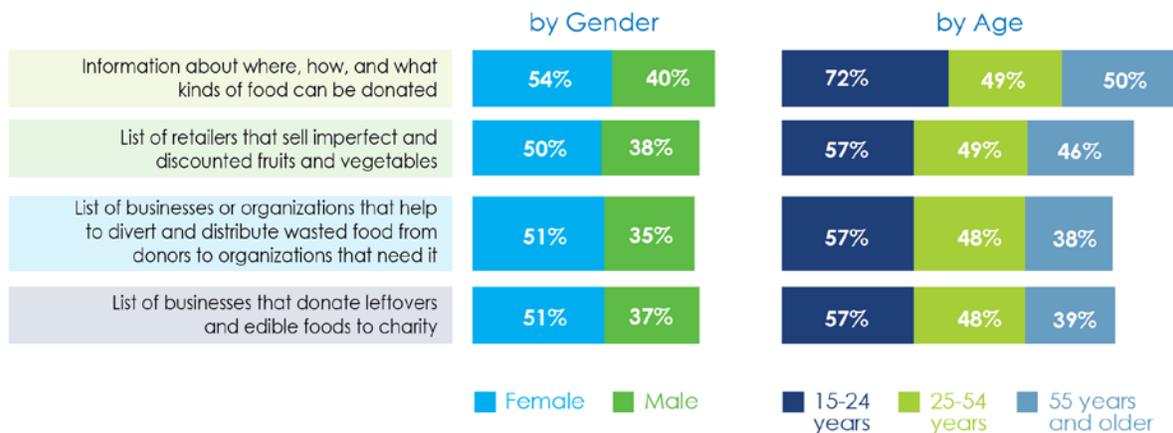
Barriers to Food Waste Reduction

As previously stated, one of the top barriers preventing food waste reduction, as identified by respondents, is the desire to want a wide variety of fresh foods on hand for healthy eating options. Forty-two (42) per cent of females (compared to 33 per cent of males) and 44 per cent of families with children (compared with 36 per cent of non-children households) strongly agree that this is a barrier for their households.

Opportunities for Future Education and Communications

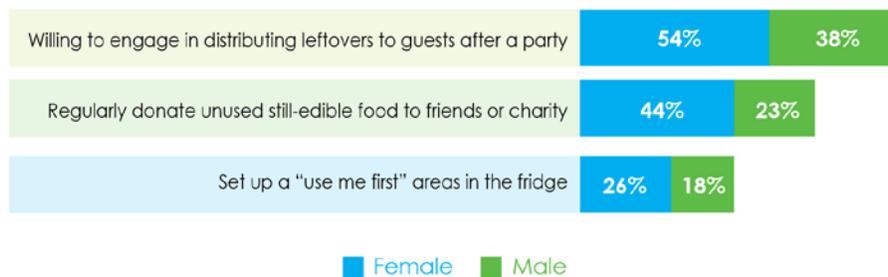
Gender and age both play a role in what educational opportunities may be successful in reducing food waste. Figure 43 shows that females and youth were the most likely among their counterparts to indicate interest in suggested education topics that help reduce food waste.

Figure 43. Percent of Respondents Who Selected Various Education Topics That would be of Interest or Help Reduce Food Waste, by Gender and Age (2,341 Online Survey Respondents)



Females were also more likely than their counterparts to consider: distributing leftovers to guests after a party, donating unused food to friends and charity, and setting up a “use me first” area in their fridge to help reduce wasted food. See Figure 44 below.

Figure 44. Percent of Female and Male Respondents Who Were Very Likely to Consider Various Ideas to Try to Reduce Food Waste (2,341 Online Survey Respondents)



Chapter 10 - Recommendations for Future Food Waste Research

A recommended future food waste research framework entails conducting large-scale research with an expanded and representative sample that could potentially be repeated every three to five years and assist the City in developing a food waste target, as well as measuring progress in reaching that target. Also, market research needs to be undertaken to determine scope and messaging of any future food waste program.

Conduct Large-Scale Research

To address varying sample and methodological limitations with the current City of Edmonton food waste research, we recommend conducting large-scale food waste research with an expanded, more representative sample that would enable extrapolation of results across Edmonton's population and refine the methodology that connects self-reported behaviours with observable waste data.

Key Components of Proposed Research Framework

The recommended framework would entail conducting kitchen diaries, pre- and post-kitchen diary surveys, and food waste audits to assess changes in self-reported perceptions and behaviours and better link them with observable food waste data, all while examining a single sample of households. Having one sample simplifies recruitment, data analysis and reporting of outcomes and improves accuracy.

Below are key components of this proposed research framework:

Sampling

The food waste research should deploy stratified random sampling, instead of open recruitment, to ensure people who participate in the research are not more inclined to have well-established food waste behaviours. Stratified random sampling would ensure even representation across Edmonton and a balance of gender, age, household type, income, area of residence and ethnicity, among other factors (using Stats Canada). Recruitment of households would take place by phone.

The recommended sample size should range between 400 - 450 households, similar to Calgary's 2016 food waste study, with a target of a minimum of 350 completed diaries. This sample size would allow for extrapolation of amounts of food waste generated and food waste behaviours and habits across Edmonton's population and would generate results that are accurate within a margin of error of $\pm 5.25\%$ 19 times out of 20.

Data Collection Instruments and Methodology

The research could include the following data collection instruments and corresponding methodologies:

- **Pre-Kitchen Diary Waste Audit:** A pre-kitchen diary waste audit is critical to set a baseline/target for amounts of residential food waste generated. The waste categories and sorting protocols utilized for the previous waste audit are appropriate to continue to use for future research. It is also recommended not to conduct the waste audits during major holidays or seasonal events.

- **Pre-Kitchen Diary Survey:** A pre-kitchen diary survey will capture residents' baseline food waste perceptions and behaviours prior to commencing the kitchen diaries. The survey would collect basic demographic information; perceptions and behavioural data; and cost data, such as dollar value of food purchased in a typical grocery trip; among other such data.
- **Kitchen Diary Challenge:** The kitchen diary challenge would ideally span a three- to four-week period, which has been shown in several food waste social marketing programs in the U.S. to be an appropriate range to inculcate the necessary behaviours to reduce food waste. Kitchen diary participants would follow a similar data collection protocol as that from the 2016 research, except that amounts of food waste would be measured in kilograms, rather than litres, to align this metric with waste audit data. Participating households would be provided with a monetary or in-kind incentive to encourage participation and completion and would receive several e-mails/calls to encourage and ensure completion.

The first week of the diary phase would incorporate no sharing of food waste reduction tools or resources, followed by a two- to three-week diary period where residents are asked to implement food waste reduction tools or tactics, in order to evaluate their effectiveness. This research would help the City determine which tactics and elements to include in the development of a future educational and social marketing pilot/program.

- **Post-Kitchen Diary Phone Survey:** Following completion, a short post-survey would be administered to identify shifts in the baseline—such as how perceptions and habits have changed as a result of partaking in the diary process and utilizing the food waste reduction tools and resources provided by the City.
- **Post-Kitchen Diary Waste Audit:** A post-kitchen diary waste audit of those households would further assist in gauging shifts in the baseline and help determine if the selected food waste reduction tools and resources have been successful.

Frequency of Recurrent Research

Food waste audits could be repeated every three to five years to measure any observable changes in amounts of residential food waste generated. Kitchen diaries can also be conducted periodically to entice behavioural change (see Chapter 11 for more information on the use of kitchen diary challenges as part of programming).

Food Waste Reduction Target/Benchmark

Food waste audits can assist the City in setting a benchmark for future food waste reduction efforts. The target should be realistic and revisited every three to five years from the start of any future programs or campaigns and revised in tandem with recurring food waste audits. Setting a target: 1) helps entice municipal and community action and rally support by local community, non-profit and business partners; and 2) supports Federal government actions if a nation-wide food waste reduction target is identified and set.

Conduct Market Research

Prior to development of any future food waste reduction programming, we recommend conducting market research to help:

- 1) **Define Messaging** - Define/refine the campaign messaging based on the four perceived benefits of food waste reduction: personal, economic, social and environmental; and
- 2) **Identify Effective Interventions** - Assist the City in identifying the appropriate “social-psychological tools, such as commitments, prompts and signals”⁴⁴, and other interventions to reinforce desired food waste behaviours among residents.

Below are key components of this proposed market research framework:

Focus Groups

Conduct at least five focus groups to test future campaign messaging, information and tools. We recommend at least two focus groups that recruit participants from a cross-section of Edmonton’s population and the remaining three would recruit participants from specific target groups to understand what most resonates with these groups. See Chapter 11 below for recommended Target Groups.

Survey

Tap into the Edmonton Insight Community panel and through other methods by deploying a survey that will assist the City in testing campaign messages and information.

Key Informant Interviews

Conduct key informant interviews with key influencers and partners in Edmonton, including representatives identified by the City from community organizations, businesses and individual influencers and bloggers with an interest in sustainability, environment, and food waste, who can assist the City in promoting and executing a successful food waste social marketing pilot/program.

⁴⁴ Food: Too Good to Waste Pilot: Background Research Report, U.S. Environmental Protection Agency, 2012

Chapter 11 - Recommendations for Development of Future Educational and Social Marketing Programs

The current research completed by the City of Edmonton to date provides sufficient background information and an appropriate baseline that can be used to launch a social marketing and educational pilot program to be further scaled up based on evaluation and success of the pilot.

Below are recommendations and considerations for developing a pilot or a multi-year educational and social marketing program.

Identify Desired Behaviours and Perceptions to Target

Based on the results and analysis of the 2016 research, we recommend targeting: 1) food waste awareness; 2) shopping habits, including planning, buying just enough and purchasing imperfect produce; 3) cooking habits; and 4) storage habits, including best-before date awareness.

- **“What is Food Waste?”**: More can be done to further educate residents on the meaning/definition of food waste, as open-ended responses in the online surveys showed a variation in the understanding of this term, from throwing away “edible” food to disposing of “inedible” food.
- **“Plan before You Shop” and “Buy Just Enough”**: As the research has shown, respondents whose shopping list is not determined by meals produced 3.8 times more food-related garbage; those who shopped in one big trip generated 3.5 times the non-recyclable packaging waste; and warehouse-store shoppers produced 1.7 times more food waste than each of their counterparts. Also, the top two barriers to food waste reduction were both related to buying behaviours—buying to have healthy food options and buying to have variety and choice. As such, the City should develop messaging and tools to assist consumers in planning meals prior to shopping, encouraging shopping more frequently and buying just enough to reduce food waste.
- **“Imperfect Produce is Equally Perfect”**: A little more than 40 per cent of online survey respondents are less likely to buy imperfect fruits and vegetables. Data also show that low-income households are the most likely to make such purchases. There is an opportunity to further encourage all residents to purchase and consume imperfect produce, including creating a visual identity around odd-shaped produce through effective messaging. Some challenges to consider would be interfacing with retailers, who may not stock these items, and promoting to residents venues where they can purchase these items.
- **“Best-Before Dates or Best-If Used?”**: Less than a third of online survey respondents often keep foods past their best before dates and only 36 per cent regularly check the best-before dates to make sure foods are used before those dates. Our analysis further shows that freezing foods close to their best-before dates to extend their shelf-life tends to reduce food waste. More needs to be done to increase awareness of best-before dates, especially what these labels mean and how best to determine if foods can still be used past the best-before date to ensure food safety among residents.

- **“Cooking Time, Family Time”**: Our research indicates that one of the top opportunities to reducing food waste is the desire to eat a healthy diet, including getting children to eat healthy. Females report that they are more likely to engage in good meal planning behaviours, while youth are least likely to cook just enough for their meals. As such, the City should promote the benefits of cooking fresh/healthy meals with family and friends to increase children’s and youths’ appreciation of food, as well as involve various members of the household in this critical activity. See Target Population section below for more details on families.
- **“Store Food, Enjoy Later”**: Data show that youth are least likely to engage in good storage habits, especially as they relate to management of leftovers. There is an opportunity to reinforce good storage and leftover habits to reduce wasted food. See Target Population section below for more details on youth.
- **“Food Waste Equals Pocket-Book Waste”**: The number one motivating opportunity to reduce food waste is saving money, according to online survey participants. Messaging and tools need to be primarily developed to promote this particular perceived benefit, as opposed to only, for instance, focusing on the environmental impact, in order to reach a wider section of Edmonton’s population. The City would need to consider ways to help residents understand how much they throw away and how this relates to or can affect them personally, such as waste of money, time, etc. Capturing a cost measure in future food waste research (such as dollar value of food purchased in typical grocery trip, see Chapter 10) can assist the City in deriving cost statistics to use in messaging.

Table 14 presents a matrix that helps organize messaging and campaign content based on the selected behaviours that the campaign seeks to target and the perceived benefits and values of food waste reduction.

Table 14. Examples of Messaging/Campaign Activities/Tools Based on Behaviours and Perceived Benefits

Benefits/ Values	Behaviour/Habit Category	Examples of Messaging or Campaign Activities/Tools
Personal  Desire to eat healthy and getting children to eat healthy	Cooking	<ul style="list-style-type: none"> Encourage cooking together as a family to enhance family time; "Cooking time, family time!" Provide tools and information to learn about planning and preparing meals
	Storage and leftover management	<ul style="list-style-type: none"> Provide tools to encourage optimal use of fridge and freezer, such as setting up "use me first" areas in the fridge Engage select residents in food waste kitchen diary challenges to create awareness and to change behaviour
	Food Waste Awareness and Reduction	<ul style="list-style-type: none"> Launch contests to encourage residents to submit innovative solutions for food waste reduction, such as applications or tools in return for recognition or award
Social  Household and community needs	Food Selection and Shopping	<ul style="list-style-type: none"> Create consumer awareness of imperfect produce and/or best-before dates through "in-store" media campaigns in partnership with local food retailers Provide a list of local retailers that sell imperfect/discounted produce Set up information booths at farmers' markets and other event-tabling opportunities
	Food Waste Awareness and Reduction	<ul style="list-style-type: none"> Share information about where, how and what kinds of foods can be donated Provide list of businesses that donate leftovers to charity and divert wasted food from donors to organizations in need Encourage community-based solutions to food waste reduction through community kitchens and food waste workshops
Economic  Save money	Shopping	<ul style="list-style-type: none"> Develop a calculator or online tool that assists consumers in understanding the dollar value of wasted food Create messages/infographics that equate disposing amounts of certain foods with specific reductions in household bills Create messages/infographics that equate savings to money that can be used for family/leisure activities
Environmental  Reduce greenhouse gas emissions	Food Waste Reduction	<ul style="list-style-type: none"> Create relevant, meaningful messaging. For example, "throwing away an apple...to flushing the toilet seven times."¹ Host film screenings and presentations showcasing the global and local problem of food waste

¹ Food: Too Good to Waste: an Evaluation Report for the Consumption Workgroup of the West Coast Climate and Materials Management Forum, U.S. Environmental Protection Agency, 2016

Select Target Groups

According to the research, the most optimal groups to target for a potential educational or social marketing program would be families and youth (ages 15-34), as explained below. However, the campaign should also aim to target all residents.

Families

On average, households with children produce 80 per cent more avoidable waste than families without children under the age of 18. They also tend to throw away foods that they do not end up consuming as their children's food attitudes play a significant barrier to reducing food waste in their homes. However, they also engage in several behaviours that help reduce food waste, such as planning meals prior to shopping and sticking to their shopping lists from one week to the next. Targeting this group would encourage youth, children and other members of the household to get involved in learning food waste reduction best practices and inculcate good food appreciation behaviours.

Youth, up to 34 years

On average, older youth between the ages of 25-34 years produce 30 per cent more avoidable waste than other age groups. Awareness of food waste among youth aged 15-24 years is relatively low compared to other age brackets, as are established food waste reduction behaviours, from shopping, to cooking, to storage and leftover management. Youth, though, show more interest in engaging in educational ideas to reduce food waste. As such, targeting youth will help build a foundation for future leaders and generations in food waste prevention.

Several social marketing and awareness campaigns in the U.S. targeted youth in order to instill good food waste behaviours and habits at an early age. Research from kitchen diary challenges conducted in the U.S. also shows that households with young members aged 28 to 34 years achieved the largest food waste reduction levels compared to other age groups.⁴⁵

Engage Stakeholders

We recommend engaging the community in identifying and actively seeking and leveraging “win-win” opportunities, if possible by: 1) aligning the initiative with other municipal initiatives that might have similar or overlapping objectives or goals, and 2) partnering with local, community-based organizations and businesses/retailers. These potential partners can be engaged either in the early stages of intelligence-gathering, as they can provide perspective as to what a successful social marketing or educational program looks like for them, and how they can contribute to the development and/or implementation of a successful campaign (win-win strategy).

Examples of in-kind support to complement program success could include partnering with local TV stations to promote campaign events/activities and conduct contests, and/or seeking participation of local businesses/retail stores that can further promote the program in various ways, such as providing physical space to host events/activities. Other opportunities can include collaborating with schools and universities and community leagues to target youth and families.

⁴⁵ Toolkit Implementation Guide for the Food: Too Good to Waste Pilot, West Coast Climate and Materials Management Forum, U.S. Environmental Protection Agency, 2013

Design and Implement Program/Pilot

Define Campaign Purpose and Formulate Outcome-Based Objectives

The City needs to define either a single or a multi-pronged purpose and a set of objectives driving future food waste reduction programs. We recommend articulating the purpose through the benefits and values that will resonate with residents—personal, economic, environmental, and social.

Campaign objectives need to be well-defined and aligned to a set of tangible outcomes so the City can more effectively report success towards achieving overall campaign goals, in order to sustain funding, resources, and working relationships. An objective, such as increasing the general population's awareness of food waste might be difficult to measure in terms of outcomes as attitudinal changes generally require medium- to long-term strategies/interventions, as opposed to implementing an information-only campaign. A more appropriate objective might be to measure increased participation of youth in food waste reduction, such as attendance at events/workshops or engaging in social media contests, which can be easily measured before and during the pilot.

Contextualize Behaviours to Develop Effective Messages and Build Content

For the largest impact on behavioural change, it is recommended that selected behaviours and messaging be introduced in a relevant context for Edmonton residents, appealing to varying perceived values and benefits tied to food waste prevention. Campaign messaging should be authentic and emotion-provoking, and residents should be able to see themselves in the campaign messages, images/photos, and videos. See Chapter 10 for recommendations to conduct market research to develop and refine messages and scope of the social marketing program.

In terms of content, the City should consider the following options:

Challenges and Contests - Drive interest in the program while influencing behavioural change by incorporating:

- Kitchen diary challenges (see Chapter 10 for more information on kitchen diaries), where were successfully adopted by some of the 17 evaluated U.S.-based Food: Too Good To Waste social marketing campaigns sponsored by EPA to incent behavioural change, while simultaneously evaluating the effectiveness of the campaigns. Kitchen diary challenges have shown to positively nudge food waste behaviours and reduce amounts of food waste generated⁴⁶, as opposed to simply raising awareness.
- Contests that might seek input by the public to come up with innovative food waste reduction tools and web-based applications in return for awards or recognition. Contests that leverage social media tools frequently used by youth, such as Pinterest contests, can also drive interest and increase awareness.

⁴⁶ Food: Too Good to Waste: an Evaluation Report for the Consumption Workgroup of the West Coast Climate and Materials Management Forum, U.S. Environmental Protection Agency, 2016

Develop and Leverage Content - Develop original-content food waste reduction tools/applications and infographics or seek permission from other municipalities or organizations for such content to populate future programming. One example is leveraging the National Zero Waste Council's upcoming national food waste reduction campaign, based on the U.K.'s Love Food Hate Waste, for branded creative concepts and messaging.

Multi-Media Digital Strategy - Develop a combination of digital strategy, video production, storytelling and viral social media to reach busy families, youth, and other residents while ensuring that content is relatable and representative of city population.

Food Waste Champions - Engage local celebrities and public figures as champions of food waste reduction.

Physical Gathering Space - Provide physical gathering space for workshops, presentations and film screenings, among other purposes, where youth and families can gather, collectively learn and share experiences.

Event-Tabling - Partner with community/volunteer organizations that might be able to assist in event tabling, such as at farmers' markets and other food-related or community/neighbourhood events to increase awareness of food waste reduction and distribute toolkits and resources.

Select Communication Channels and Focus

The City has an opportunity to promote food waste issues through various news media—especially non-traditional media, like social media, blogs, and other digital platforms, which tend to be less costly—and through other means, such as posters, digital boards and infographics on transit routes.

Develop a Scorecard Reporting Framework to Communicate Success

In order to communicate success of food waste initiatives in terms of behavioural shifts and reductions in food waste, we recommend developing a “scorecard” reporting framework that incorporates reporting of short-term and long-term success measures, including how Edmonton is reaching its intended food waste reduction target. This scorecard reporting system, in addition to research/evaluation methods recommended in Chapter 10, will assist the City in making a case for scaling up a pilot program into a multi-year long-term program. Below are some measures for consideration.

Behavioural and Food Waste Reduction Measures: Results from kitchen diary challenges can help the City periodically report on shifts in baseline perceptions and behaviours among residents as well as reduced amounts of food waste. A successful food waste reduction campaign can potentially reduce residential avoidable food waste by approximately half a pound per person per week.⁴⁷

⁴⁷ Food: Too Good to Waste: an Evaluation Report for the Consumption Workgroup of the West Coast Climate and Materials Management Forum, U.S. Environmental Protection Agency, 2016

Outputs and Performance Measures: Other data that would demonstrate success would include reporting of outputs, such as: number of website visits; number and types of outreach and public/community engagement activities; participation in engagement activities by target groups and by aggregate numbers; and types and numbers of partnerships/collaborative initiatives with local community-based organizations, businesses and others to reduce food waste and increase awareness.

Return on Investment (ROI): An ROI measure is effective from a municipal standpoint to justify continued support and funding for food waste reduction programming and to attract further supporters and collaborators in this important initiative. Both the U.N. Environmental Programme and the British Columbia Ministry of Environment recommend a return on investment measure that calculates how each dollar spent on a food waste reduction program can lead to savings to the municipality in terms of food waste/garbage disposal fees. Current research shows a \$2.75 return on investment and disposal costs savings for each dollar spent on food waste prevention program⁴⁸.

Environmental Impact and Financial Value of Wasted Food⁴⁹: The quantities of food waste generated through waste audits and diaries may help the City calculate the environmental impact, in terms of water usage and carbon dioxide emissions, and financial value of wasted food, in terms of dollars lost at the household level of food purchased but thrown away.

Lessons Learned Report

Other ways to communicate program success, especially to internal project stakeholders, is to produce a lessons learned report, which can provide the City with the opportunity to look back, reflect and document the lessons learned for continuous program improvement.

⁴⁸ Residential Food Waste Prevention: Toolkit for Local Governments and Non-Governmental Organizations, Ministry of Environment, British Columbia, 2015

⁴⁹ Prevention and Reduction of Food and Drink Waste in Businesses and Households, Version 1.0, U.N. Environmental Programme, 2014

Appendix A: Doorstep Survey Raw Data

Before today, have you ever heard of the term "food waste?"	Frequency	%
No	43	13.7
Not Sure	6	1.9
Yes	264	84.3
Subtotal	313	
Missing/No Answer	1	
Total	314	

Do you think that food waste is an issue in Canada?	Frequency	%
No	22	7.0
Not Sure	43	13.7
Yes	249	79.3
Subtotal	314	
Missing/No Answer	0	
Total	314	

Do you think that food waste is an issue in Edmonton?	Frequency	%
No	36	11.5
Not Sure	46	14.6
Yes	232	73.9
Subtotal	314	
Missing/No Answer	0	
Total	314	

Within the last 12 months, have you heard any news about food waste?	Frequency	%
No	220	70.3
Not Sure	14	4.5
Yes	79	25.2
Subtotal	313	
Missing/No Answer	1	
Total	314	

If YES, where did you hear about food waste? Select all that apply	#	%	Sub-total	Missing/No Answer	Total
Newspaper	20	25.3	20	59	79
TV	45	57	45	34	79
Radio	5	6.3	5	74	79
Social Media	17	21.5	17	62	79
E-news or email	4	5.1	4	75	79
Community Newsletter	0	0	0	79	79
Free Papers	0	0	0	79	79

Within the last 12 months, how often have you thought about wasted food in your household?	Frequency	%
No – Never	91	29.2
No – yearly	19	6.1
Yes – monthly	55	17.6
Yes – weekly	147	47.1
Subtotal	312	
Missing/No Answer	2	
Total	314	

Within the last 12 months, how often have you tried to reduce the amount of wasted food in your household?	Frequency	%
No – Never	93	30.0
No – yearly	4	1.3
Yes – monthly	32	10.3
Yes – weekly	181	58.4
Subtotal	310	
Missing/No Answer	4	
Total	314	

(If they answer "No" in the last question) Which of the six statements best describes you?	#	%	Sub-total	Missing/No Answer	Total
Compost	3	3.4	3	85	88
Limited Waste	39	44.3	39	49	88
No Waste	10	11.4	10	78	88
Relies on City	5	5.7	5	83	88
Unavoidable	13	14.8	13	75	88
Willing but Unable	20	22.7	20	68	88

Do you have a home garden or garden plot where you grow food for personal consumption?	Frequency	%
No	155	49.4
Other	1	.3
Yes	158	50.3
Subtotal	314	
Missing/No Answer	0	
Total	314	

Do you have a backyard composter or worm bin for composting food scraps?	Frequency	%
No	245	78.3
Yes	68	21.7
Subtotal	313	
Missing/No Answer	1	
Total	314	

Do you go grocery shopping once or more per week?	Frequency	%
No	29	9.4
Other	18	5.8
Yes	263	84.8
Subtotal	310	
Missing/No Answer	4	
Total	314	

How often does your household cook and eat at home?	Frequency	%
1 - 2	3	1.0
2 - 3	14	4.5
Often	295	94.6
Subtotal	312	
Missing/No Answer	2	
Total	314	

Do you own or rent?	Frequency	%
Own	280	89.5
Rent	33	10.5
Subtotal	313	
Missing/No Answer	1	
Total	314	

How many members (including yourself) are living within your household?	Frequency	%
1.0	21	6.7
2.0	105	33.4
3.0	73	23.2
4.0	68	21.7
5.0	29	9.2
6.0	10	3.2
7.0	4	1.3
8.0	1	.3
10.0	2	.6
11.0	1	.3
Subtotal	314	
Missing/No Answer	0	
Total	314	

Are there any children under 17 in your household?	Frequency	%
No	160	58.0
Yes	116	42.0
Subtotal	276	
Missing/No Answer	38	
Total	314	

How would you describe your marital status?	Frequency	%
Married / Common-Law	233	74.4
Other	1	.3
Separated / Divorced	15	4.8
Single / Never Married	53	16.9
Widowed	11	3.5
Subtotal	313	
Missing/No Answer	1	
Total	314	

What is your age range?	Frequency	%
18-24	16	5.1
25-34	57	18.2
35-44	61	19.5
45-54	72	23.0
55-64	56	17.9
65-74	41	13.1
75+	10	3.2
Subtotal	313	
Missing/No Answer	1	
Total	314	

Appendix B: In-Depth Interviews Raw Data

When it comes to shopping, select the statement that best describes your household:	Frequency	%
I/We buy all or most of the food in one main shopping trip	16	24.6
I/We buy at least half of the food in one trip, and make smaller in-between trips for the rest.	37	56.9
I/We make several, small shopping trips	12	18.5
Subtotal	65	
Missing/No Answer	0	
Total	65	

How often does your household go on a main shopping trip for groceries?	Frequency	%
Every 3 weeks	1	1.5
More than once a week	8	12.3
Once every two months	1	1.5
Once every two weeks	20	30.8
Once per month	6	9.2
Once per week	27	41.5
Rarely or never	2	3.1
Subtotal	65	
Missing/No Answer	0	
Total	65	

Which of the following did you check to see if you have before you went shopping on your last trip? Select all that apply	#	%	Sub-total	Missing/ No Answer	Total
Fresh Vegetables	57	87.7	57	8	65
Fresh Bread and Bakery Products	49	75.4	49	16	65
Fresh Fruits	58	89.2	58	7	65
Fresh Meat or Fish	36	55.4	36	29	65
Milk and Dairy Products	53	81.5	53	12	65
Fresh Pre-Made Meals and Deli items	12	18.5	12	53	65
Canned, Dried, and Preserved Food	34	52.3	34	31	65
Frozen Foods	39	60.0	39	26	65
Dry Goods	42	64.6	42	23	65
I did not check for any of these items	4	6.2	4	61	65
Other	3	4.6	3	62	65

At what type of stores do you usually shop for groceries? Select all that apply	#	%	Sub-total	Missing/ No Answer	Total
Farmer's markets	5	7.7	5	60	65
Specialty shops	12	18.5	12	53	65
Bulk Stores	1	1.5	1	64	65
Warehouse-type stores	29	44.6	29	36	65
Stores specializing in health food products and organic food	3.0	4.6	3.0	62	65
Medium to large supermarkets	63	96.9	63	2	65
Local corner stores and convenience stores	2	3.1	2	63	65
Online/direct delivery services	0	0.0	0	65	65
Other	1	1.5	1	64	65

How often is your shopping list determined by the meals you have decided to prepare or cook at home?	Frequency	%
All or most of the time	39	61.9
Never	6	9.5
Occasionally/Rarely	9	14.3
Some of the time	9	14.3
Subtotal	63	
Missing/No Answer	2	
Total	65	

BEFORE you go on a main shopping trip, do you usually:	Frequency	%
Have a general idea of things you need to buy (no written list)	13	21.0
Have no plan ahead of time. When shopping, you buy based on what you find or want at that time.	1	1.6
Keep a running list of needed items and take it with you	23	37.1
Keep a specific list of items you need to buy in your head (no written list)	6	9.7
Make a list just before you go and take it with you	19	30.6
Subtotal	62	
Missing/No Answer	3	
Total	65	

Think about your last main shopping trip. How much of the food you bought was pre-made, or convenience food items that required little or no preparation before serving?	Frequency	%
About half of my groceries	3	4.6
I didn't purchase any pre-made items	21	32.3
Less than half my groceries	7	10.8
Only a few items	34	52.3
Subtotal	65	
Missing/No Answer	0	
Total	65	

Think about your last main shopping trip. Select the statement that most applies to you:	Frequency	%
I bought all or most of the items on my list, AND a few extra items	45	69.2
I bought all or most of the items on my list, but NO extra items	4	6.2
I bought SOME of the items on my list, AND some extra items	3	4.6
I bought SOME of the items on my list, but NO extra items	5	7.7
I decided what to buy as I shopped	3	4.6
I usually buy the same things each week	5	7.7
Subtotal	65	
Missing/No Answer	0	
Total	65	

Think about your household's habits in regards to buying additional food as a result of discounts and special offers. Which of the following statements MOST applies to you?	Frequency	%
I often buy food on sale when there are special offers, but tend to avoid discounted food.	14	21.9
I rarely or never buy food on sale.	4	6.3
I try to buy food on sale all or most of the time (discounts and special offers), even if it's not something I usually buy.	10	15.6
I will only buy food on sale (discounts and/or special offers) if it's something I usually buy.	36	56.3
Subtotal	64	
Missing/No Answer	1	
Total	65	

What are the main factors that determine if/when you BUY discounted food? Select all that apply	#	%	Sub-total	Missing/ No Answer	Total
If the food (e.g., fruit, canned or boxed goods) looks to be in very good condition, with no damage.	36	59.0	36	29	65
If I think I can use it all by the "best before" date.	38	62.3	38	27	65
If it's something I usually buy.	46	75.4	46	19	65
If it's something I don't usually buy because it's too expensive	15	24.6	15	50	65
I will buy fruits and vegetables that are oddly shaped	27	44.3	27	38	65
I will buy fruits and vegetables with soft spots	4	6.6	4	61	65
I will buy fruits and vegetables with bruises	7	11.5	7	58	65
Other	12	19.7	12	53	65

In your household, what usually happens to extra food purchased as a result of discounts and/or special offers? Select all that apply	#	%	Sub-total	Missing/ No Answer	Total
Most or all of it is eaten	52	83.9	52	13	65
About half is eaten	11	17.7	11	54	65
Most of the extra food is thrown away (spoils)	6	9.7	6	59	65
I usually buy less of something else that I had intended to buy	13	21.0	13	52	65
I usually wait until the food is fully consumed before I buy that same item again	29	46.8	29	36	65
Other	1	1.6	1	64	65

What are the main factors that determine if/when you AVOID discounted food? Select all that apply	#	%	Sub-total	Missing/No Answer	Total
If the food looks to be in very bad condition, or damaged.	55	84.6	55	10	65
If I can't think of a use for it by the "best before" date	50	76.9	50	15	65
If it's not something I usually buy	39	60.0	39	26	65
It's something usually I buy but the full priced item is inexpensive	24	36.9	24	41	65
I won't buy fruits and vegetables that are an odd shape	21	32.3	21	44	65
I won't buy fruits and vegetables with soft spots	43	66.2	43	22	65
I won't buy fruits and vegetables with bruises	46	70.8	46	19	65
Other	8	12.3	8	57	65

How often does your household cook and eat at home?	Frequency	%
1-2 times per week	1	1.5
3-4 times per week	6	9.2
Every day or most days per week	58	89.2
Subtotal	65	
Missing/No Answer	0	
Total	65	

To what extent are you in-charge of cooking for your household?	Frequency	%
About half of it	9	13.8
All or most of it	40	61.5
Less than half of it	13	20.0
Very little or not at all	3	4.6
Subtotal	65	
Missing/No Answer	0	
Total	65	

For main meals that are prepared at home, when do you decide what you're going to have?	Frequency	%
I/We decide that day, or a couple of days ahead of time	49	75.4
I/We know what most of the main meals will be for this week AND next week.	2	3.1
I/We know what most of the main meals will be for this week, and a few main meals for next week.	2	3.1
I/We know what some of the main meals will be for this week, but not yet for next week.	12	18.5
Subtotal	65	
Missing/No Answer	0	
Total	65	

Think about the last time you cooked a meal based on pasta or rice. Did you have any leftovers?	Frequency	%
No	8	12.3
Yes	57	87.7
Subtotal	65	
Missing/No Answer	0	
Total	65	

Think about the last time you had leftovers or made more food than was needed. What did you do with those leftovers? Select all that apply	#	%	Sub-total	Missing/No Answer	Total
I/We used all the leftovers for another meal	55	84.6	55	10	65
I/We used part of them in making another meal	23	35.4	23	42	65
I/We kept them with the intent of using them, but they spoiled and had to be thrown away.	17	26.2	17	48	65
I/We didn't have a use for keeping them, and threw them away.	5	7.7	5	60	65
They're still being stored.	20	30.8	20	45	65
Other	2	3.1	2	63	65

Think about the past 12 months. For any fresh food you have bought, or meals you have prepared at home, have you used the freezer to store any of the following items? Select all that apply	#	%	Sub-total	Missing/No Answer	Total
Uncooked meat or fish	63	96.9	63	2	65
Commercially pre-made meals	27	41.5	27	38	65
Food close to their "best before" date	40	61.5	40	25	65
Milk or dairy products	18	27.7	18	47	65
Cooked meat or fish	36	55.4	36	29	65
Home-made meals and meal leftovers	40	61.5	40	25	65
Bread and bakery products	54	83.1	54	11	65

Within the past 12 months, have you checked the temperature of your fridge?	Frequency	%
No - never or rarely check	30	46.2
Yes - with a thermometer	5	7.7
Yes - with the thermostat setting and fridge display	30	46.2
Subtotal	65	
Missing/No Answer	0	
Total	65	

Over the past month, have you thrown away any of the following items because the "best before" date has passed? Select all that apply	#	%	Sub-total	Missing/ No Answer	Total
Pre-cooked (not frozen) meat or fish	8	12.3	8	57	65
Raw, fresh meat or fish	5	7.7	5	60	65
Milk	24	36.9	24	41	65
Other dairy products	21	32.3	21	44	65
Pre-made meals and deli items	11	16.9	11	54	65
Fresh Fruit	28	43.1	28	37	65
Fresh Vegetables	29	44.6	29	36	65
Canned, Dried, or Jarred items	5	7.7	5	60	65
Dry goods (e.g., cereal, crackers)	17	26.2	17	48	65
Frozen Items	9	13.8	9	56	65
Juice, Pop, or other non-dairy beverages	12	18.5	12	53	65
Other	7	10.8	7	58	65

Over the last two weeks, how much of the following food types has your household thrown away (either in your garbage, compost pile, down the sink, or fed to pets)	A Lot (Above Average)		Average Amount		Small Amount (Below Average)		Very Little / Not Often		None		Sub-total	Don't Consume	Total
	#	%	#	%	#	%	#	%	#	%			
Vegetables and Salad	2	3.1	8	12.3	13	20.0	29	44.6	13	20.0	65	0	65
Cheese and Yogurt	0	0	3	4.6	6	9.2	16	24.6	39	60.0	64	1	65
Fruit	1	1.5	6	9.2	8	12.3	29	44.6	21	32.3	65	0	65
Bread and Bakery Items	0	0.0	8	12.3	10	15.4	14	21.5	33	50.8	65	0	65
Cooked Meat or Fish	1	1.5	2	3.1	5	7.7	18	27.7	39	60.0	65	0	65
Raw Meat or Fish	0	0.0	0	0.0	2	3.1	7	10.8	56	86.2	65	0	65
Home-made Meals	1	1.5	9	13.8	8	12.3	20	30.8	27	41.5	65	0	65
Milk	1	1.5	2	3.1	9	13.8	17	26.2	34	52.3	63	2	65
Juice, Coffee, Tea, Pop, or other non-dairy	2	3.1	5	7.7	9	13.8	21	32.3	27	41.5	64	1	65

Over the last two weeks, how much of the following types of food waste has your household thrown away (either in your garbage, compost pile, down the sink, or fed to pets)	A Lot (Above Average)		Average Amount		Small Amount (Below Average)		Very Little / Not Often		None		Sub-total	Don't Consume	Total
	#	%	#	%	#	%	#	%	#	%			
Food scraps not normally eaten	6	9.2	39	60.0	13	20.0	5	7.7	2	3.1	65	0	65
Leftovers	0	0	8	12.3	12	18.5	32	49.2	13	20.0	65	0	65
Uneaten food left on plate after meal	0	0	17	26.2	6	9.2	30	46.2	12	18.5	65	0	65
Food bought but not used	1	1.5	2	3.1	5	7.7	20	30.8	37	56.9	65	0	65
Unfinished packaged food	0	0	11	16.9	7	10.8	22	33.8	25	38.5	65	0	65
Spoiled or moldy food	2	3.1	10	15.4	7	10.8	22	33.8	24	36.9	65	0	65
Food past the "best before" date	0	0	4	6.3	5	7.8	18	28.1	37	57.8	64	1	65
Non-recyclable food packaging	5	7.7	25	38.5	13	20.0	16	24.6	6	9.2	65	0	65
[Recyclable food packaging	2	3.1	12	18.5	3	4.6	20	30.8	28	43.1	65	0	65

Think about the types of food waste listed in the previous two questions. Overall, how much uneaten food would you say your household ends up throwing away?	Frequency	%
An average amount	11	16.9
None	1	1.5
Small amount (below average)	23	35.4
Very little	30	46.2
Subtotal	65	
Missing	0	
Total	65	

What methods does your household use to dispose of food and drink waste? Select all that apply	#	%	Sub-total	Missing/ No Answer	Total
Garbage bag / bin	63	96.9	63	2	65
Down the drain / sink	56	86.2	56	9	65
Garbage disposal	16	24.6	16	49	65
Home composting	16	24.6	16	49	65
Fed to pets	17	26.2	17	48	65
Other	1	1.5	1	64	65

To what extent do you currently do any of the following to minimize the amount of food and food-related waste that your household throws away?	About half the time		All or most of the time		Less than half the time		Rarely or never		Sub-total	Don't Know	Total
	#	%	#	%	#	%	#	%			
Buy in bulk, buy food with less packaging	14	21.5	18	27.7	13	20.0	20	30.8	65	0	65
Buy only what household needs for the week	12	18.5	46	70.8	4	6.2	3	4.6	65	0	65
Save leftovers for future meals	5	7.7	54	83.1	2	3.1	4	6.2	65	0	65
Prepare and cook more meals at home	3	4.6	61	93.8	0	0.0	1	1.5	65	0	65
Prepare most of meals from scratch	5	7.7	59	90.8	1	1.5	0	0.0	65	0	65
Prepare / serve only what household members can consume in one meal	10	15.4	27	41.5	13	20.0	15	23.1	65	0	65
Maintain and stick to grocery budget	10	15.6	23	35.9	2	3.1	29	45.3	64	1	65
Decide what to make for meals before going shopping	13	20.3	26	40.6	5	7.8	20	31.3	64	1	65
Label leftovers and food items with the date of storage	4	6.2	9	13.8	4	6.2	48	73.8	65	0	65

Think about factors that might encourage your household to reduce food waste. To what extent do any of the following have an impact on your actions?	Big Impact		Some Impact		Minimal Impact		No Impact		Sub-total	Don't Know	Prefer not to say	Total
	#	%	#	%	#	%	#	%				
A desire to be environmentally-conscious of how much I/we throw away	25	39.1	24	37.5	9	14.1	6	9.4	64	0	1	65
Food shortages elsewhere in the world	16	25.8	18	29.0	10	16.1	18	29.0	62	2	1	65
Money-saving opportunities	40	62.5	15	23.4	3	4.7	6	9.4	64	0	1	65
Managing my household and time efficiently	25	39.1	20	31.3	10	15.6	9	14.1	64	0	1	65
Feelings of guilt when throwing away food that could have been eaten	30	46.9	17	26.6	4	6.3	13	20.3	64	0	1	65
Desire to eat a healthy diet	45	70.3	13	20.3	3	4.7	3	4.7	64	0	1	65
Getting my kids to eat healthy	30	53.6	6	10.7	4	7.1	16	28.6	56	6	3	65

Think about the past three months. On average, how often would you say you did each of the following?	More than once a week		Once a week		Once a month		Once in last 3 months		Rarely /Never		Sub-total	Can't remember	Prefer not to say	Total
	#	%	#	%	#	%	#	%	#	%				
Forgot about food/drink in the FRIDGE	0	0	9	14.5	20	32.3	13	21.0	20	32.3	62	1	2	65
Forgot about food/drink in the FREEZER	0	0	1	1.6	11	17.7	11	17.7	39	62.9	62	1	2	65
Bought food with the intention of making something, but didn't use all of it	2	3.2	3	4.8	23	36.5	6	9.5	29	46.0	63	0	2	65
Eaten a meal or food you didn't like, just to use up leftover food	2	3.2	4	6.5	13	21.0	7	11.3	36	58.1	62	1	2	65
When shopping, considered household members' schedules to decide how much food was needed for the week	7	11.1	21	33.3	6	9.5	2	3.2	27	42.9	63	0	2	65
Bought food/drink on sale, and ended up not eating all of it	0	0.0	3	4.8	15	24.2	10	16.1	34	54.8	62	1	2	65
Bought a large pack or case of food/drink, but wasn't able to use it all	0	0.0	3	4.9	11	18.0	6	9.8	41	67.2	61	2	2	65
Planned to make a meal but plans changed	3	4.9	12	19.7	23	37.7	9	14.8	14	23.0	61	2	2	65

Which of the following reasons prevent your household from trying to reduce the amount of food that is thrown away? Select all that apply	#	%	Subtotal	Missing/ No Answer	Total
I/We don't have enough time	17	26.2	17	48	65
There are more important things to think about	6	9.2	6	59	65
I/We don't lose much money by throwing food away	11	16.9	11	54	65
I/We compost most of our food waste at home	15	23.1	15	50	65
The City composts all of the organic waste in our garbage	13	20.0	13	52	65
I/We give away most of my leftover food	10	15.4	10	55	65
I don't think throwing away food has a negative impact on the environment	7	10.8	7	58	65
I/We like having lots of food variety and choices on hand at home	27	41.5	27	38	65
I/We need to buy a wide range of foods for healthy eating options	26	40.0	26	39	65
Kids don't always finish their meals or often won't eat what I make	15	23.1	15	50	65
I don't know how I can reduce food waste	9	13.8	9	56	65
None of the above are a barrier for me	19	29.2	19	46	65
Other	5	7.7	5	60	65

Approximately how much money do you think you save each month (on average) if you avoided throwing away uneaten food?	Frequency	%
\$0-25	30	46.2
\$100-200	4	6.2
\$25-50	21	32.3
\$50-100	10	15.4
Subtotal	65	
Missing/No Answer	0	
Total	65	

True or False	False		True		I don't Know		Sub-total	Total
	#	%	#	%	#	%		
The average Canadian household could save an estimated \$160 per month (or \$2,000 per year) if they avoided having to throw edible food away.	5	7.7	51	78.5	9	13.8	65	65
A "best before" date means that I can usually still safely consume a food item once the date has past, but the quality (texture, taste, nutrients) may be reduced.	10	15.4	54	83.1	1	1.5	65	65
Food packaging waste is a worse environmental problem than wasting food.	1	1.5	56	86.2	8	12.3	65	65
Buying food on sale (two-for-one deals or discounts) usually leads to more food being thrown away.	21	32.3	40	61.5	4	6.2	65	65
Buying food in large volumes (such as cases or multi-packs) leads to more food being thrown away.	24	36.9	36	55.4	5	7.7	65	65
In order to safely store food in your fridge so it lasts longer, your fridge temperature should be below 4 degrees C.	15	23.1	33	50.8	17	26.2	65	65
Food such as raw chicken breasts can be safely frozen for longer-term storage, if it's frozen before or on the "best before" date.	8	12.3	53	81.5	4	6.2	65	65
By reducing the amount of food we throw away, we could reduce greenhouse gas emissions.	3	4.6	57	87.7	5	7.7	65	65

Total number of residents in household	Frequency	%
2	20	30.8
3	24	36.9
4	14	21.5
5	5	7.7
6	1	1.5
12	1	1.5
Subtotal	65	
Missing/No Answer	0	
Total	65	

Are there any children (under 18 years) in your household?	Frequency	%
No	38	58.5
Yes	27	41.5
Subtotal	65	
Missing/No Answer	0	
Total	65	

Raw Qualitative Data from Interview

Question 1: In your own words, could you describe for me the last grocery shopping trip you made?

Themes Derived from Free Text/Comments	Sub Theme	Frequency
Types of stores	Medium to Large Supermarket	34
	Did not specify	24
	Warehouse-type Stores	4
	Specialty Store	4
Types of products	Produce	40
	Dairy	22
	Meat, Fish, and/or Eggs	20
	Did not specify	14
	Bakery products	11
	Other	11
	Dry Goods	6
	Juice, Pop, or other non-dairy beverages	3
	Canned goods	3
Who went	Household	56
	Did not specify	4
	Other Family	2
Who it was for	Household	60
	Other Family	3
	Did not specify	3
Qualitative Responses (n = 65) – Verbatim		
Needed milk went to save-on, and bought bananas and tea		
We had a gathering and had to buy meat and veggies for a chili.		
Yesterday, went to Sobey's to buy raw vegetables		
Costco fruits, vegetables, miscellaneous items		
Went to Superstore to buy toiletries and then on the way home, stopped at save-on for fruit and on-sale pop		
We went to Sobeys. We decided we wanted to have tacos for dinner after work. We went to the		

store together (couple and roommate) and bought ground beef, tomatoes, cheese, and taco shells.
We went shopping for fresh produce and for my mother in law. We do weekly shopping for both of us.
H&W produce couple of days worth
Went with husband to Save-On-Foods and bought about 1 week worth of groceries, mainly fresh veggies and fruits.
Sobers, bought 6 bags of groceries including meat, produce, canned goods, bakery goods, toiletries and pet food.
Not applicable
Every two months we stock up on laundry soap/cleaning supplies/paper towel supplies/meats and condiments it is our big shopping trip. In between we go weekly and shop according to the sales in the flyers
we went to get vegetables mostly fruit and vegetables
it was things I forgot in the big shopping trip, groceries and dippers
Yesterday, went to Sobey's to buy raw vegetables
Went Save-on and bought milk and fruits
We went to buy food for the next week. We went on Friday, to No Frills. We bought meat, produce, milk, and baked goods.
Today I got potatoes from Sobey's. Tonight we are going to eat potatoes, and i checked the pantry and realized there were none. So I ran out to the store.
Went to Walmart and purchased all the major food items: meat, vegetables and produce.
we went to a produce market where I picked up a weeks worth of produce then to a main market to pick up eggs milk etc.
Whole family went to Wal-Mart and got meat, veggies, fruits.
Went sobeys bought fruits, vegetables, and dairy products
Went on weekly shopping trio with her mom, and went because we were out of produce and milk
Costco oh my gosh bought too much went in for milk came out with lots more.
Costco bought Vegetables, rice, bread, fruit
Bread milk safeway
Superstore. Bought milk, veggies and some ham.
Went to H&W produce for fresh vegetables and fruit
Today went to h&w and bought parsley (herbs), vegetables and fruits and bread
yesterday it involved going to superstore and save-on it was produce dairy and dry goods
We got a buns for hamburgers
Sobeys bought bread and toothpaste and wine
I went to No frills, and did my weekly shop for everything.
Yesterday, superstore, produce, meat, some canned goods
We went to two stores, Costco and Walmart, Costco for boxed stuff (like grocery) and then Walmart for fresh stuff (deli, milk, juice).

We went to Sobeys for vegetables, milk, bread and fruits.
Wall-mart bottled water fruits veggies dairy small ~\$100
Just bought food for the week, basic stuff for lunch and dinner.
Superstore, purchased pasta and meats in bulk, sauces, etc. Fresh superstore or sobeys fruit and veggies.
short run out to buy some odds and ends food milk butter
today we got formula for the baby and some dessert for a dinner party tonight
it was one of the smaller trips for baby items and produce
Quick run to the store, Superstore. Weekday.
Superstore: purchased fruit, veggies and meat
Sobey's for a few ingredients for the dish they were cooking that night.
Last trip my husband went to Costco to pick up a variety of food mainly grocery, some produce. We made a small as well to get milk and bananas.
Saturday and Sunday we went for produce and meat.
Went over to co-op to get tomatoes and cucumbers, because we forgot them at Superstore
Went to Save on foods bought items on sale. Household items, some gifts, candy, coffee, cleaning supplies.
We for sauerkraut cheese and milk and pharmacy items
N/A
We went ourselves this morning, gone last 10% Tuesday, big event on June 29. We got all our food.
On the weekend (a Sunday), shopped at 2 stores: Save On for most items and Sobey's for a few items.
It wasn't me so I don't know
Went as a team and shopped for themselves and mother. Bought dairy, meat, fruit, veggies.
Went to the Walmart SuperCentre, it's the cheapest. Food for two weeks - hamburger, chicken, pasta, sauces, potatoes, veggies (lettuce, cucumber, tomatoes, mushrooms, onions), fruit (watermelon, oranges)
Wife went on Sunday, meat bread vegetables and fruit, just a small trip
We went this morning just for basics milk eggs
I only do one shopping trip every two weeks. I went for everything but mostly fruits, vegetables, meat, dairy. Some canned stuff: beans, corn chili stuff like that.
Went to buy milk at the Co-op.
Today I bought milk bread fruits and vegetables
We went to Save-on-Foods and bought mostly produce
Half anhpur ago a few things on the list a couple extras stuff for dinner
He bought bread ice cream cream milk vegetables and some meat and potato chips for the grand kid
Went to Save -On Food. Purchased mostly produce, chicken, and a few bread items.

Question 2: Would you say your food purchases (types, quantities, brands) are influenced by others? This could include friends, family, and members of your household.

Themes Derived from Free Text/Comments	Sub Theme	Frequency
Influence	Yes	36
	No	29
Types of Main Influences	None	35
	Family	17
	Household	10
	Friends	5
Types of Other Influences	No other influences described	54
	Brands	5
	Activities	2
	Ethnic food	2
	Religious Preferences	1
	Cost	1
	Organic	1
	Fresh	1
Qualitative Responses (n = 65) - Verbatim		
No influence		
No		
Yes, mostly with household. Sometimes a friend will suggest something new to try.		
Friends		
If an event was happening, maybe May ask household if they want anything when shopping		
We do not take recommendations from family and friends. We do ask our roommate what they want to eat and consider this in shopping because we often cook together.		
We buy the brands that we like and we also buy for my mother in law.		
no I don't think so, prefer quality foods, local rather than big brand		
No		
Yes, everyone in the house has an influence on the type of groceries we buy.		
No		
as for recommendations from friends/family that would only be when I am buying a specialty item like a type of butter chicken sauce. I like to try new products and make my decision from there.		

Yes. Like bread I don't like white bread but other people do so that's what we get
Oh yeah, usually we buy Hinze ketchup but my sister told me about the issues about Heinz moving to the US so now we buy Frenches'
Yes, mostly with household. Sometimes a friend will suggest something new to try.
Probably, members of household
Yes. My elderly mother and father live with us. They have religious preferences. I just had a baby one month ago, so my grocery list has had to change with her diet. Daughter is now finishing school so lunches will not be the same during the summer months.
If the grandkids are coming to stay we change the food we buy. My wife has brand preferences, even though i do most o the shopping.
Yes, go with family members.
Yes, what others in the household will eat.
No
No influence
Probably. Members in household.
Yes definitely. My husband throws thing into the cart that aren't on the list.
No influence
No. It's cost.
No.
No influence
Yes . Family members
not really no
My daughter wants to have her own stuff. She wants to have salad but we don't really like salad so I have to buy hr that stuff.
No
About 33% of my shopping is influenced by my family members. I go shopping with my kids and the want certain things.
Some influence from family with ethnic foods but not for much else.
Definitely Heinz ketchup and we never buy no-name salad dressings.
Once in a while, but most of the time I know what to buy.
Basically what the family likes to eat usually what everybody likes
Quite a bit some brand stuff.
No
no
no
more of a mutual decision between my wife and I
No

Mother asks other members if they have preferences.
Yes
No, not really... It goes by what we like, I will get baby food and arrowroot cookies for my grandson, or gluten free frozen meals for my daughter so she can have something to eat when she comes over if we've already made food,
No not at all
My daughter determines whether we'll have rice or quinoa and spinach or romaine
No influence
direct influence especially the 6yr old
Yes, a bit.
There are household preferred brands.
Yes. Husband comes with her and will make suggestions.
Not really, but our food is culturally influenced, we eat foods that are made in my home country.
Always buy meats that the kids like. Purchases are influenced by the people we plan on entertaining.
No, she shops as she sees fit.
Not really
Somewhat my son might like a certain thing but were not stuck to certain brands
Nope, I'm the only one here so I buy what I like.
Check and see if there is anything her husband specifically wants.
No not really
Yes, we buy mostly organic products and fresh products instead of regular processed foods and grocery.
Yes, Hinze ketchup they're fussy.
no
Check with the kids if they would like anything; but she is the main influencer.

Question 3: Think about the last time potentially edible food was thrown out in your household, either leftovers or expired food. Could you describe for me the circumstances surrounding why that food was thrown out?

Themes Derived from Free Text/Comments	Sub Theme	Frequency
Types of Food	Leftovers	27
	Didn't specify	19
	Produce	14
	Pasta/rice	9
	Dairy	4
	Cooked meat	2
	Pre-made meal/processed food	2
	Didn't throw out food	2
	Dry goods	1
Reason for Discarding	Time	20
	Disinterest	16
	Spoiled	16
	Too much	13
	No reason mentioned	6
	Forgot	5
	Unrefrigerated	3
	Expired food	2
	Cleaning	1
Qualitative Responses (n = 65) - Verbatim		
Leftovers thrown away, because a few days passed		
Last week pork roast it got old no one wanted to eat it. We ate it for a few days and then didn't want it anymore.		
Leftovers and they were in the fridge too long. Pasta with turkey and had the intention to reuse it, but went bad.		
Usually purge spoiled after a shopping trip.		
Two fridges. Bought cauliflower and forgot about it in the second fridge. It went bad and threw it away.		
We made too much pasta for the three of us to consume. It was a meal that we bought groceries for that day. We used a whole package of pasta, and a whole jar of sauce. No one took it for lunch the next day. Sat in the fridge for a while. Then we tossed it.		
We had bought too much fresh produce for the two of us and didn't eat it all before it spoiled.		

left overs cabbage rolls nobody claimed them they went to the garbage after a week
Too much was cooked and leftovers did not get eaten after sitting in the fridge for a period of time.
Made spaghetti and had 3/4 cup of left overs, but no one ate it after a week so it was thrown away.
Too much to eat.
Veggies were rotting we over bought them. Left over veggies from a baby shower held at my house.
It was a salad because it went all wilted it was a salad put together by me
forgot that the lettuce was in the bottom of the fridge
Leftovers and they were in the fridge too long. Pasta with turkey and had the intention to reuse it, but went bad.
Yesterday, taken out to cook and was out too long (hot day)
Very little was thrown out. We made too much rice. Busy evening left on the stove. my mother didn't check to make sure the kitchen was clean (she is old and forgot.) We did not refrigerate before bed. Woke up in the morning and threw it out.
We threw out about a half of a cucumber. It was hidden under some lettuce in the fridge. It got spoiled because we had it in there for too long. Its something we always buy. We threw it in the garbage.
Vegetables- gone bad before they could be used.
I like to buy bigger things of yogurt and some of them are getting moldy before the expiry date.
Purchased food that has gone bad shortly after purchase.
Son didn't finish his school lunch.
Made too much food, shoved to the back, forgotten, and had to throw away because it went bad
Refusal to eat or too busy to make it into something or kids don't like it.
Left in the fridge too long, rice.
After a meal, the children did not finish their plates and it had been left out of the fridge.
Bought milk and it went bad before it was supposed to expire.
Takeout that wasn't eaten (children)
Spaghetti because no one liked it because it dried out
it was leftovers and it just wasn't looking good it sat in the fridge for a week.
The last time I threw out leftovers my daughter didn't want to eat it my husband didn't want to take it so eventually I had to throw it out.
Made too much spaghetti, doesn't store well.
It sat in the fridge too long and there was no purpose for it.
Son sat for an hour and refused to eat and they ran out of time before bed. Table scraps went into the compost.
Leftovers that sat in the fridge too long, there comes a time when you can't eat it anymore.
Once in awhile, we will throw out leftovers if they are more than three days in the fridge.
basically getting more than five or six days and no one's eating it then it gets thrown away
It's usually vegetables that we just don't get around to eating.

Forget an item is in the fridge and buy or make a new item.
nk
I has fresh vegetables and fruit that looked bruised and discolored so i threw that away carrots in the bag past the expiry date, takeout fourdays past and threw out, stuff in the freezer that were in there for over four months, pantry food that have been there for over two years.
today due to the day my daughter didn't eat all the blueberries and they went bad
Cooked a curry dish and no one ate it in time, so it was thrown out.
We had a party and there was leftover on the plate that was thrown away.
A packaged lunch was uneaten and had to be thrown away.
There was a salad that had dressing on it, it got thrown into the composer. Mostly this happens when we on holiday, my son is home but he doesn't always eat all the food.
no I hardly throw out food. Not at all I think. I try not to cook too much.
I knew we wouldn't need a big bag if spinach and it went bad before we used all of it
Cilantro-purchased some for a recipe and had some left over
It was a salad that we had and we just waited too long
Not usually. Our boys will eat it, to throw it away would cost \$\$\$. I can't think of anything. Skin off turkey during Christmas?
Yesterday, running out of milk, there was only a half a cup, and we didn't have cereal.
A portion of a ready-made pasta sauce was thrown out because it was too much for two people. She had not found a way to use it soon enough and had to throw it out.
It was in the fridge too many days, it got green spots.
Threw away sour cream, because pushed to the back, and went bad.
Usually make too much of something (ie; pasta). Some will be saved, but if there is too much some will be thrown out if I know I won't use it. When there are leftovers taken for lunch, and I get tired of eating the same thing, sometimes they will spoil and be thrown out.
Sometimes leftovers and there's just a little left sometime the dog gets it.
We threw out an apple today it was rotten, lettuce that was too old
I had pasta leftovers from the meal before, there was only a little bit left, and the second time I ate it so I threw it out.
Husband decided not to eat it, and she ended up throwing it out.
Threw out food we forgot in the freezer but usually we finish meals
Leftover pancake mix, we make pancakes almost every day, and then there was some produce trimmings and stuff.
If there's not enough to make it into another meal or if it's something that I won't eat again because my husband won't eat leftovers.
We threw out a homemade salad that went.
Daughter, vegetarian, purchased a large eggplant and didn't end up using it before it spoiled.

Appendix C: Food Waste Diary Aggregate Data

Type of Waste	Volume (L)
Produce	45.2
Leftovers	18.8
Beverage	12.0
Dairy	7.7
Bakery	6.4
Meat/Fish/Eggs	9.5
Condiment	1.6
Grain	8.3
Candy/Chips	3.2

Method of Waste Disposal	Volume (L)
Garbage	145.2
Compost	20.0
Down the Drain	21.8
Lawn/Garden	0.2
Fed to Pet(s)	2.5
Garbage Disposal	2.8

Reason for Food Waste	Volume (L)
Spoiled	57.7
Too Much	11.3
Didn't Like	29.3
Overcooked	2.2
Allergy	0.1

Avoidable/Unavoidable Food Waste	Volume (L)
Avoidable Waste	115.2
Unavoidable Waste	86.6
Total Food Waste	205.9

Appendix D: Pre-Diary and Post-Diary Food Waste Audit Aggregate Data

Sorted Garbage Pre-Diary	Weight (kg)
Paper	44.7
Plastic	28.0
Cardboard	9.3
Glass	2.6
Ceramics	1.6
Metal	5.9
Food	139.5
Avoidable - in Packaging	43.4
Avoidable - Edible Food Waste	39.7
Unavoidable - Household Compostable	53.2
Unavoidable - Non-Household Compostable	3.1
Refundable Beverage Containers	0.7
Textiles	9.2
Reno Material	4.8
Yard Waste	215.2
Eco Station Items	8.9
Diapers	15.1
Pet Waste	32.6
Other	16.7
Total Garbage Sorted	521.5
<i>Garbage Associated with Food Waste</i>	
Waste Food	83.1
Avoidable - In Packaging	43.4
Avoidable - Edible Food Waste	39.7
Home Compostable	53.2
Unavoidable - Household Compostable	53.2
Not Wasted and Not Home Compostable	3.1
Unavoidable - Household Non-Compostable	3.1
Recyclable Packaging From Food Waste	10.6
Food Packaging - Paper - Recyclable	2.3
Food Packaging - Cardboard - Recyclable	4.9
Food Packaging - Plastic - Recyclable	3.4
Non-Recyclable Packaging From Food Waste	14.0
Food Packaging - Plastic - Non-Recyclable	11.0
Food Packaging - Paper - Non-Recyclable	2.9
Total Garbage Associated with Food Waste (Pre)	164.0

% of Overall Total Garbage	31.4%
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Sorted Garbage Post-Diary	Weight (kg)
Paper	49.2
Plastic	22.3
Cardboard	8.0
Glass	3.5
Ceramics	1.8
Metal	4.1
Food	133.2
Avoidable - in Packaging	53.8
Avoidable - Edible Food Waste	27.00
Unavoidable - Household Compostable	49.4
Unavoidable - Non-Household Compostable	3.1
Refundable Beverage Containers	0.6
Textiles	18.7
Reno Material	0.0
Yard Waste	59.4
Eco Station Items	6.7
Diapers	17.6
Pet Waste	25.7
Other	10.1
Total Garbage Sorted	335.2
<i>Garbage Associated with Food Waste</i>	
Waste Food	80.8
Avoidable – In Packaging	53.8
Avoidable – Edible Food Waste	27.0
Home Compostable	49.4
Unavoidable – Household Compostable	49.4
Not Wasted and Not Home Compostable	3.1
Unavoidable – Household Non-Compostable	3.1
Recyclable Packaging From Food Waste	5.8
Food Packaging – Paper – Recyclable	0.9
Food Packaging – Cardboard – Recyclable	3.0
Food Packaging – Plastic – Recyclable	1.9
Non-Recyclable Packaging From Food Waste	16.6
Food Packaging – Plastic – Non-Recyclable	11.1
Food Packaging – Paper – Non-Recyclable	5.5
Total Garbage Associated with Food Waste (Post)	155.5
% of Overall Total Garbage	46.3%

Pre-Recycling	Weight (kg)
Paper	73.6
Plastic	20.3
Cardboard	44.5
Glass	5.6
Ceramics	0.0
Metal	1.4
Food	0.3
In Packaging	0.3
Edible Food Waste	0.0
Household Compostable	0.0
Non-Household Compostable	0.0
Refundable Beverage Containers	0.1
Textiles	0.4
Reno Material	1.0
Yard Waste	0.0
Eco Station Items	1.3
Diapers	0.0
Other	1.7
Total Recycling Sorted	150.3
Non-Recyclable Items (kg)	14.6
% Contamination	9.7%
Eco Station Recyclables	1.3
Recyclable Items	131.2
Total Food Packaging	39.0
Food Packaging – Recyclable	37.1
Food Packaging – Non-Recyclable	1.9

Post-Recycling	Weight (kg)
Paper	25.2
Plastic	11.6
Cardboard	35.6
Glass	5.3
Ceramics	0.0
Metal	2.7
Food	0.3
In Packaging	0.2
Edible Food Waste	0.0
Household Compostable	0.1
Non-Household Compostable	0.0
Refundable Beverage Containers	0.5
Textiles	2.7
Reno Material	0.0
Yard Waste	0.0
Eco Station Items	0.8
Diapers	0.0
Other	0.9
Total Recycling Sorted	85.5
Non-Recyclable Items (kg)	13.1
% Contamination	15.3%
Eco Station Recyclables	0.8
Recyclable Items	72.9
Total Food Packaging	31.5
Food Packaging – Recyclable	27.7
Food Packaging – Non-Recyclable	3.7

Appendix E: Online Mixed Topic Survey Raw Data

In the past 6 months, have you thought about food waste in your home?	Frequency	%
1 No - never	71	4.7
2 Yes - Once every few months	191	12.7
3 Yes - At least once a month	375	25.0
4 Yes - At least once a week	866	57.6
Subtotal	1503	
Missing/No Answer	10	
Total	1513	

In the past 6 months, have you tried to reduce food waste in your home?	Frequency	%
1 No - never	70	4.7
2 Yes - Once every few months	126	8.4
3 Yes - At least once a month	340	22.7
4 Yes - At least once a week	965	64.3
Subtotal	1501	
Missing/No Answer	12	
Total	1513	

Own/Rent	Frequency	%
Own	1225	82.1
Rent	267	17.8
Subtotal	1492	
Missing/No Answer	21	
Total	1513	

Gender	Frequency	%
Female	789	53.4
Male	685	46.4
Other	1	.0
Subtotal	1506	
Missing/No Answer	7	
I prefer not to answer	31	
Total	1513	

Children	Frequency	%
No	1161	77.0
Yes	342	23.0
Subtotal	1503	
Missing/No Answer	10	
Total	1513	

Employment	Frequency	%
Employed full-time (30+ hours a week)	943	62.3
Employed part-time (0-30 hours a week)	119	8.0
High School Student	2	0.1
Homemaker	40	3.0
Other (Specify)	61	4.0
Permanently unable to Work	20	1.3
Post-secondary student	37	2.4
Retired	254	16.8
Unemployed	30	2.0
Subtotal	1506	
Missing/No Answer	7	
Total	1513	

Age	Frequency	%
"15-17"	3	0%
"18-24"	37	2%
"25-29"	124	8%
"30-34"	172	11%
"35-39"	162	11%
"40-44"	135	9%
"45-49"	111	7%
"50-54"	160	11%
"55-59"	189	12%
"60-64"	166	11%
"65-69"	132	9%
"70-74"	67	4%
"75-79"	36	2%
80 and over	12	1%
Subtotal	1506	
Missing/No Answer	7	
Total	1513	

Appendix F: Online Single Topic Survey Raw Data

We would like to know if your household currently does any of the following things. If you do not currently do these, would your household be willing to try one or more of these things to reduce the amount of food wasted in your home? Shopping Habits	No - never		No - but would consider		Yes - sometimes		Yes - all the time		Sub-total	Not applicable	Total
	#	%	#	%	#	%	#	%	#	#	#
Plan ahead for meals	65	2.8	223	9.5	1286	55.1	762	32.6	2336	5	2341
Check your fridge/cupboards/freezer before you go shopping, to see what you need to buy	11	.5	70	3.0	801	34.3	1451	62.2	2333	8	2341
Go on a major shopping trip once a week (buying more than half of your food for the week in one trip)	159	6.8	166	7.1	875	37.7	1122	48.3	2322	19	2341
Only buy enough fresh fruits and vegetables that can be used within a week (or before they spoil)	8	.3	97	4.2	974	41.7	1254	53.8	2333	8	2341
Choose food with less packaging (e.g., big container of yogurt instead of single-serving cups)	88	3.8	291	12.5	1203	51.7	746	32.0	2328	13	2341
Make a list of items just before you go shopping	48	2.1	85	3.6	794	34.0	1409	60.3	2336	5	2341
Buy imperfect and/or discounted fruits and vegetables (may be oddly shaped or have a few soft spots, but are still edible)	332	14.3	654	28.1	1025	44.1	313	13.5	2324	17	2341

We would like to know if your household currently does any of the following things. If you do not currently do these, would your household be willing to try one or more of these things to reduce the amount of food wasted in your home? Cooking Habits	No - never		No - but would consider		Yes - sometimes		Yes - all the time		Sub-total	Not applicable	Total
	#	%	#	%	#	%	#	%	#	#	#
Cook and eat at home at least 3-4 times a week	8	.3	55	2.4	315	13.5	1956	83.8	2334	7	2341
Decide what to prepare or cook based on food that needs to be used up quickly (e.g., foods near the "best before" date)	34	1.5	126	5.4	1092	46.8	1082	46.4	2334	7	2341
Make enough food for a meal AND pre-planned leftovers (to be used for a second or third meal)	33	1.4	95	4.1	1041	44.6	1164	49.9	2333	8	2341
Plan meals at least 2-3 days ahead of time	245	10.5	520	22.3	1104	47.3	465	19.9	2334	7	2341
Make just enough food for current meal	336	14.5	270	11.7	1457	62.9	253	10.9	2316	25	2341

We would like to know if your household currently does any of the following things. If you do not currently do these, would your household be willing to try one or more of these things to reduce the amount of food wasted in your home? Food and Drink Storage Habits	No - never		No - but would consider		Yes - sometimes		Yes - all the time		Sub-total	Not applicable	Total
	#	%	#	%	#	%	#	%	#	#	#
Store food/drink in original packaging or wrapping, when possible	17	.7	41	1.8	862	37.0	1408	60.5	2328	13	2341
Use the freezer to store foods close to their "best before" date, so they will last longer	103	4.4	223	9.6	881	37.9	1118	48.1	2325	16	2341
Regularly (at least once a month) check "best before" dates on your food and drinks to make sure you are using them before the date	148	6.4	378	16.3	954	41.2	835	36.1	2315	26	2341
Use the fridge to store fresh fruits and vegetables	4	.2	9	.4	662	28.4	1657	71.1	2332	9	2341

We would like to know if your household currently does any of the following things. If you do not currently do these, would your household be willing to try one or more of these things to reduce the amount of food wasted in your home? Leftover Habits	No - never		No - but would consider		Yes - sometimes		Yes - all the time		Sub-total	Not applicable	Total
	#	%	#	%	#	%	#	%	#	#	#
Use clear containers to store leftovers	19	.8	49	2.1	691	29.7	1569	67.4	2328	13	2341
Plan to use leftovers for future meals	18	.8	49	2.1	671	28.7	1596	68.4	2334	7	2341
Label leftovers with storage date	722	31.4	851	37.0	495	21.5	234	10.2	2302	39	2341
Use the freezer to store leftovers	167	.3	222	.3	1281	26.1	653	73.3	2332	9	2341
Use the fridge to store leftovers	8	.3	6	.3	609	26.1	1709	73.3	2332	9	2341

Within the past 6 months, have your household members done any of the following additional things?	Never do		No rarely		Yes – sometimes		Yes – all or most of the time		Sub - total	Not applicable	Total
	#	%	#	%	#	%	#	%	#	#	#
Buy and eat irregularly-shaped fruits and vegetables	154	6.7	589	25.6	1175	51.0	387	16.8	2305	36	2341
Eat fresh fruits and vegetables, even if they are not in the best condition (have bruises, dark spots or soft spots)	46	2.0	203	8.7	1145	49.1	936	40.2	2330	11	2341
Throw out food that is still edible because no one will eat it (because they are not interested in them, won't eat leftovers, or don't like the taste)	480	20.7	1016	43.8	755	32.5	70	3.0	2321	20	2341
Buy pre-packaged, pre-made foods, including single-serving food (e.g., pre-made sandwiches, microwaveable dinners, mini yogurt/fruit cup containers)	356	15.3	813	34.9	1019	43.7	143	6.1	2331	10	2341
Regularly (at least once a month) clean out the fridge/cupboards/freezer to remove food that has spoiled or gone bad	64	2.8	398	17.5	897	39.5	913	40.2	2272	69	2341
Give away still-edible food that you know you won't eat (e.g., bring leftovers to friends/family, donate unopened packages to food banks)	417	18.5	666	29.5	938	41.6	236	10.5	2257	84	2341
Consume some foods/drinks after the "best before" date has passed	118	5.1	322	13.8	1412	60.7	476	20.4	2328	13	2341

What would you say are the top 3 reasons your household has thrown away food or drinks that could have been consumed? Please select up to 3 responses	#	%	Sub-total	Missing/No Answer	Total
It was not prepared properly (e.g., undercooked or overcooked)	280	12.0	280	2061	2341
It did not taste good	714	30.5	714	1627	2341
It was past its "best before" date	972	41.5	972	1369	2341
Not interested in eating that item again	291	12.4	291	2050	2341
It was no longer edible (it spoiled, turned moldy, went bad)	1980	84.6	1980	361	2341
Don't like leftovers	82	3.5	82	2259	2341
There was such a small amount left, it wasn't worth saving	912	39.0	912	1429	2341
Don't like eating the same thing more than a couple of days in a row	213	9.1	213	2128	2341
Other	142	6.1	142	2199	2341
Haven't thrown out food in the past 6 months	138	5.9	138	2203	2341

Do you keep food past its "best before" date?	Frequency	%
Often	669	28.6
Sometimes	1164	49.7
Rarely	408	17.4
Never	100	4.3
Subtotal	2341	
Missing/No Answer	0	
Total	2341	

Before this survey, had you heard of the term "food waste"?	Frequency	%
Yes	2100	89.7
Maybe/Not Sure	205	8.8
No	36	1.5
Subtotal	2341	
Missing/No Answer	0	
Total	2341	

Where did you hear or see information about food waste? Select all that apply	#	%	Sub-total	Missing/No Answer	Total
Online (webpage, blog, social media, email)	945	45.0	945	1155	2100
TV or Radio	712	33.9	712	1388	2100
I don't remember	445	21.2	445	1655	2100
Word of mouth (e.g., friend/family/neighbour)	753	35.9	753	1347	2100
Print (newspaper, free papers, or community newsletter)	748	35.6	748	1352	2100
Other	415	19.8	415	1685	2100

Did your household participate in the City of Edmonton's Food Waste research project this summer?	Frequency	%
Yes	13	0.6
Maybe/Not Sure	78	3.3
No	2250	96.1
Subtotal	2341	
Missing/No Answer	0	
Total	2341	

In the past 6 months, have you thought about food waste in your home?	Frequency	%
4 Yes - At least once a week	1146	49.4
3 Yes - At least once a month	773	33.3
2 No - a few times a year	301	13.0
1 No - never	98	4.2
Subtotal	2318	
Missing/No Answer	23	
Total	2341	

In the past 6 months, have you tried to reduce food waste in your home?	Frequency	%
4 Yes - At least once a week	1346	57.9
3 Yes - At least once a month	698	30.0
2 No - a few times a year	193	8.3
1 No - never	87	3.7
Subtotal	2324	
Missing/No Answer	17	
Total	2341	

Only for those who answered "No - never" in the previous question: Are there any reasons that you have not tried to reduce food waste in your home? Select all that apply.	#	%	Sub-total	Missing/No Answer	Total
I give away extra food to family/friends/neighbours	2	2.3	2	85	87
I think food waste naturally breaks down in landfills	16	18.4	16	71	87
I'd like to try but don't know how	3	3.4	3	84	87
I'm not concerned about money lost from wasted food	9	10.3	9	78	87
I'd like to try but don't have time	3	3.4	3	84	87
I compost most of my food waste at home for my lawn and garden	7	100.0	80	7	87
I think my household has very little or no food waste	50	57.5	50	37	87
I think food waste is generally unavoidable and there's not much we can do to reduce it	8	9.2	8	79	87
I'm not concerned about the environmental impacts of food waste	11	12.6	11	76	87
The City composts organic waste in the garbage	10	11.5	10	77	87
Other	76	100.0	11	76	87
No particular reason, just never thought about it	17	19.5	17	70	87

Think about the reasons that your household might have to reduce or avoid food waste. Would any of the following encourage your household to reduce food waste? Select all that apply	#	%	Sub-total	Missing/No Answer	Total
I want to save money by throwing less food away	2099	89.7	2099	242	2341
I want to eat a healthy diet	1423	60.8	1423	918	2341
There are food shortages elsewhere in the world	957	40.9	957	1384	2341
I care about my environmental impact and want to throw less waste away	1788	76.4	1788	553	2341
There are food-insecure* households in Edmonton and Alberta	918	39.2	918	1423	2341
I want my kids to eat healthy	504	21.5	504	1837	2341
I want to save time (e.g., spending less time shopping and cooking)	982	41.9	982	1359	2341
Other	140	6.0	140	2201	2341
Nothing would encourage me to reduce or avoid food waste	26	1.1	26	2315	2341

Thinking about barriers that prevent your household from reducing food waste, please tell us whether you agree or disagree with the following statements:	Strongly disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Strongly agree		Sub-total	Not applicable	Total
	#	%	#	%	#	%	#	%	#	%			
I don't have enough time to cook or prepare meals	699	30.5	625	27.3	329	14.4	529	23.1	108	4.7	2290	51	2341
I want to buy a wide range of fresh foods for healthy eating options	101	4.4	152	6.6	294	12.8	865	37.7	882	38.4	2294	47	2341
My kids don't always finish their meals or sometimes won't eat what I make	167	19.4	125	14.6	117	13.6	295	34.3	155	18.0	859	1482	2341
I don't have enough time to plan meals in order to make good use of food and leftovers	706	31.0	671	29.5	332	14.6	468	20.5	101	4.4	2278	63	2341
I like having lots of food variety and choices on hand at home	107	4.7	239	10.4	422	18.4	997	43.4	530	23.1	2295	46	2341
I don't know how I can reduce food waste	1055	46.8	676	30.0	287	12.7	208	9.2	26	1.2	2252	89	2341
None of the above are a barrier for me	253	14.6	226	13.0	433	25.0	344	19.8	477	27.5	1733	608	2341

A future goal is to develop educational information and resources to help residents learn how to reduce household food waste. Which of the following topics would be of interest or be helpful to you or your household? Select all that apply.	#	%	Subtotal	Missing/No Answer	Total
Information about where, how, and what kinds of foods can be donated	1145	48.9	1145	1196	2341
List of businesses (e.g., markets, restaurants, caterers) that donate leftovers and edible foods to charity	1081	46.2	1081	1260	2341
Recipe ideas to help use up leftovers	855	36.5	855	1486	2341
List of businesses or organizations that help to divert and distribute wasted food from donors to organizations that need it	1067	45.6	1067	1274	2341
General information to raise awareness about food waste (what it is, how to reduce or avoid it)	878	37.5	878	1463	2341
Shopping tips to reduce food waste	893	38.1	893	1448	2341
List of retailers that sell imperfect and discounted fruits and vegetables	1080	46.1	1080	1261	2341
How to prepare and cook the right amounts of food for meals	479	20.5	479	1862	2341
Ideas and information about how to share or distribute extra food with friends/neighbours	533	22.8	533	1808	2341
Time- and money-saving tips	814	34.8	814	1527	2341
Clearer information about "best before" dates	1178	50.3	1178	1163	2341
Nothing	197	8.4	197	2144	2341
Food storage and food safety information	982	41.9	982	1359	2341
Other	110	4.7	110	2231	2341
Meal planning and nutrition information	665	28.4	665	1676	2341

How likely would it be for your household to try the ideas below in order to reduce food waste?	Not at all likely		Not very likely		Somewhat likely		Very likely		Sub-total	Not applicable	Total
	#	%	#	%	#	%	#	%			
When I have a party at home, I would consider planning to distribute leftover food items in containers for guests to take with them	123	5.7	202	9.4	778	36.2	1049	48.7	2152	189	2341
I would set up a “use me first” area in my fridge to help keep track of which foods need to be used up first while they are still edible	318	14.1	559	24.8	841	37.3	536	23.8	2254	87	2341
I would consider regularly donating unused or unopened still-edible foods to friends/neighbours or a local food bank if I don't plan on consuming them.	192	8.7	331	15.0	877	39.6	814	36.8	2214	127	2341
I would organize joint shopping trips with friends/family/neighbours to split larger amounts of fresh foods if we could reduce waste and save money	823	36.3	777	34.3	458	20.2	209	9.2	2267	74	2341

Raw Qualitative Data from Online Single-Topic Survey

Question 1: On average, how long do you keep leftovers before throwing them out?

Themes derived from up to 100 free text/comments	Frequency
Week	63
It depends	8
Fridge/freezer	8
2 weeks	7
Store until they're not edible	4
Freeze	3
3 weeks	3
Don't throw anything	2
Don't keep track	1
Until they are eaten	1
Qualitative Responses (n = 97) - Verbatim	
A week	
one week	
1 week	
1 week	
7 or 8 days	
One week.	
3-5 days, depending on what was cooked. Leftovers are usually the next day's lunches.	
Cooked rice, potatoes - 7 days Fish - 2 days Meats - 4 days Cooked vegetables - 4 days	
Usually no more than a week, unless frozen - many months if frozen.	
use within 3 days- don't throw out	
Four days, if in fridge. Maximum one week. If in freezer, can be for a month or two at a time.	
2-3 days maximum. Usually cook enough for 2 days, 2 days in a row, then try to change up leftovers so that they look and taste different or bring them to work for lunch the next day.	
3-4 days	
Not long, we eat them.	
A week.	
5-7 days	
2 to 3 days at most cause by then they are eaten. we rarely throw out leftovers	
Leftovers that haven't been eaten get thrown out after a week.	
one week	
About a week	
week	

WEEK
one week
1 week
one week
1 week
A week or so
A week minimum. Anything longer than that is a little gross.
Probably about 4-5 days
Depending on food.. up to a week in the fridge
Typically a week or so - but they don't last that long. I usually make enough for a couple of meals, and then alternate the "repeat" meals.
3 days
1 - 2 days
a couple of days
4-5 days
One week
Usually only 3 days max even though some could be kept longer.
4 days
2 days
2 days
3-4 days
3-4 days
3-4 days
3 days
5 days
couple of days
3-4 days
few days
one or two days
3-5 days
3 days.
3-4 days
4 days
5-7 days, depending what it is
5 days
Within a week
One week

around a week
I very rarely through out left overs, but when I do it would be once 5 days has gone by.
approx. 5 days but depends what it is.
That entirely depends.
This is so hard to be specific. So many variables.
Varies depending on what it is from a few days to several months
Depending on the type of food. If vegetables - until they spoil If meat - 3-4 days If prepared meals - a couple days
Depends on what it is.
Depends on the leftover. Most get eaten the next day.
depends upon the type of leftover. For example open a can and put it in another storage container and put in fridge - I deep until it goes bad. Prepared meal I generally keep 3-4 days
That is far too vague a question. How long leftovers are kept depends on what the ingredients are. Generally, we keep leftovers and try to get them eaten before they go off, or put them in the freezer if there is enough for another meal at a later date
2 days in the fridge, months in the freezer
1.5-2 weeks in fridge and up to 1 year in freezer.
Frozen ~ 1year Fridge ~ 1-2 weeks
Up to 10 days in the fridge Up to 1 year in the freezer
5days in the fridge, 1month in the freezer
Four days, if in fridge. Maximum one week. If in freezer, can be for a month or two at a time.
3 or 4 days if they haven't been frozen.
two days max if I can't freeze it
2 weeks
Two weeks, depending on what it is
14 days
1 1/2 week
10 days
About 2 weeks
10 days
Until they are no longer edible.
meats-I keep 2-3 days(depending on what it is I might freeze it ie hamburger) Vegetables-it goes into the fridge until they get eaten or go soft/rotten odds and ends-get pushed to the back of the fridge and then we come across after they have gone moldy
As long as it is safe and tastes normal
Until the go moldy. Could be days or weeks.
If more than 2 servings left, they are frozen. Most often I cook more and divide into meal servings which are frozen
until they are freezer burnt.

Freeze most leftovers. Keep for a few weeks until they're eaten.
Three weeks
3 weeks
Minimum of a week and a maximum of 3 weeks.
We usually eat them all and don't have to throw them out
It's a tricky question, I don't throw leftovers
Don't really keep track
Until they are eaten.

Question 2: Why do you keep leftovers for that time period?

Themes derived from up to 100 free text/comments	Frequency
Not tasty, stale, spoiled, gone bad, food safety	27
Someone will eat it, getting around to eating them, need to eat	14
If pushed to back of fridge, forgotten, other plans	8
Still edible, look good	8
Eaten for lunch/snack/quick meal	8
Re-use in other meals, soup	7
Eat leftovers or freeze, no waste, food too expensive to waste, wasting food immoral, I'm no millionaire, plan meals	7
Not sure	5
1 week good for useable date	3
It makes sense	2
Will not get consumed	2
2-3 days in fridge/2-3 months freezer, 2 days in fridge	2
Some food tastes good next day	1
Cook 1-2 time a week, make large meals then split, cooked extra, cook less	1
Why not	1
Garbage pick-up schedule	1
Don't like to eat same food for several days	1
Don't store leftovers	1
Other	1
Qualitative Responses (n = 98) - Verbatim	
Usually by that point the food has gotten stale or it's clear no one wants it.	
because mind set is that will have spoiled after that	
Anticipating using them before they go bad.	
Generally starts to look/smell bad after that	
tend to go bad/smell off after this period	
After 1 week, the food is more prone to go bad. Try to freeze leftovers after the 1 week too.	
I feel that anything more than 3 days that has meat, eggs, etc. generally will start to go bad if not go completely bad in that time and I do not want to risk anyone getting sick.	
Well we try not to be wasteful, but once it has gone bad or it's been sitting there for a week, we will get rid of it on a day that is convenient so that it doesn't rot in the garbage bag all week.	
To consume before it spoils	
Freshness is noticeably reduced to inedible after that period, microbiological activity more established, cannot reheat/recook again without ruining after several servings.	
mostly takes that long to spoil.	

Get an old taste after the week
Usually it is eaten in far less than a week. If it's longer than a week, chances are good that it's been heated several times or has gone bad.
We try to consume the left overs before they go bad.
After 3 days in fridge I worry about possible spoilage; we tend to never throw out food from the freezer because it stays good in the time period we store it before consuming
Past a week it usually goes bad, mouldy or otherwise
Most foods start to spoil after a week
Don't want it to go bad
food safety mainly and food quality. Any longer in the freezer and the item begins to get freezer burn.
Meat & poultry have a best before time & we want to avoid food poisoning. Most of our leftovers are eaten
3 days in the fridge is what I've heard are the limit to maintain food safety. There is also a limit for freezer food safety but I tend to ignore that one a bit more.
meats- food poisoning possibilities Vegetables-a some point no one will eat them odd and ends-usually they are not prepared the way the kids like it.
I don't trust that they will keep longer than that. Typically if I don't eat it by the 2nd day I will freeze it rather than toss it out. I keep my eye on it because I don't like waste.
It is my understanding that most cooked food can be safely kept for that length of time without risk of going bad.
I am not a fan of food poisoning
Fridge - food safety Freezer - sometimes forget about them; not a complete meal and have nothing to add to it; not required to bring a lunch and therefore don't use
Someone will eat it.
I think I'll get around to eating them
need to eat
Usually they are eaten by then
hoping they'll get used up
Because they might still be consumed
that's how long it takes to eat them
Gets eaten or goes stale
generally eat items within these timeframes
it is usually eaten by that time
That's how long it takes to get eaten up.
Because I will make sure to eat it by then
busy schedule, usually do not eat until that point
That would be a very rare case. Maybe if something got pushed to the back of the fridge and we didn't see it for days for some reason?
They may be forgotten about. I'm passionate about minimizing waste but both my wife and I lead busy lives. Sometimes it is easier to eat on the go or grab something on the way home than plan for leftovers.

forgot about it
Life events get in the way, and they are forgotten
Forgotten about
Because we sometimes make other food, eat out, ect. and don't like to throw out leftovers. We keep them as long as we can and try to eat them before making more food.
It accidentally gets pushed to the back of the fridge shelf, out of sight and forgotten.
forget about them, don't feel like that specific food
It's edible
Because they still look good.
They are still edible and I'll take it eventually to eat as a lunch.
They seem to smell and look ok up to that date as long as they're in the fridge.
I think leftovers keep fine up to four days and we make sure to eat them within that time frame.
still edible in that time frame
Usually still good and if it has been one week and no one has eaten it, no one will.
Still good to eat, will get to it.
It can be used paired with another meal, as a snack or lunches.
to eat them for lunches
Keep them as long as it takes for someone to take for a lunch or eat as a quick meal.
thinking I can use them for another meal
It is sometimes hard to cook smaller portions of meals, however my husband will eat the left overs for lunches if there is not enough for second or third meals. Some food kept beyond that date I have concerns about bacteria - ie stuffing, turkey gravies etc.
Depends what I feel like taking for lunch over the next few days.
Take it to work for lunches
For later use
Because I try to re-use in other meals.
May have another use remix into a different way
to have food available (fruit for making pies in winter) when needed
They usually get eaten or used in another recipe within that time.
To make easy dinners in the coming weeks.
To make another meal
for soup
If I have cooked something, I will almost always eat the leftovers in the first week. If I can't do that, I will freeze the leftovers if possible and use them later.
I was raised by parents who lived through the 1930's depression, and it was ingrained in me that wasting anything was wrong. My mother was an excellent cook, practised what she preached about waste, and taught directly and by example all her 5 children how to cook and manage a kitchen. I also do my own cooking, avoiding packaged dinners as I don't want to eat all the chemicals used in them for preservatives, flavour, etc. Anyway, it's cheaper to cook from scratch. My mother taught us about nutrition--vitamins, protein, etc.--so that informs my own choices of what I buy and what I cook. That's another reason I don't buy

precooked dinners.
Because I'm either going to eat it or freeze it
I think wasting food is immoral.
I'm no millionaire.
Just in case we want to eat it.
I only have leftovers for one day--I plan my meals and cook/freeze store appropriately.
this is, on average, how many servings i can get out of my large cook pots. i do large batch cooks 1-2 times per week to minimize cook times throughout the week
I hate throwing out food, but my family isn't great with eating left-overs. So they sit in the freezer until I purge.
Usually there are enough to have many smaller meals i.e. making one big meal once a week and splitting it up to eat later on
Reduce waste, quicker than preparing meal from scratch.
cooked extra or party left over
1 week is well within the useable date as long as your fridge is cold enough.
Mostly consume within a week
If we haven't eaten it in a week, we're not going to lol
not sure
i dunno never thought of a reason, just do
If they are not eaten within 2 days after preparation I find they usually don't get consumed. I will keep rice a little bit longer as it seems to stay fresh.
To if it hasn't in 3 days it likely won't be eaten so why keep it.
2-3 days for things in the fridge 2-3 months in freezer
I think it is still good for consumption within 2 days
some food tastes better the next day. If it won't be eaten the next day than it is frozen.
It Makes sense.
Why not?
Garbage pick-up schedule.
stupid ?
Don't like to eat the same thing several days in a row, so we wait a few days to eat something again.
i don't usually. We usually eat them before that. Most leftovers that old are too old to eat unless they have been frozen This question is poorly worded.

Question 3: On average, how long do you keep food past the “best before” date?

Themes derived from up to 100 free text/comments	Frequency
It depends	33
Look, smell, taste, until it has gone bad	20
Few days	17
1-2 week	10
3 weeks	3
1 week-month	3
Don't look at dates	3
1-3 months	2
Few weeks to few months	2
All is consumed	1
Up to 6 months	1
If can freeze, few months	1
1 year	1
Qualitative Responses (n = 99) - Verbatim	
Depends on whether it still seems good. Sometimes it can be weeks but other times it goes bad before the best before date.	
Depends entirely on the item and how often it is being used, when it was opened, how much is left, etc.	
depends on the food	
tough question as it depends on the food. For example 18% cream easily last a lot longer than the best before date if the package is near full. Milk (skim) not so much. Beef lasts longer than hot dogs. So it depends.	
Depends on product,	
Depends on what it is, whether it has spoilt, etc.	
depends on the type of food	
Depends what the food item is.	
Depends on the item.	
Depends on the product. Yogurt, cheese or butter can last quite a while longer. Pickles, condiments and dressings can last well beyond their BB date.	
Depends on the item, like yogurt can still be good up to a week or more after the expiry date but milk often seems to go bad even before the expiry date.	
Depends on the item. Eggs, for example can be used in baking for a month after the best before date	
Depends on the type of food - baking goods longer than dairy products. Flour maybe months, milk hours or days.	
Again, depends what it is. Generally I'll keep it until it smells bad or has visible mold. Condiments I've eaten months from the best before. Canned food I've eaten after years.	
Depends on the item. Unopened canned goods or frozen goods I'd keep for months. Opened items would usually be a few days or until it's bad.	

Depends on the item. Yogurt lasts much longer than its date. Some things such as salad dressings or other condiments are kept long past their dates. If it was milk, or something similar that spoils quickly, it might only be ok for an extra day or two past its date. Most things get the sniff test and I go by that instead of the date.
Depends on the food. Some foods actually wont spoil and are just required by law to have a best before date. Condiments are usually the ones that i will use the longest after their best before dates. Perishable food i usually don't take a chance, or will feed to dog, or freeze for dog later.
It depends on the product. Milk can go several days; cultured foods like sour cream can go longer. We evaluate based on looks and smell and consider the "best before" date as extra data to inform our decision.
Depends on the product. I've kept/used some canned goods or packaged goods up to a year beyond the best before date.
Depends on the specific item. - Yogurt: 2-3 days - Canned/boxes items: a couple years - Frozen: up to a year beyond the date (unless it has severe freezer burn)
If it's milk or cream, probably only a few days. If it smells okay, then I use it. If it's yogurt, about a month (past the best before date) because usually it just means that liquid will pool on the surface, which makes it not look perfect. You can just pour this off or stir it back in before you eat it.
Milk - few days Condiments - few weeks dry goods - month+
Depends on the product; I would keep unopened yogurt for 2-3 weeks past the BBD, for example, but I would only keep opened milk for about 1week past the BBD.
depends on the food, specifying an average is not meaningful
Yogurt for a week; cheese until it is visibly awful (although rare, because we eat it quickly); milk a couple of days. Meat, one day.
Depends. Sometimes bottled sauces etc are discovered well after best before date. Sometimes I accidentally buy things from grocery store that are at or past best before date. Sometimes I have to point out to store staff that products are beyond b b date.
only item this applies to is yogurt or sour cream - can be 2 weeks beyond best before date
Depends what it is, meat never, canned food never.
It depends on what it is. Never for dairy products; sometimes for non-perishable items.
it depends on what it is. Dairy products rarely, ceral, soup, canned goods are kept longer. But raraely have this problem. We rotate the food in our house
If unopened and depending on what kind of food (ie dairy or meat) up to a month.
Depends on the food item. We'll keep yogurt for a week or two longer but not things like milk or fresh meat.
It depends on what it looks or smells like. Most of the time what I discard is milk or other dairy that has soured.
I keep food until it goes bad. Things like salad dressing, yogurt, sour cream are frequently still fine to eat beyond their 'best before' date. I tend not to pay much attention to the 'best before' date ... I pay attention to my nose (i.e. does it still smell ok).
I go with taste and appearance. If it's good we will eat it. We don't really depend on the date posted.
Depending on the food, I would taste it before trashing it
Until either the taste,smell or appearance suggests it is no longer safe to eat.
We keep it as long as we know or think it to be edible. Sometimes it is easy to see bagged broccoli is good or to smell cheese or soy milk and know it is still ok.
Until I know it's gone bad or it's a few weeks after the best before date.

as long as it looks good
If it's milk or other dairy, until it smells like it's gone off. For other stuff - usually when it smells bad or when the use by date is way in the past (like, years...)
Until it's obviously off - has grown mold or smells bad.
It could be a long time as long as it passes the smell/consistency test.
Depends on the food. Until the food spoils.
until it spoils or gets mouldy (as in the cases of cheese or yogurt. Never for meat.
Until I have ate them or they have gone bad.
Depends on the product. Milk generally has a few days to a week past date that it is still good, many products are good for months beyond, you just need to check it before using.
until I think it has spoiled (such as milk, yogurt or sour cream. I'll keep them until they've spoiled, or I think they have, regardless of the best before date)
Depends on the food!! For example- milk, not very long past because it goes bad quickly. cheese- until there's mold. etc.
Depends what it is. Luncheon meats I don't keep past the best before date. Yogurt as long as it isn't mouldy I'll eat it.
depends on the product and its condition (smell/taste). If it contains preservatives we'd keep it longer than
I usually only keep milk past 'best before' date and I smell it to make sure it's still good.
couple of days depending on the food
2 days
2-3 days.. which the food company's have statistically set the actual expire date. they cut it sort to be safe.
Only couple days
a few days
A few days
a few days
A few days
Depends on the food - couple of days or a week
A day or two
2 -3days
A few days unless it is a precooked item like a condiment or a cracker
2 days
3 days
a few days - depends on food and condition
Mostly only milk and bread. I see if it still smells okay but even then most likely only a couple of days.
one week
At least one week, or until it shows signs of spoilage.
Week
A week

A week sometimes.
1 week
As long as it is still edible. About a week.
A few days to a week
It depends on the food - average one week
probably up to a week - it depends on the item. salad dressings up to 3 months!
1 to 1.5 week
1-2 weeks
Several days to weeks depending on the food
5 days.
I keep food anywhere up to 3 weeks past a 'best before' date.
Depends what it is. I just had tofu 3 weeks past its best before date but it was in its original packaging. 3 weeks would likely be my limit
2-3 weeks
a week
1 month
A month or so for things like sauces or coffee
Tend to not be guided by best before dates. Would consider discarding a product if it is several months after BBD (fridge) or years after BBD (freezer).
I mostly eat my food before the best before date because I don't really let my food spoil. Also, I know that processed food has a best before date that is arbitrary, so I don't really look at best before dates. Also, I don't buy processed food too often anymore -- mostly just veggies. Veggies don't have a stamped date, they are either edible or moldy.
Dates don't matter.. We use our senses to know if food is good or not
Depending on the item and chances of it actually going bad rather than just losing quality -- one to 3 months.
It depends on their condition, but maybe 2 months on average.
Could be a few weeks to a few months. A few weeks for unopened dairy. A few months for unopened canned goods or other.
A few months for canned food and weeks for frozen foods.
all is consumed
Anywhere up to 6months. depending on the food
Depends if we can freeze it a few months
Up to one year

Question 4: Why do you keep food past “best before” date?

Themes derived from up to 100 free text/comments	Frequency
Still edible	35
BB date is guideline/recommendation/pull date in stores for safety/optimal date	20
BB date is guess/useless/fictitious/no real science/not accurate/bogus	11
Packaged/unopened foods last longer	8
No waste, environment/pocket	7
Forget, change mind, gets lost in fridge	3
Still safe in fridge	2
Milk/yogurt okay after BB date	2
Depends on product	2
Not on purpose	1
False hope it will taste better later	1
Cook them asap	1
1 day	1
Other	1
Qualitative Responses (n = 94) - Verbatim	
It's still good	
If it's still good to eat or drink, no point throwing it out.	
Because it often doesn't go bad by than.	
Deemed to be still edible or I plan to use them asap.	
Somethings are fine past the date	
it is still good	
Another dumb question. We keep it because it's still good to eat/drink.	
It is still edible or can be used safely because we cook it ourselves and are sure of the results - meat is well cooked or seared on outside before roasting to kill any bacteria.	
its still edible	
because it's still edible usually.	
Some items are still good if they have not been opened even after the "best before" date.	
It is still edible.	
It's still good.	
in many instances the food is still fine.	
Keeping them longer would lead to spoilage and poor taste	
Believe the food to be fine.	
Because they're still good.	
Some food remains edible after the best before date for a few days more. Also, some foods can be kept in the freezer for sometime after their best before date	

Because it is still good.
Sometimes it's still edible and can be used.
They are still good!
Because if it still tastes fine and has not gone bad, I will still eat it.
In one week the food is still edible.
Still edible
they are still ok to consume
Sometimes it doesn't go bad
in case I can still use it
Because it still smells/tastes fine.
Prior to eating the item we check for mould or other form of spoilage.
Often it's still totally fine
Still safely edible.
Best before doesn't mean it is spoiled on that date.
I try only to throw out food that's likely to have gone bad.
nothing wrong with it
Judgement call, see above.
I feel that the "best before" date is simply a guideline and food spoilage is the determining factor.
Food safety definitions are overly safe for certain items
best before is just for quality, not health
Some items have not actually gone bad, just shouldn't be sold at that point.
the best before date is a pull date, it can not be legally be sold past that date. so it is most likely still good
I regard the words as a recommendation
Best before dates are only an indication of shelf life. How you store food and how long it has sat out makes a huge difference to the shelf life. So we rely more on our experience than on the label.
I use the dates as a guide and check the food each time before I use it.
It is just a suggestion to consume by a certain date
Seems wasteful to toss based on the date. Most dates are a guideline
Because I believe that date is mostly a guide to save the producer from issues more than for our safety.
Because the best before date is only a guideline, and if kept in the fridge can be eaten beyond the date
realizing it is a recommendation and that food can last past that point, depending on how it was stored and still checking if it is spoiled before throwing it out
It's "best before" not "bad after".
It's just a guideline, use the look and sniff test
it is only a "best" before date. that does not mean that it is no longer edible after that date... only that it is "best" before that date.
It's a suggestion. Sniff tests for milk/yogurt is better than the date
I feel that the best before date is a general rule of thumb, and in some situations relates more to the quality

guarantee from the producer/company and can have little to do with the food actually being spoiled (recommended sell date vs. best before date vs. expiry dates)
Best before date refers to optimal condition of the product not an actual date that it spoils.
I figure the date is just a guess and variables can make it last longer. I increase the frequency of smell tests once the best before date has expired.
I watched an episode of John Oliver that explained there was no real science or reason behind "best before" dates, but the idea starts of something being "past due" grosses me out.
Most dates aren't accurate and if you inspect the food it's still good.
Those dates aren't scientific or anything; they are the manufacturers best guess as to the dates the item will be in it's best condition. They always err on the side of caution, and if you store things properly at home items will often last days, weeks or even a month past those dates. Depending on the item, even longer if they haven't been opened.
The best before date is useless as there are many factors that go into what makes food no longer edible (e.g. storage methods, temperature, cooking methods, etc.)
that date is fictitious and meant to scare people. the only product that is required by law to have expiry information is drugs and many of those are just fine after the expiry as well
Nothing really critical happens at the best before date... It is just that - "best", doesn't mean it is bad afterwards...
We know that the best before date is just a guess as to when it will be good, and unless we're concerned an expired item will harm us if consumed we try to keep it until it's used up. A few weeks.
Best before dates are often bogus and placed on items hastily. I've watched news programs that investigated Best Before date policies (60 minutes I believe) and they discovered that the BB date policy is deeply flawed and is costing households and our environment terribly. I don't pay attention to best before dates, I pay attention to my taste buds and cooking practices.
Because best before is not an exact science. Our own chemical receptors can reliably address this on a case-by-case scenario. If I am uncertain about the quality I almost always discard though.
The best before date often has little relevance to the quality of the food
The foods I keep beyond their best before dates are usually in sealed containers or foods that don't actually expire as quickly as the best before dates would have you believe.
because most packaged foods don't go bad after the best before date. As long as I can disguise the flavour (if it sours or goes stale) into something else (eg: sour cream or yogurt in baking; tins of beans or tomato into a chilli or stew), I will use it if I can.
If the goods are spices or dry good will keep longer
For milk because it hasn't spoiled yet. Other products if they are not yet opened.
If stored properly they are still good.
there is enough chemical in products to preserve it
Some food lasts longer than the date, especially if not opened.
Some items are still good if they have not been opened even after the "best before" date.
Some items are still good if they have not been opened even after the "best before" date.
As above, if it won't make you sick, is still effective, and tastes decent, why waste it/the money spent on it by throwing it out.
I am a better judge than a stamp as to what is good and what is not. I want to use everything I buy - for the environment and for my pocket.

save money
born cheap I suppose
don't want to waste food. Milk is good for at least a week longer
Frugle - no waste
Sometimes dairy (milk, yogurt) gets lost in the fridge and by the time it is found it has gone bad.
My husband will 'smell the milk' and use that as his guide... Sometimes I just forget, especially for items that have a long shelf life.
Plan tones it in a recipe and then have a change of mind.
If in fridge and I consider it safe.
In the fridge
Milk and yogourt are fine for a bit past the expiry date.
With yogurt, it often is still very usable. With milk, I let the milk sour and use it for baking.
If it's a packaged item, like dried soup, I have no problem using it way past it's best before date. Items like yogurt, I have no problem using up to a month past its best before date. Other items, like fresh meat or other dairy, I would never use past the best before - and often will throw out BEFORE the best before if it goes "off".
Certain foods are fine past the date, others are not. Milk is only a day or two leeway, a bag of chips or nuts has much more room.
N/a
Not on purpose. Just have so many items to eat through in the refrigerator!
In the false hope that it might taste better later.
Usually I will cook them asap.
1 day

Question 5: What does the term “food waste” mean to you?

Themes derived from up to 100 free text/comments	Frequency
Throwing away still edible food	49
Overbuying/Poor planning/Making more	17
Throwing away food	13
Throwing away inedible food	12
Food going to compost pile, environment, landfill	2
Food waste, wasted food	2
Disgraceful	1
Throw away food that doesn't look good	1
Garbage bins full of food from stores	1
Loss of money	1
Qualitative Responses (n = 97) - Verbatim	
Tossing edible food from restaurants, especially from buffets. There is huge waste with buffets.	
Throwing away food that is still good to eat.	
Throwing out food that is still edible in can be made edible	
Throwing away food that can still be eaten	
Food that goes 'unused' through spoilage, throwing out, food that could be eaten but is not.	
Food ready for consumption that isn't eaten, of food bought but thrown out without being eaten by anyone.	
throwing out perfectly good food that someone would enjoy or need to not be hungry. excessive produce that can not be consumed in a short time period	
Some people never eat left overs for food goes in the garbage. or purchasing and not using	
Throwing out food that is still usable	
Food that we could eat that we throw out. Peelings that could go into making broth. Tea that could be used to water plants. Corn or potato water that could be used to make broth. Meat scraps for broth.	
food waste is any food that is still good to eat but has been put in the garbage.	
Food that could have been eaten, but wasn't, or scraps from food.	
scraps, throwing out food that is still okay to eat	
To throw out food that is perfectly okay for consumption.	
Wasting food that could have been eaten or is still edible that someone else would have eaten.	
Any type of food you throw away or dispose of, from vegetable peelings and meat discard like bones (would not have eaten) to spoiled fruits that you could have eaten, but didn't.	
Unused	
Disposing of food that could have been used	
throwing away food that could have been eaten.	
Food that is thrown away that could have been eaten	

Edible food that is thrown away
anything eatable that gets tossed out.
food that is edible that is sent to the landfill
Discarding food too early Not eating leftovers soon enough
Food that is thrown out that could have been eaten
It means that food is not consumed or thrown in the garbage even though it is in good condition to be consumed.
throwing out edible food
Throwing away food that can still be used.
Lost opportunity. There's so many ways food can be used and it's a waste of so many other things other than just food.
Throwing away edible food or allowing food to spoil.
Throwing out perfectly good food.
Not eating food before it goes bad/rots and having to throw it out.
Disposing of edible food (at home) : not having restaurant food boxed when the serving is too large : throwing out still-edible food after functions (such as after an event with a buffet)
Throwing away food that could still be used for a meal.
Throwing out edible food
It means throwing out food that doesn't have to be thrown out.
Throw those food that can be eaten but people just don't want to eat them anymore.
Throwing out food that could/should have been eaten.
throwing out food that is still fine to eat
throwing away perfectly good food.
Food that could be used, isn't.
Food that could have served a constructive use, but was not. Failing to compost might be considered 'food waste' because peelings, shells, etc could have served a constructive purpose.
healthy food that is not eaten.
Throwing away perfectly good food - overeating or consuming more than is needed - not eating something because it's not 100% perfect.
tossing out items that could still be used/eaten
It means any food that is discarded instead of eaten
Food that should of been eaten/cooked but was thrown in the garbage
Throwing out food which is still eadible
Overbuying and then tossing out food you can't eat before it has gone off. Restaurants tossing perfectly good food out instead of donating to shelters, the Food Bank etc. Grocery stores tossing food that could be marked down, donated to shelters or the Food Bank.
Perfectly good food is thrown away frivolously or because of poor planning. Big retail stores throwing away food when they could take the time and energy to donate it to a food bank, drop in centre, shelters, etc. Grocers over-ordering then throwing away the excess.
items that could have been used but have been discarded either from poor planning or refusal to seek

alternative means of usage. a large contributor to this is supermarkets that throw out food item instead of donating them to foodbanks.
Buying/preparing more food than will consume and having to throw it out
buy too much, or throw away food only because you don't like the taste
Throwing out good food or food that should have been Consumed had I planned better
Food that could've been used but wasn't because of poor meal planning or poor cooking skills.
Throwing away produce and food items because you bought too much. Not planning ahead and just buying too much without using what is I their fridge first.
Food waste means we have over bought the quantity of food we will need or we don't make the time to properly plan our meals or shop with an end purpose in mind for the food we purchase.
Several things: Making more than is required and throwing out the extra Buying food that spoils before it can be used Stores ordering too much food, that is then thrown out before it can be bought
throwing out food that could have been consumed with better planning
At home, it would be buying more fresh fruit or vegetables, meat or dairy than we can consume before it goes off. It would also mean cooking a dish that goes wrong, and having to throw it out. Sometimes I cook too much leftovers, and when it goes past 1 - 2 days worth, I'll chuck the rest out. I rarely freeze left overs because of the size of our freezer.
throwing out food because you didn't pay attention to expiry date or condition of food
Items purchased and not consumed before best before date. Fresh fruit or vegetables that have gone bad.
Food that was left to spoil or not eaten for no good reason and was thrown away
It means throwing out excessive amounts of food that could have/should have been used. For example, buying a head of lettuce with the intention of making a salad. Menu/circumstance changes, and next thing you know the lettuce is rotten and you're throwing the whole head out.
Irresponsible stewardship of resources
throwing out food, food bank not accepting left over food from restaurants, etc
Food that is not consumed
food u toss out
Food that was once edible, that is disposed of, regardless of condition at the time that it is thrown away.
Throwing out food either edible or spoiled.
Anything food-related that gets thrown out. It includes things that are unlikely to be eaten (trimmings from uncooked meat, apple cores and other inedible or undesirable items) and things that could have been eaten with better planning or organization.
Food thrown away
Not using food that was produced.
food that is thrown out
Food waste refers to wasting whole foods (fruit, vegetables, bread). However, it may include disposable parts of food (core of an apple).
Throwing out or discarding food.
Any food I buy that gets thrown out. Any food the grocery store throws out because it wasn't sold fast enough. Any food that gets thrown out during food processing - for example "baby" carrots.

Throwing away food for any reason that could have been avoided.
Food that is no longer edible
garbagefood
Scraps such as peels, egg shells etc.; spoiled food that is moldy
Food that is mouldy/unrecoverable/inedible.
In residence, food, normally vegetables, that spoil before they can be cooked or to a lesser degree, refrigerated left overs that are left too long. In the supermarket or transport, items that are discarded because of blemishes, spoilage, and past their best before date. I do not know of the level of food waste at the farm gate (when I was young, we wasted very little) or during processing.
Egg shells banana peel last slice of bread
Indelible food
anything that can't be eaten.
Tossing away food that was once good that has spoiled from not consuming it
food not consumed
unconsumed food that is thrown out
food going to the compost pile
Any organic or inorganic waste that goes back into our environment, landfill, compost, etc.
food waste
Wasted food. Food that could have contributed in a more useful way at some point in the system.
Disgraceful, considering the number of starving people in the world.
Throwing out just bcause it doesn't look good or is needing to be gleaned to make it palatable.
Garbage Bins full of food from stores that is thrown out
loss of money

Question 6: Are there any other challenges faced by your household when it comes to reducing food waste?

Themes derived from up to 100 free text/comments	Frequency
No	37
Coordination between household members, children	10
Lack of planning, no time, change of plans	10
One-person household challenges	8
Convenience	7
Want to compost	5
Packaging	5
Buying too much	4
2 member household challenges, cook more	3
Grocery Stores	3
Don't know how to cook	3
Cost	3
Portion sizes	2
Access	2
Gardening	2
Keeping track of what's in fridge	1
Indifferent guests	1
Too many people shopping	1
Aging people tend to have less appetite	1
Lack of available fresh food	1
Food allergies	1
Qualitative Responses (n = 73) - Verbatim	
number of people in the household	
Coordinating between cooks causes some waste. Sometimes my husband starts supper and cooks something new when I had hoped to serve leftovers before it was too late. My husband also has a chronic illness and doesn't always know how much he will be able to eat before I start cooking.	
My partner and I don't have the same attitude toward leftovers, especially in kids' lunches.	
when other people in the household buy WAY too much food because its cheap. WE tend to not be able to finish it. thus wasting the food. I do compost the fruits and vegetables though.	
buying a food item and that same day, your spouse buys the same food item	
Three members of the family living here; three different levels of awareness and commitment to reducing food waste.	
My child's leftovers are often too small to reuse and I'm unsure of how to fix this	
We have 5 members of the household, and it's hard to keep track and ensure that the food is getting used and purchased appropriately.	

I have two children who are in different phases of what they prefer to eat. One is a vegetarian and the other still has not refined her tastes extensively (a bit of a picky eater)
My partner is a compulsive shopper
Biggest issue is time to plan and prepare meals, other major factor is cost, often food is cheaper to buy two small packages on sale than one larger package, this adds packaging waste, other times you need to buy the large item as it is significantly cheaper per unit than the size you need, likely resulting in spoilage or not finishing the food.
One person not interested in food prep, or meal planning
yes. it is only matter of calculating the right amount of food. sometimes my family just dine out and my food is not consumed. other times i do much food.
Plans change. Even if I plan out a meal, something can come up and I don't have time to make it so we just order pizza or eat out.
Plan meals and shopping, end up lacking time and order on convenience
Only thing I can think of is unanticipated changes to our schedule, which affects our meal prep. May end up having foods spoil.
Some times I don't get to making everything I had planned for the week
Travel a lot and planning food to last until a trip without any leftovers can be difficult.
It's mostly keeping track of what is in the fridge. Sometimes I'll forget about something and that's why it'll get tossed. Just need to be more aware.
Meal planning in a busy family of 5
One person not interested in food prep, or meal planning
Well, I'm single and work 12 hour shifts. So learning how to cook has taken a long time, even though I'm old. So as I learn, things have gotten better. However, I've never been a waster. It does happen, but rarely because I don't have money to waste. So lack of knowledge of how long things last, learning the differences between best by, before etc.
One person household makes it a challenge to use food in a non-wasteful manner.
Single person house hold makes it difficult to find balance between quantity and variety.
I live alone and cooking for one can be a challenge. There are sometimes too many leftovers to be consumed before it goes bad and I can only fill the freezer so much. Also, my schedule is somewhat unpredictable so even if I plan on cooking a meal, I may end up not being home for a few evenings in a row and the food goes bad before I can cook it.
Only one person in the house, so making enough for a meal plus lunch the next day can be challenging (portion size).
Single male, mid-40's. The only real issue is being too busy to cook or eat meals at home, and end up with spoilage (milk, fruits) although I am very good at using leftovers.
It's hard to buy and shop for just one person.
we eat out a lot
yes. it is only matter of calculating the right amount of food. sometimes my family just dine out and my food is not consumed. other times i do much food.
I think for what I do waste, I typically forget it is there. Or, I bought too much in error.
Forgetfulness. Laziness.
Usually food waste comes from being "too busy" or being lazy. We don't have strong rationale to waste good food.

My boyfriend hates cooking which results with me being solely responsible for cooking. I'm not a fan of cooking & feel like I do not have good cooking skills. If I do not take initiative to cook we just eat out.
Single male, mid-40's. The only real issue is being too busy to cook or eat meals at home, and end up with spoilage (milk, fruits) although I am very good at using leftovers.
No access to composting (but City composts kitchen waste? -- better than sending it to the landfill)
Small apartment - minimal room for composting
I'd like to do something with compost...don't have composter
Unsure of how to compost.
With renting and in a condo complex, we have a desire to compost our waste but are unsure how to and not disturb neighbors in the small space.
I don't tend to buy processed foods however when I do I notice that there is a lot of excess packaging that is harmful for the environment.
Sometimes it is impossible to purchase the food items I want or need without unnecessary packaging. I will buy alternate products if I can find something similar with less packaging.
When it comes to packaging, it's difficult to find products that are not wrapped in plastic
Most of my garbage ends up being food packaging. I would like to be able to reduce that too.
I would be nice if we could recycle styrofoam containers in Edmonton as stores insist on using them for meat packaging.
Resisting buying too much of the lovely fresh produce at the farmers market.
when other people in the household buy WAY too much food because it's cheap. WE tend to not be able to finish it. thus wasting the food. I do compost the fruits and vegetables though.
My partner is a compulsive shopper
We don't have time to shop every day so we sometimes buy more than we can eat before it goes bad. Also, we take things out of the freezer, but things come up and we don't have time to cook them before they spoil.
Household consists of 2 people. Some food cannot be purchased in small amounts or cannot be divided up and frozen successfully. ie bread products (unless you want to pay gst for purchasing less than 6 of an item)
Only 2 people Usually cook more than enough, just the way it is - therefore the leftovers.
Convenience, recipes make too much food for a 2 person household
It's mostly keeping track of what is in the fridge. Sometimes I'll forget about something and that's why it'll get tossed. Just need to be more aware.
Availability of organic meats in grocery stores.
Grocery stores are a barrier to reducing food waste. I don't need to buy a whole celery stock, I don't need to buy a bag of oranges, I don't need 8 chicken breasts. I want more control over what and how much I buy. Also, Edmonton needs more mini grocery stores. In Europe I can buy whatever I need at a corner store which is never more than 3 blocks away from any given geographic point. The price point is the same as if I were to buy bulk at a large grocery store. I'm not overpaying at the corner store. But in Edmonton, grocery stores are miles away, so I plan my meals and buy lots of food once a week. However, life is fluid, the unexpected happens especially with kids, and that meal I planned for Wednesday doesn't happen. Eventually those ingredients turn into food waste. If I had more shopping options, I would buy for just 3 days and readjust a mid-week buying trip to the new schedule. Since a corner grocery store is nearby, this is not a problem or a big time suck and therefore less food is wasted. The closest grocery store to me right now is a 10 minute drive away. Terrible.

Grocery stores often sell spinach and lettuce mixes in a sad state of partial decay.
Well, I'm single and work 12 hour shifts. So learning how to cook has taken a long time, even though I'm old. So as I learn, things have gotten better. However, I've never been a waster. It does happen, but rarely because I don't have money to waste. So lack of knowledge of how long things last, learning the differences between best by, before etc.
I live alone and cooking for one can be a challenge. There are sometimes too many leftovers to be consumed before it goes bad and I can only fill the freezer so much. Also, my schedule is somewhat unpredictable so even if I plan on cooking a meal, I may end up not being home for a few evenings in a row and the food goes bad before I can cook it.
My boyfriend hates cooking which results with me being solely responsible for cooking. I'm not a fan of cooking & feel like I do not have good cooking skills. If I do not take initiative to cook we just eat out.
Buying in smaller portions that will be used reliable can be more expensive than buying larger volumes, even accounting for a portion of the larger volume being wasted
Biggest issue is time to plan and prepare meals, other major factor is cost, often food is cheaper to buy two small packages on sale than one larger package, this adds packaging waste, other times you need to buy the large item as it is significantly cheaper per unit than the size you need, likely resulting in spoilage or not finishing the food.
when other people in the household buy WAY too much food because its cheap. WE tend to not be able to finish it. thus wasting the food. I do compost the fruits and vegetables though.
I need to work on my portion sizes.
Only one person in the house, so making enough for a meal plus lunch the next day can be challenging (portion size).
Indifferent guests
I don't have private vehicle so I usually get at least one week food every time.
Access. Not having a car, but living in a very car-centric society, makes it difficult to stock up on large amounts very often, and thus avoid wasteful packaging.
The only food ever thrown out in this household (aside from surplus of vegetables grown in the back yard - limited winter storage time) is the remainder of a 237 ml carton of milk when it is not used up completely for coffee before it goes sour. But I know it is impractical to sell milk in containers smaller than 237 ml.
Gardening provides a wide variety of fresh foods that are available as needed with minimal waste.
too many people shopping
Aging people tend to have less appetite so we are working hard to reduce the amount we prepare so we have less chance of not being able to use up leftovers and fresh food we purchase.
The lack of available fresh food options due to living in an extreme northern climate.
Food allergies-For example, if someone in my household cooks something that I am allergic to and I cannot eat it and no one else will finish it, it ends up in the garbage.

Question 7: Are there any other comments or suggestions you'd like to provide regarding food waste?

Themes derived from up to 100 free text/comments	Frequency
None	20
Public Awareness/Education	17
No food waste	11
Composting	9
Grocery stores/retail	9
Food Packaging	6
Community	5
Food Banks	5
Best Before Dates	3
Re-use food	3
Promote local food	2
Accuracy of survey data	2
Avoid fast food	1
Food waste legislation	1
Buy what you need	1
Food industry	1
Personal issue	1
Do not like food donation	1
Consumerism	1
Qualitative Responses (n = 83) - Verbatim	
We need to let the public know more about it and participate in this activity.	
Awareness is the real key.	
I fully support this initiative. Any time that there can be an opportunity to bring awareness / education to individuals and families regarding food use, consumption, or waste is worthwhile. I do believe that there is a stigma attached to using food that is not picture perfect. Invite /challenge food retailers/wholesalers to advertise foods that are "imperfect" yet wholly nutritious and useable. Promote community purchases (groups buying in bulk form such as families, friends, co-workers, etc).	
Generating more public awareness about it. Signs on transit/commercials	
I would like to see how an 'organized' fridge works ... ours seems small and never has enough room. It could be the same for a freezer in a fridge and also a 'normal' freezer and an upright freezer. Also, information on the best ways to rotate food in the cupboards and freezers (spices, can foods, homemade jams/pickles, etc.)	
Teach portion control in schools	
the amount of food especially produced wasted by large companies is a crime, there should be a law about throwing veggies in the dumpster, have seen many grocery doing this - this type of waste needs to be address. also would like to see the availability of community kitchen so groups can get together to prepare meals and take advantage of bulk buying - some good info on the BC Food bank website (i think its been a couple of years since I looked into it) Perhaps free classes to show how to store foods properly,	

how to grow veggies in containers etc.
While food waste is very unfortunate, at least food decomposes, unlike plastic and most food packaging. Let's not get so worried about saving food that we create a bigger waste problem by encouraging pre-packaged everything.
I think this is valuable information to be shared with the city's residents. Many citizens do not understand the complexity of how their wasted pizza has global connections and impacts. I'm aware that some citizens will not care how their waste has a global impact but running some sort of quick calculator where users input what they threw out last week and calculating what that means annually in terms of wasted money to them as well as wasted water and resources that were used to grow and produce said wasted food would be a helpful tool. It would help Edmontonians realize the impact of their food waste both on their bank accounts and on the world.
People who are creative and love to cook probably don't waste as much food as do people who don't have good cooking skills, don't enjoy cooking, or have chosen to keep too busy to focus on cooking well.
Raise awareness of the environmental impact..GHG and carbon. Dehydration as a skill and tool.
sharing information and perhaps helping people set up composting would be helpful as well.
Information about false myths, like if the spread portions (peanut butter, mayo, etc.) that touch the container is bad.
Other ways that food waste can benefit home gardens, feeding pets and chickens, composting, alternative ways to use unavoidable (which I have been seeing a lot of recently in permaculture groups
I have moved to a lot more frozen fruit & vegetables. Plan more to defrost berries or peppers for fajitas I think buying more frozen reduces waste.
How to buy food that is a better value than buying bulk
many people have no idea how to cook. Teaching shopping and cooking is essential
I rarely have food waste as any leftovers I give to my dad who is caring for my mom who has dementia. I have also supplied leftover food to older neighbours and my adult children
We are usually very mindful of our waste in general and keep our waste down to 1 bag of waste and 1 bag of recycling per week for our family of four.
I can safely say that after over 44 years of family living, we waste VERY little food and consider it a personal failure to throw out ANY food.
I already do the above things
Regarding the previous question I have been practising the ideas.
my fridge is usually pretty bare since the cost of food is too high, I buy what I eat for the week, or day to day, we should take a look at Europe and how they just buy what they need for the day. less waste and fresher food.
its not an issue for me as i rarely throw anything away. simple planning avoids it - eat leftovers and freeze anything that's reaching its prime if you don't consume earlier.
It hope to reduce the food waste more in our household.
I have moved to a lot more frozen fruit & vegetables. Plan more to defrost berries or peppers for fajitas I think buying more frozen reduces waste.
on the whole thesis one of your more reasonable surveys. Food wasting is a bad thing but as much as I try, even with close relatives, the spoiled generations just don't care.
we waste very little.
More information about compost worms.
No mention of composting?

Perhaps creating community composts. Is there any possibility to use food waste to create compost at the waste treatment centre?
I'd like to know if the city of Edmonton plans on starting a dedicated compostables pick-up in addition to regular garbage and recycling pick-up, or is food waste that is found in garbage already sorted out and composted by the waste management facility?
composting tips could be shared as well...I use compost on my lawn and in my garden
Mandatory composting within the city.
I would love to see more information/building plans/encouragement for Edmonton households to compost. Not only does it reduce garbage needing to be hauled away, but it produces a product that better the soil conditions around your home. Even consider starting a composting program like Sherwood park has for their residents. I would also like to see more edmontonians grow their own food and have gardens. It's cost effective and a healthy activity for fitness, mental health and nutrition.
Composting is a good idea if people have space.
city compost drop off at eco centre maybe
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Please encourage grocery stores to carry ugly fruits and veggies. I'd buy them.
I think more grocery stores and food related businesses should be given incentives to donate to the food bank.
Work more closely with retailers as well as consumers as a lot of our bad habits are at least partially as a result of retail strategies.
Grocery stores having special shelves in the produce or meat/dairy section where you could purchase items at a reduced cost - rather than having these items tossed out. Grocery stores should also list where "close to expired" foods are donated.
How are you working with grocery stores about their food waste?
I still think that grocery stores are the major culprits here.
sharing information and perhaps helping people set up composting would be helpful as well.
take your concerns to the retailers that sell portions that make them the most profits.
I hadn't considered overpackaging to be a part of food waste but it makes sense. Would be good to get consumers purchasing items with less packaging.
We need laws to limit packaging! Alternatively tax packaging and donate funds to food banks. Establish annexes to food banks so the people they serve can WALK to them. Set up volunteers that will bulk buy for families that don't have a car or the means and are getting gauged near where they live.
It's interesting that 'packaging' is a third category, alongside 'avoidable' and 'unavoidable'. Some degree of packaging is probably unavoidable, but plenty of foods are very over-packaged, and their packaging would be quite avoidable. I don't know to what degree the city has authority over such things, but since the most effective waste management measure is to avoid creating the stuff in the first place, it would be nice if the manufacture of over-packaged food items could be discouraged in the first place.
The pie chart distribution was very surprisingly, I may do some fact checking. My key concern is eliminating packaging waste. Impact to environment is worse.
You must encourage the FOOD Industry to get on board with this program as well. They are selling food in packaging that can't be re-used, recycled etc. You must put pressure on them to comply. It must be a complete effort by all parties. I do not like throwing away Styrofoam containers and trays, but these items

cannot be recycled , to the best of my knowledge.
While food waste is very unfortunate, at least food decomposes, unlike plastic and most food packaging. Let's not get so worried about saving food that we create a bigger waste problem by encouraging pre-packaged everything.
I fully support this initiative. Any time that there can be an opportunity to bring awareness / education to individuals and families regarding food use, consumption, or waste is worthwhile. I do believe that there is a stigma attached to using food that is not picture perfect. Invite /challenge food retailers/wholesalers to advertise foods that are "imperfect" yet wholly nutritious and useable. Promote community purchases (groups buying in bulk form such as families, friends, co-workers, etc).
The Fruits of Sherbrooke ... are using fruit donated from local residents, and making jam. Would be good to have community based events for sharing garden fresh vegetables from our home gardens.
I love the idea of food sharing! I crave a tighter-knit community in my building to enable this.
I feel relatively good about controlling food waste in my home but feel very bad about community events we organize when we save food. We do our best to give away left overs, but a significant amount left on plates go to waste. Not sure what to do about that.
the amount of food especially produced wasted by large companies is a crime, there should be a law about throwing veggies in the dumpster, have seen many grocery doing this - this type of waste needs to be address. also would like to see the availability of community kitchen so groups can get together to prepare meals and take advantage of bulk buying - some good info on the BC Food bank website (i think its been a couple of years since I looked into it) Perhaps free classes to show how to store foods properly, how to grow veggies in containers etc.
Making it easier for restaurants, bakeries and caterers to donate food to non profits who provide meals. Supporting the food bank in distributing fresh produce quicker so it is not going bad in their fridges before agencies can pick up or coming up with a way to freeze the produce if it is not quickly distributed.
Large food sellers like Costco throw out tons and tons of meat before it is bad for human consumption, They. Are a US company like Walmart and they do not donate to our shelters because they don't want a lawsuit, Maybe if a food inspector worked with hem places like Salvation Army , Bissel, and Mustad Seed could be fit in their feeding programs in the Inner City with good Meats and fruits, veggies and dairy prods, this needs to be investigated but be are they say they have policies, It wold not take much to get meats form Costco and Walmart tested for bacteria and quickly have a team some where in a safety kitchen like a hotel cooking the food up during the night, Betting this can be done with smart effective team playing coordination
We need laws to limit packaging! Alternatively tax packaging and donate funds to food banks. Establish annexes to food banks so the people they serve can WALK to them. Set up volunteers that will bulk buy for families that don't have a car or the means and are getting gauged near where they live.
Edmontons Food Bank has a program called Second Helping. This program was established with AHS. Shaw Conference Facility, Rexall, Northlands and Westin Hotel, who have the units to flash freeze, will donate the food. Please consult with Edmonton's Food Bank and AHS Nyall Hislop or Michael Khan about this program.
I think more grocery stores and food related businesses should be given incentives to donate to the food bank.
I think it's an important issue to tackle
Thank you for doing this! I think it's important to reduce food waste.
Really really glad that the city is looking into this. It's a huge societal and environmental issue that affects everyone. Kudos!
I think this is valuable information to be shared with the city's residents. Many citizens do not understand the complexity of how their wasted pizza has global connections and impacts. I'm aware that some citizens will not care how their waste has a global impact but running some sort of quick calculator where users input what they threw out last week and calculating what that means annually in terms of wasted money to them as well as wasted water and resources that were used to grow and produce said wasted food would be a

<p>helpful tool. It would help Edmontonians realize the impact of their food waste both on their bank accounts and on the world.</p>
<p>I'm concerned about best-before dates, because I find them very inaccurate. If people actually do follow them, they're throwing away tons (literally) of perfectly good food. I presume the dates are there for legal reasons, to protect the providers, but I wish we had a better system. Would it be possible to educate people about how to tell when various foods go bad?</p>
<p>I would recommend re-examining best before dating guidelines.</p>
<p>I would really appreciate any info on what best before dates mean.</p>
<p>The Fruits of Sherbrooke ... are using fruit donated from local residents, and making jam. Would be good to have community based events for sharing garden fresh vegetables from our home gardens.</p>
<p>Provide co-operative location for Farmers, Retailers and Wholesalers to bring produce that is not marketable or in vast quantity throughout the growing season, and repurpose these items into dehydrated products: example(soup mix). These products would have a long shelf life and be distributed to Missions, Charitable organizations and Schools. This would provide a sustainable product to feed a large majority in need.</p>
<p>a pet peeve of mine is the endless recipes supposedly to help us use up extra food. we don't need such help. we need to remember to use it as we see fit, but in a reasonable time. maybe some people need ideas re labelling?</p>
<p>Avoid fast foods and pre packaged foods, by keep ingredients, lentils, flour and grains in your kitchen which makes shopping and cooking easy and you would only have to shop for the fresh produce and meats.</p>
<p>need to change laws to promote more and more local food, like direct milk, vegetable and fruits supply by local farmers directly to the consumers. 40% shelf reservation for the locally grown food, encourage local mini dairies and unpacked milk dispenser machines as in other countries.</p>
<p>I would love to see more information/building plans/encouragement for Edmonton households to compost. Not only does it reduce garbage needing to be hauled away, but it produces a product that betters the soil conditions around your home. Even consider starting a composting a program like Sherwood park has for their residents. I would also like to see more edmontonians grow their own food and have gardens. It's cost effective and a healthy activity for fitness, mental health and nutrition.</p>
<p>How accurate are the food waste statistics presented in this survey. I feel that households are over/ represented in that graphic.</p>
<p>The pie chart distribution was very surprisingly, I may do some fact checking. My key concern is eliminating packaging waste. Impact to environment is worse.</p>
<p>Food waste prevention is legislated in some places. It should be legislated here.</p>
<p>buy what you need</p>
<p>You must encourage the FOOD Industry to get on board with this program as well. They are selling food in packaging that can't be re-used, recycled etc. You must put pressure on them to comply. It must be a complete effort by all parties. I do not like throwing away Styrofoam containers and trays, but these items cannot be recycled , to the best of my knowledge.</p>
<p>When you find the magic bullet, let me know. This is a trick of balancing money, time and convenience and it's so different for every family. We just can't have it all. I think we do a pretty good job in our household based on our resources. I appreciate the intention, but I'm not sure why this is the city's business...</p>
<p>The idea of donating or consuming donated leftovers gives me the creeps.</p>
<p>Consumerism is a big deal for the economy. Economy is a big deal for everybody in this country. Policy makers should change a way how people live their lives and pursue happiness. I do not believe you can fight with food waste keeping people to be consumerists. This is impossible to be economical consumerist.</p>