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# Guelph Food Waste Project

## Research Update

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### Introduction

Researchers at the University of Guelph partnered with the City of Guelph to explore food waste generated by households. A waste audit was conducted during which all three waste streams (garbage, recycling and organic) were individually weighed for two collection periods. As garbage is only collected every two weeks we weighed the three bags two weeks apart. We weighed the three streams from approximately 270 houses for both collection periods. All of these houses used green bags for organic waste. After completing the audits we visited households and asked them to complete a survey which covered questions relating to demographics, food purchase and attitudes towards waste. We were able to collect surveys from about 60 households.

### Waste Overview

The households audited generated an average of about 31.2 kg of waste. 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.

Households that completed the survey reported the number of people in the household. The average was 3.3 people per household and the median was 3. The average per capita weekly waste for these households was 10.2 kg with 4.2 kg being organic, 3.8 kg recyclables and 2.2 being garbage. Some care should be taken when looking at averages. The organic waste generated per household varied widely. There is clearly some value in understanding the source of that variability in order to effectively target strategies to reduce it.

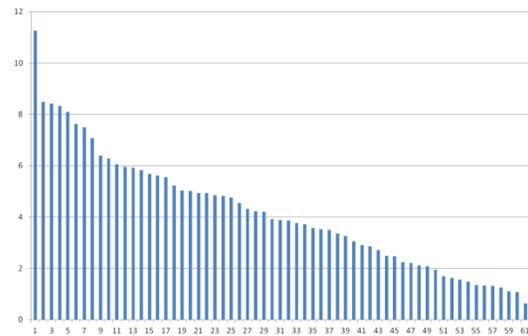


Figure 1: Average Organic Waste by Household

Survey participants were also asked about their perceptions of the convenience of the green bags system. Ninety seven percent of the respondents said that the green bag system was convenient and that there were not problems with sorting. The primary complaints with respect to the green bag system were:

- Mess or nuisance,
- Availability and cost of green bags, and
- Collection service problems.

We asked respondents to compare their current waste to that of their friends and family, to what they wasted 5 years ago and to what they expected to be wasting in five years.

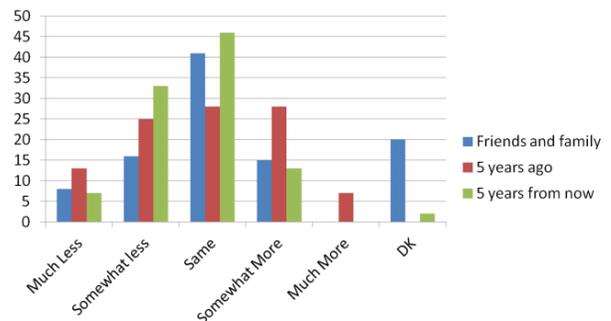


Figure 2: Food Waste Comparison

Generally people thought they were wasting less or the same as compared to their friends

and family (although 20% said they didn't know). With the exception of people with young families (in which case the families have grown compared to five years ago), people generally thought they were wasting the same or less as compared to five years ago. The results were similar looking into the future. People generally expected they would waste less in the future.

It is worth noting that some people admit to "cheating" by putting some of their organic/food waste in the garbage stream. What is interesting is that they do not seem to generate less weight in the green bag so they are likely throwing out more food waste in total than we measured.

### Identifying Waste

Respondents were asked how they identified that food was ready to be thrown out. Most respondents used several approaches to decide when to throw something out.

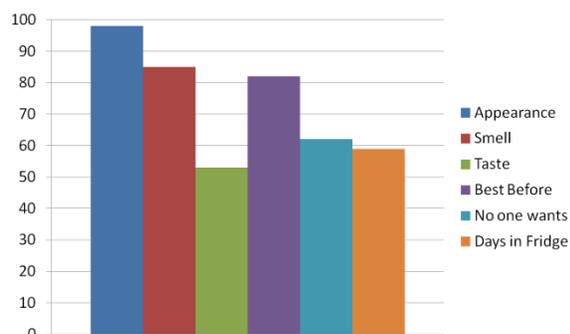


Figure 3: How Do You Evaluate Waste?

The most common criterion is the appearance, followed by smell and best before date. It is worth noting that these choices do not necessarily reflect the volume of waste produced. Almost everyone uses appearance as a means of identifying food to discard but one would expect that inedible (or unavoidable) waste such as apple cores or carrot tops would constitute a larger portion of the volume. For example, 85% of respondents said they generated trim or inedible waste regularly but only 15% said they had food spoil regularly while 54% said sometimes and another 28% said infrequently. It is not surprising that households that used the most criteria created

the most waste. The more discerning people are about what to throw out, the less they throw out. This is a bit counter-intuitive for some but it makes some sense. If you use more criteria to determine what is no longer edible or desirable then individual items are more likely to meet one of the criteria. Having a specific criterion makes it less likely something will meet the threshold.

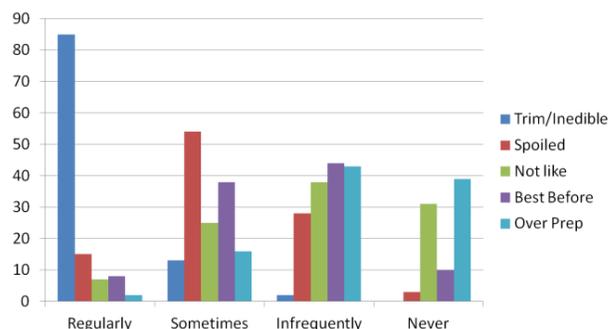


Figure 4: How Often Do You Use Criterion?

### Food Habits

Survey respondents were also asked some general questions about food habits. These also help to shed some light on differences between households.

We asked some general questions about the household:

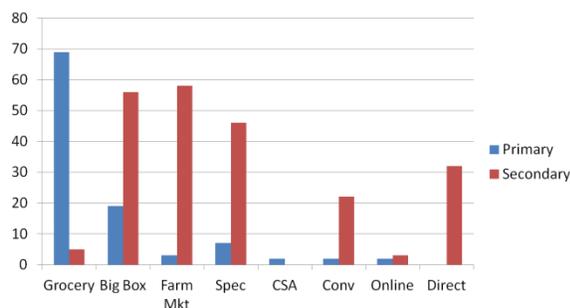
- 38% had a vegetable garden
- 74% had a flower garden
- 51% preserved or canned food
- 44% had someone in the household who was on a special diet (diabetic, vegetarian, food allergies or something else)

We surmised that people who paid more attention to food were less likely to waste it. This was confirmed in the results.

We also asked people about their shopping habits. Fifty three percent said they shopped once a week, while 39% said they shopped more than once a week and the remaining 8% said they shopped for groceries less than once a week. We would expect that households that shop less frequently would generate more waste as they buy bigger quantities and run a greater risk of spoilage.

Households spent an average of \$171.50 per week on groceries (\$52.28 per capita). They also indicated that they spent an average of \$51.75 per week on non-grocery food per week.

Most households (approximately 70%) visit a traditional grocery store for their primary shop while another 20% use big box stores for their primary shop. Secondary sources of food purchases include farm markets, producer direct, specialty stores and convenience stores. Very few households use online food retailers.



**Figure 5: Where Do You Grocery Shop?**

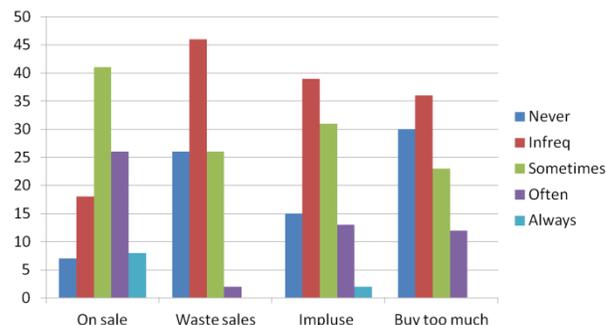
There are a number of other insights that may prove interesting and relevant:

- 80% of respondents shop with a list
- 80% of respondents do a food inventory before going shopping
- 65% review flyers before shopping
- 40% menu plan regularly before shopping
- Less than 30% shop within a specific budget
- Almost 60% say they review nutrition labels at least to some degree
- Less than 10% regularly buy organic although another 35% say they buy organic sometimes.

It is our expectation that those individuals that invest time in planning for food purchase (lists, food inventories, budget) are less likely to waste but there seems to be more at play here. We cannot say definitively that planning does reduce waste. The contribution to waste volume seems to be complex and to differ between households. There is not a single type of “waster” and there is clearly need to improve our understanding of the different waste

“types” so that we can undertake initiatives to reduce waste.

We also asked about shopping and waste. While respondents generally felt they didn’t buy too much, they did acknowledge that they bought on impulse and some found they wasted food they bought on sale – and they like buying things on sale. The impulse buys or higher volume sale buys could be expected to result in increased volume of waste. They generally acknowledge that they believe this happens and the evidence seems to bear that out with waste levels being higher for these households. The factors that contribute to waste at the individual household level vary. That means that buying food on sale by itself may not affect waste for everyone but that for some people with waste tendencies this could exacerbate the amount of waste. It is important to understand these subtle interactions in order to develop effective communications or mitigation strategies for households.



**Figure 6: Shopping Habits**

### Attitudes Toward Waste

It is interesting to ask people about their attitudes about waste and the environment. We asked respondents what they perceived to be the most significant environmental issue in Guelph prior asking the survey questions related to waste. A third of respondents did not think there were any significant environmental issues. The remaining responses were widely dispersed. Waste was the most common response (after no issue) at 20%. This does not mean that Guelph residents don’t think about waste at all but that it is generally not thought of being a significant problem.

On the other hand, many households are aware of waste. A majority feel guilty about producing garbage and using a lot of packaging. This is almost at odds with the perception that waste is not a significant environmental problem. What becomes apparent upon further investigation is that in the minds of residents of Guelph, wasting food is less about the environment than it is about other factors. There is also less guilt about producing recyclables which are seen more as an environmental issue. This could be due to the perception that recycling is environmentally positive. Reduction may well be a better strategy but the value of recycling has been emphasized (and is clearly better than landfilling the packaging) and so people feel as though they are doing a positive thing environmentally. The same may well be true with a diverted organic stream going to composting. This could be seen as doing the right thing environmentally despite the resource use and environmental impact of production and distribution further up the value chain. Wasting food made a large majority of respondents feel guilty. Food was the waste that people felt most conscious of with packaging coming in second.

It is worth noting that respondents thought of food waste as first and foremost a social issue. While they generally agreed that food waste was an economic and environmental issue, social issue elicited the most agreement.

When asked who is responsible for reducing food waste, respondents said overwhelmingly that it was up to individuals to reduce waste. While stores and food manufacturers were the

most common second choice, people made individuals their first choice.

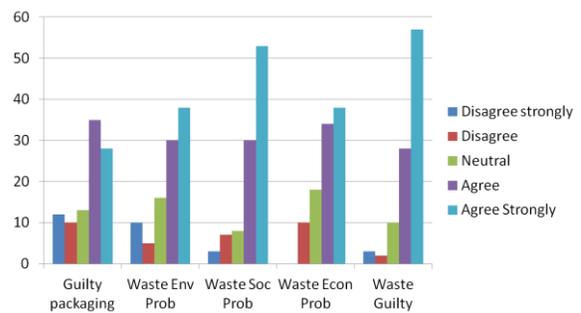


Figure 7: Waste Attitudes

Our last question was an open ended question on what they thought they could do to reduce waste. The most common response was, interestingly, nothing. Almost 40% said they couldn't think of anything they could do to reduce waste. Almost a third said improved meal planning would reduce waste and there was not another response over 10%. This highlights that, while people are aware of and feel bad about waste, they do not have a good understanding of what they do to cause waste and the things they might do to reduce it.

### Our Project

These early research results are a part of an ongoing effort to better understand food waste. The research team at the University of Guelph continues to work on this data and new data. We will also be doing additional work in Guelph and in other municipalities and will continue to share our findings. You can stay up to date on this research at our blog (<http://guelphfoodwaste.wordpress.com/>) and contact us if you have any questions. [foodwaste@uoguelph.ca](mailto:foodwaste@uoguelph.ca).