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Food Waste

Written by Dr. Mike von Massow, PhD



Key Messages

- Food waste is an important issue affecting the economy, the environment and food security.
- About 50 per cent of all food waste happens at home and for the most part is avoidable.
- Fruit and vegetables are the most wasted foods.
- Awareness and education can help reduce food waste.



Introduction

At the 2015 annual Nutrition File® Seminar for health professionals and educators, Dr. Mike von Massow (PhD) presented his research on consumer waste from the Guelph Food Waste Research Project. His summary of that presentation is the topic for this issue of the Nutrition File for Health Educators newsletter.

Dr. von Massow teaches courses on strategic management, operations and pricing strategies at the School of Hospitality and Tourism, University of Guelph. His research on food value chains looks at consumer awareness of food and the attributes consumers use to prioritize their food purchases. Dr. von Massow directs the Tim Horton's Sustainable Food Management Fund research on consumer attitudes and behaviours relative to animal welfare and food production, as well as consumer understanding and attitudes towards genetically modified organisms. As co-director of the University of Guelph Food Waste Project, he also studies the volume and cause of food waste throughout the food value chain (also

known as food supply chain or food system) and is currently researching food waste at the consumer level.

How much food is wasted in Canada?

Food waste is an important issue affecting the economy, the environment and food security. Gooch et al (2014) estimate that Canadians waste \$31 billion worth of food every year.¹ What does that number mean when we consider what we waste individually at the household level? Consumer household waste accounts for almost 50 per cent of all food waste; this is more than any other link in the food value chain¹ as illustrated in Table 1.



Table 1: Where Food Waste Occurs Through Canada's Food Value Chain (% distribution)¹

Percent of Total Food Waste in Canada	Food Value Chain (from beginning to end)
10%	On farm
20%	Processing
4%	Transport and distribution
9%	Restaurants and hotels
10%	Retail
47%	Consumers (households)

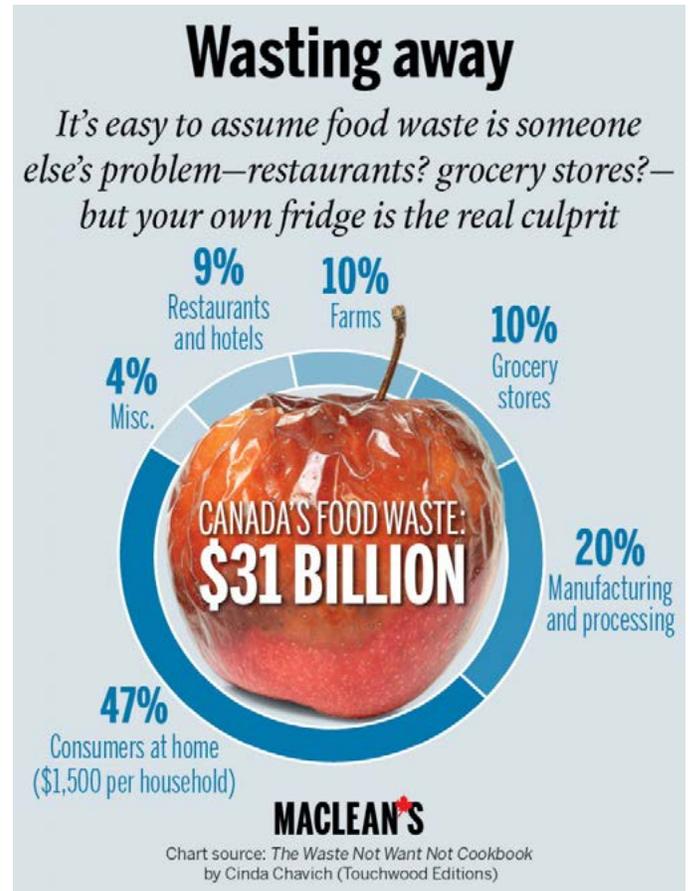
The key to helping people reduce the amount of food they waste is to understand the specific behaviours and motivations that lead to waste.

The true cost of food waste

For the most part, the biggest problem is we do not think we are wasting food. We understand the big number but do not believe that we are contributing as individuals. Research suggests the average household throws out between 3.5 and 4.5 kilograms of food per week – and this ignores any food composted at home or discarded through the sink or toilet.² This is a significant volume of food that costs households money; and two-thirds of it is avoidable.² Food waste increases the cost of food by unnecessarily increasing the demand for food. And, it squanders resources required to produce and ship it to the retailer. The paradox of municipal diversion programs (i.e. composting or anaerobic digestion) is that people feel they are doing something positive for the environment when the best strategy is not to throw it out (or waste it) in the first place.

What food is wasted?

Our studies showed that about 50 per cent of household food waste was fruit and vegetables.² While we expect some of this to be unavoidable because of the nature of an unprocessed product (e.g. banana peels, apple cores or carrot tops), this comprised only 40 per cent of fruit and vegetable waste.² The remaining avoidable waste was edible product discarded due to spoilage (improper



storage or over-purchasing) or because the family did not like the taste of the food.²

Given the perishable nature of fruit and vegetables, a certain amount of waste is inevitable. Therefore, one might think that families who eat more fruit and vegetables would generate more waste. However, there was no correlation between unavoidable waste and avoidable waste.² Families that generated unavoidable waste (from higher volumes of consumption) did not necessarily generate more avoidable waste.²

The other 50 per cent of food waste was almost evenly generated from each of these food categories: meat, dairy and eggs, grains and a catchall "other" category, primarily coffee grounds and coffee pods.²

Contributors to household food waste

Given that Canadians throw out such a large volume of food, we tried to determine the most important factors that contributed to higher or lower levels of waste. We identified four attributes amongst consumers: two that decreased food waste and two that increased it.

Waste aware

The first group comprised those who were “waste aware.” People who think about food waste tend to waste less.² This makes sense and it is important because it highlights that just talking to people about food waste has potential to reduce it. An important characteristic of waste aware consumers is that they use fewer metrics to determine when a food item becomes waste.² People use a variety of metrics to assess waste: look, taste, smell, age and best before date, among others. The waste aware group focuses on only one or two metrics, which means fewer foods meet the criteria and less is thrown out.²

“Best before” dates are probably the most poorly understood information on food labels. They do not indicate “expiry” date nor provide any information on food safety. They are a voluntary measure that indicates when products are at their peak. Understanding this and using other measures to evaluate spoilage, is key to reducing food waste.

Food aware

The second group where food waste was decreased was the “food aware” group. Food awareness is important for reducing waste. Families who value food more and pay attention to information such as that on nutrition labels, throw less food out; they are more connected to food and seem loath to throw it out.²

Convenience driven

The first group that had higher food waste levels was “convenience driven” families that ate out more.² This group did not buy less food, but they tended to eat out spontaneously and then throw

Examples of Household Food Waste Guelph Food Waste Research Project



Edible produce



Unopened yogurt prior to best before date



Spoiled, unopened spinach



Coffee pods

the food out at home.² Some menu planning and inventory awareness could help here but the mindset is important. At 3 pm in the afternoon, many Canadians do not have a plan for dinner. The convenience of fast food or other restaurant options are often appealing and the food in the fridge gets lost despite the best intentions.

Frantic family

The final group is the “frantic family.” These families have higher levels of waste despite feeling bad about the waste.² They lead very busy lives and struggle to manage food inventories. They shop less frequently and are more likely to buy at big box stores. Large and less frequent shopping trips tend to result in waste, as food is apt to spoil or get lost in a sizeable inventory. It is worth noting these families admitted that they were more likely to hide organics in the regular garbage stream, as

they feel guilty about the food they waste. Guelph residents participate in a three-stream curbside collection program: organics (food items, etc.), recyclables and garbage that goes to the landfill. Increasing frequency of shopping is one of the major keys to reducing food waste in this consumer group and planning ahead can help decrease waste.



Conclusion

Canadians throw out large volumes of food each week. To reduce that waste, two broad strategies can be applied: awareness (i.e. becoming more aware of food, food waste and household food inventory) and education (e.g. learning about shopping frequency and menu planning). In addition to reducing the volume of waste, these strategies can help ensure Canadians consume more of the fruit and vegetables they buy.



Mike von Massow

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Links to additional information and resources

- [Best Before Dates \(Health Canada\)](#)
- [End Food Waste – Ugly Fruit and Vegetable Campaign \(USA\)](#)
- [Guelph Food Waste Research Project](#)
- [Just Eat It! A Food Waste Movie](#)
- [Loblaw's Naturally Imperfect Campaign](#)
- [Love Food Hate Waste - Vancouver](#)
- [Tristram Stuart TED talk: The global food waste scandal](#)
- [Wasted Food Blog by Jonathan Bloom](#)
- [Waste Not Want Not Cookbook by Cinda Chavich](#)
- [What's the problem if an apple core is buried in the landfill?](#)
- [Zero Organic Waste in Alberta](#)

References and recent issues of NFFHE can be found on our website [here](#).

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Nutrition file

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