

Widespread Recycling in Local Restaurants to Reduce Waste

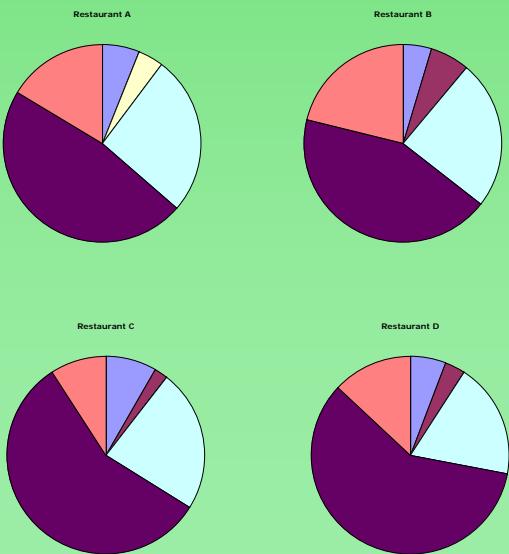
Lindsay Block

University of Minnesota

Introduction

A typical restaurant throws all its waste into one bag, throws it into the garbage receptacle, which is picked up by the garbage company and spends the remainder of its life in a landfill. Plastics are so durable that they can persist in the environment anywhere from 20-1000 years before they decompose (Plastics Not Fantastic). Recycling products have at least eight benefits including reducing the need for new landfills and decreasing the speed at which they are filled, preventing harmful emissions from reaching the air and water, saving energy, supplying raw materials to their respective industry, creating jobs, reducing greenhouse gases, increasing the development of greener technology, and conserving resources for the future (Office of Federal Environmental Executive, p. 5). Organic material takes a longer time to decompose in a landfill and in landfills, this decreases the life of landfills (Cover Up With Compost). Composting increases the nutrient content of soil naturally, therefore reducing the amount of fertilizers needed. Crop production increased 11.4% over a nine-year program as a result of using compost to increase the nutrient content in soil (Municipal Compost: Effects on Crop Yields and Soil Production). The amount disposed in landfills has increased by 3.6% in 2006 only, in Minnesota (Solid Waste Policy Report).

In the metro area there are only a few restaurants that have initiated a recycling program. The Thunderbird Hotel and Convention Center began to sort their waste into food product, plastic, glass, metal, and cardboard for recycling and composting. After this program was fully adopted their waste added to landfills decreased by 50%, trash pickup was reduced from once every five days to once every three to four weeks, and they saved an average of \$642 per month. Despite this promising evidence many restaurants continue to throw everything into the garbage. Owners and managers insist that training employees to recycle would cost too much, and the reduced amount of waste would not provide them with a large enough economic benefit. My hypothesis is that at least 40% of the garbage thrown out is actually recyclable or compostable and doing so will provide an economic benefit for the restaurant.

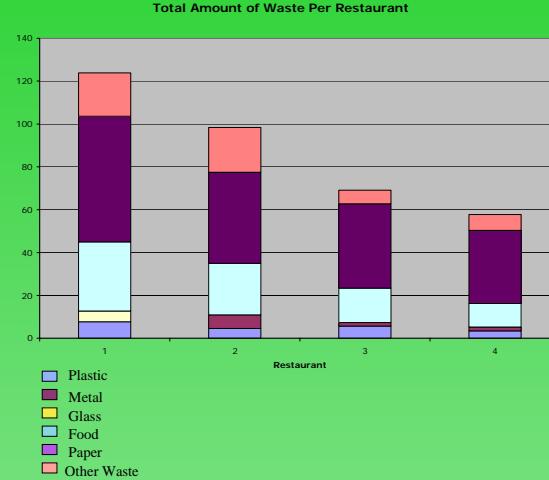


Methods

Each restaurant was picked because they served different types of food: bar food, family (American) food, breakfast, and pizza. Two of the restaurants were predominantly sit down and two were take out. This ensured a broader spectrum of the type of food restaurants served, so as to decrease any third variable effect that food type may have had. Each restaurant was instructed to keep all their trash from being collected by the waste management companies from each day for three consecutive days. To maintain the integrity of what was thrown out on a daily basis, only the researcher sorted the garbage. At the end of each day the waste was collected and sorted into paper products, recyclable plastic, metal, glass, food, and other waste. Each component was weighed and calculated as a percentage of the total amount thrown out. The researcher returned the non-recyclable products back to the garbage bin to be collected as usual, but recycled the plastic, metal, and glass when the means were available.

Results

Upon comparing the four restaurants they appear very similar. Restaurant A had a total of 7.73 kg plastic, 0 kg metal, 5 kg glass, 32.27 kg paper, 58.64 kg food, and 20.23 kg other waste. Restaurant B had [in the same order] 4.54 kg, 6.36 kg, 0 kg, 24.1 kg, 42.5 kg, and 20.91 kg. Restaurants C had 5.68 kg, 1.6 kg, 0 kg, 16.1 kg, 39.32 kg, and 6.36 kg. Finally, restaurant D had 3.41 kg, 1.82 kg, 0 kg, 11 kg, 34.1 kg, and 7.5 kg (see figure 1). Of products that can be composted each restaurant had 47.3%, 43.2%, 57%, and 59.1% average percentage of food and 26.1%, 24.5%, 35%, and 18.9% average of paper. Although not all paper is recyclable over 70% was strictly napkins without print, which is recyclable. The average percentage of glass for each restaurant was 4%, 0%, 0%, and 0%, plastic is 6.2%, 4.6%, 8.2%, and 5.9%, and finally metal is 0%, 6.5%, 2.3%, and 3.2%. These components represent the three major recyclable products, mainly used as raw material for new products. Removing these things would leave the bare minimum of waste emptied into a landfill. This would amount to 4000 kg, 3800 kg, 1700 kg, and 1500 kg, as opposed to 15000 kg, 12000 kg, 8400 kg, and 7000 kg per restaurant per year. This is an average of 10600 kg per year.



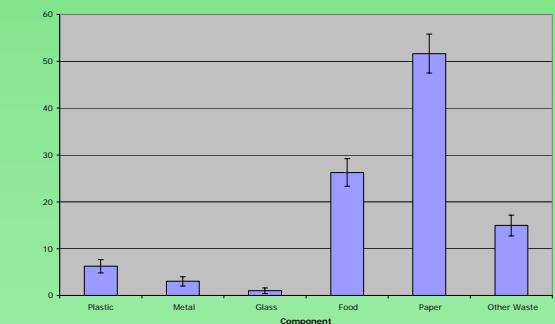
Conclusion

Restaurants C and D each had special promotions on one of the collection days. There was a difference in total weight, and in the percentages of components, as there was more food waste, presumably due to more customers because of the specials. Another reason the total quantity of waste was less in restaurants C and D could be that they use washable plates, cups, and silverware, as well as linen napkins in restaurant D. These products are washable, and do not end up with the waste day after day. Although each restaurant served a different type of food, this did not seem to alter the distribution of the type of waste. For example, there was only a slight difference in the percent of food receipts and newspaper with print are not eligible for compost but can be recycled as paper to be converted to raw material.

Due to the limitations of this study only a small amount of data could be collected for waste produced by these four restaurants. Reducing the frequency that waste management companies need to collect trash from restaurants would also save money that could potentially be used for employee training, purchasing biodegradable bags, or help restaurants profitability.

Some waste management companies offer free removal of compost materials, which restaurants could take advantage of and might be an incentive for separating waste into components. Biodegradable bags cost approximately two to three times more than regular garbage bags, but the savings may offset this cost. In addition to the environmental benefits of restaurant waste recycling, restaurants may also realize economic benefits as well.

Mean and Standard Deviation



References

- "2007 Solid Waste Policy Report." Minnesota Pollution Control Agency, Feb. 2008.
- Burd, Daniel. "Plastics Not Fantastic." *Scientific American* 18 Feb. 2008.
- "Cover up with Compost." Solid Waste and Emergency Response, July 2002.
- May, D.A., Terman, G.L., Duggan, J.C. "Municipal Compost: Effects on Crop Yields and Soil Properties." *Journal of Environmental Quality* (2) 1973: 88-92.
- "Recycling for the Future." *Office of the Federal Environmental Executive*: 1998.
- "Restaurant Cuts Disposal Costs by Reducing and Recycling Solid Waste." Minnesota Technical Assistance Program, School or Public Health, University of Minnesota, 2002.

- Plastics
- Metal
- Glass
- Food
- Paper
- Other Waste