

REGION OF PEEL

Backyard Composter School Fundraiser Pilot Project

Project #: ORG R1-04

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EXECUTIVE SUMMARY

Peel's ever evolving Backyard Composter Distribution Program has proven to be highly effective, distributing over 100,000 units since its inception in 1985. The latest evolution has composters being sold as a school fundraiser.

The objectives of this Backyard Composter School Fundraiser Pilot Project are threefold. The main focus is to increase children's knowledge about the benefits of composting. As a secondary objective, the project is to provide the schools with a fundraising opportunity. The third objective is to ultimately increase backyard composting in the Region. The pilot project targeted five schools in the first phase of the project. The second phase targeted all schools in the Brampton area in an effort to make composting a habit that would become a normative, accepted behaviour, just as recycling has become part of most household's weekly routine.

Promotional material and Program details were distributed to all the Brampton schools in an effort to secure participation into the project. A telephone survey; Home Weighing Compost Program; and self-addressed feedback cards were all accomplished in order to track the usage, diversion rates and public opinion of this project.

Both periods of the Backyard Composter School Fundraiser sold 60 composters collectively. By assuming 73 percent of all the composters sold are in use, the ensuing total amount of organic material potentially diverted through this project will be 5.3 tonnes each year. On a smaller scale, it was determined after examining the results of both the telephone survey and Home Composting Weighting Program that approximately 1.76 kg of organic food material was diverted in each household in one week. With yard waste added into the equation, approximately 142 to 182 kg of organic material was diverted per household per year.

1.0 INTRODUCTION

1.1 Background

The Regional Municipality of Peel has been actively distributing backyard composters in the Region since 1985. In 1990, the distribution increased substantially as composters sold in Peel were subsidized. By the end of the year 2000, over 100,000 backyard composters have been distributed to residents within the Region of Peel community. This was accomplished mainly by selling composters through garden centres, waste management facilities and environment days at a subsidized price to residents.

1.2 Project Objectives

The three main objectives of the Backyard Composter School Fundraiser Pilot Project are to: educate residents about the benefits of composting, provide a fundraising opportunity to the schools and increase the waste diverted to the landfill as a result of an increase in the number of backyard composters distributed in Peel. The pilot project targeted five schools in the first phase of the project whereas the second phase targeted all schools in the Brampton area in an effort to make composting a habit that would become a normative, accepted behaviour, just as recycling has become part of most household's weekly routine.

1.3 Project Methodology

Promotional material and Program details were distributed to all the Brampton schools in an effort to secure participation into the project. A telephone survey; Home Weighing Compost Program; and mail back feedback cards were all accomplished in order to track the usage, diversion rates and public opinion of this project. This aforementioned method of tracking the diversion potential and usage rate was achieved in accordance with the method and results published in a 1995 City of Mississauga's "Waste Minimization Demonstration Pilot Project, Vol. III: Home Composting". Proctor & Redfern Limited prepared the report in conjunction with the City of Mississauga, Ministry of Environment, Region of Peel and Mississauga Clean City Campaign (now called EcoSource Mississauga).

1.4 Geographic Scope of the Project

The Region of Peel is situated in the west-central portion of the Greater Toronto area and is composed of three municipalities, Brampton, Mississauga and Caledon. The Region of Peel covers 1,225 square kilometers (473 square miles) and stretches from Lake Ontario in the south, to the Oak Ridges Moraine and above the Niagara Escarpment in the north, Peel includes a diverse mixture of urban, suburban, rural, agricultural and natural landscapes. As of 2001, Peel has an estimated population well over 900,000 persons.

2.0 METHODOLOGY

2.1 Length of Study

The Backyard Composter School Fundraiser Pilot Project had two periods in which local schools participated in the project. The first period was during the spring of 2000 between the months of May and June. The second period was during the fall season during the months of October and November of 2000.

2.2 Study Area and School Selection

During the first period, the local Clean Community Clean Groups (Brampton Clean City Committee, Citizens for a Clean Caledon and EcoSource Mississauga) were requested to provide the Region with contact names of teachers, principals or school council members from interested public and separate schools in their municipality. The objective was to have 2 schools in each municipality –one public and one separate involved. In Mississauga, St. Edith Stein Separate School and Kenollie Elementary School volunteered to participate. In Brampton, Hickory Woods Elementary School and St. John Bosco Separate

School also agreed to participate. However, in Caledon only one school, Macville Elementary School agreed to take part in the pilot project. In total, 5 schools were involved in the initial phase of the project.

The second phase of the pilot project was able to secure involvement from one school in the Mississauga area (Malton). A teacher at Ridgewood Public School expressed an interest in the project due to the environmental education aspects offered by the project and thus joined the Backyard Composter fundraising initiative. It was originally proposed that the pilot project during the fall season would have Brampton area primary and elementary schools involved in the selling of backyard composters as a school fundraiser. However, the Brampton area schools expressed only minimal interest in participating in the project at that time. In response, the Backyard Composter School Fundraiser Project expanded the fundraiser to include Brampton area Montessori schools, Girl Guides and Scouts of Canada. This attempt to further promote involvement was still challenging; none of these groups were interested in participating in the project at that time.

2.3 Promotion Materials Distributed to Schools & Program Details

2.3.1 First Phase

During the first phase of the Backyard Composter School Fundraiser Project, letters were distributed to each of the Clean Community Groups. The letters explained the project and requested their assistance in implementing the various components of the project. The first component as aforementioned was to have each community group gain school participation in the pilot project in the spring. The other component would have each community provide presentations to classrooms about diverting waste through backyard composting, if required.

Once the five selected schools were determined and an appropriate contact person was established for each school a letter explaining the program was sent along with a brochure titled “Backyard Composting Made Easy”, envelopes and vouchers. The teachers were asked to distribute one envelope to each student, which contained a brochure and a tri-copy purchase voucher. When the student sold a composter unit, they would give their customer the coloured voucher and place the other two copies of the voucher and the money in the envelope. Once the student had completed their sales they would return the sealed envelope with the money and vouchers to their teacher. The teacher would then add up all the vouchers and request the composter units from the Region. The Region would then deliver the units to the schools at a mutually agreeable day and time and collect the money and the white copies of the vouchers (as well as leftover vouchers).

2.3.2 Second Phase

The request for school participation and promotional approach for the second phase of the Backyard Composter School Fundraiser Project resulted in a broader methodology compared to the first phase. The first step was to send letters to the Dufferin-Peel Separate and Peel District School Boards to request their approval of the pilot project. Both Boards approved the project and letters explaining the project, along with fact sheets and application forms were distributed to the principals of all 82 separate and public schools in the Brampton area. The Region requested the applications to be filled out in order to ensure that the schools were aware of their own role and the Region’s role in this project. See Appendix A for copies of these documents. The same information package was also distributed to the Brampton area Montessori schools, Girl Guides and Scouts of Canada.

As soon as the school returned the application form to the Region a partnership was to be formed and a contact person would also be established. After this point individual teachers at the school could request that the Brampton Clean City Committee provide a presentation to their classroom about diverting waste through composting. However, since Ridgewood Public School in Malton was the only school to join the project, a decision had to be made regarding the education aspect of this project. As a result, Regional staff met with a few teachers from Ridgewood and it was decided that a school assembly would be scheduled in

order to introduce the fundraising project and at the same time educate the children on the importance of composting and how easy it is. Slides of the presentation can be seen in Appendix A.

Following the presentation, the Region provided the school with brochures, order forms along with an attached letter to the parents of the students as seen in Appendix A. The attached order forms were used instead of the vouchers. The order forms were to be filled out completely and returned to the student's teacher with a cheque payable to the school. The school was then requested to summarize the order of composters and inform the Region of the total number of composters required. The Region delivered the composters to the school at a mutual agreeable date so that the purchaser could pick them up.

2.4 Pricing

The composter units were sold for \$22.00. The school would keep \$7.00 per unit and the remaining \$15.00 would be returned to the Region to cover part of the capital expense of the units.

2.5 Classroom Experiments/Surveys

The educational element of the Backyard Composter School Fundraiser Project was aimed at increasing the use and diversion rates of backyard composting. The teachers at Ridgewood Public School were given an education package that could be incorporated into their curriculum. The package included a series of experiments designed for primary and intermediate level students as well as a take-home survey on the use of composters. By involving the school children in the surveys and experiments, it was believed that they would become dedicated composter users who would pass their knowledge and skills onto others.

The experiments included in the package were drawn from two different sources. One source was a web site produced by the Cornell Waste Management Institute called "Trash Goes To School" and the other source of reference was the Ontario Ministry of Environment TAG series (Teaching About Garbage). The primary level experiments and the ensuing discussion questions as seen in Appendix A are quite simple in terms of scientific subject matter. Students would be asked to:

- differentiate between materials that decompose naturally or not;
- look for composting organisms with the naked eye or with a microscope;
- become familiar with organic fertilizers.

The intermediate level experiments was designed to be a little more challenging than the primary level experiments but the scientific subject matter was still simple enough for students to grasp the basic concepts. Students would be asked to:

- create their own composter with household items;
- study the dynamics of heat generated from inside the composter;
- be trained as "Master Composters" and become the person in charge of the school composter.

The take-home survey was introduced for many reasons. It was intended to enhance backyard composting and at the same time, provide a teaching instrument for teachers and help the Region gain valuable knowledge on composting habits. Some sample questions were provided in the package although the children were also encouraged to come up with their own questions. It was also suggested that students be divided into groups so that if all students did not have composters at home they would be able to pool their results. The sample survey questions can be seen in Appendix A.

2.6 Data Collection

To address the specific objective of tracking the use of backyard composters, three related investigations were undertaken- a phone survey, self addressed feedback card and a Home Compost Weighing Program.

2.6.1 Telephone Survey

A telephone survey (see Appendix B) sampling a total of 20 households out of the 50 households that purchased one or more composters during the spring 2000 sales was conducted. A waste management staff

member conducted the survey in the evening of November 8, 2000. The survey was short in nature and it consisted of basic questions about the owners composting habits and any problems they may have encountered over the summer. It also included questions concerning their preference of purchasing the backyard composter from the school as a fundraiser over a truckload type sale. Names, addresses and phone numbers of buyers were recorded on the original sales receipt and order forms which also stated that personal information will be used to administer and monitor the Municipal/Reuse Program in the Region of Peel. The same survey was to be repeated in the winter for the residents who purchased composters in the fall. However, since the fall 2000 sales were not substantial, the Region elected to only pursue issuing feedback cards related to the BYC School Fundraiser Pilot Project to those residents.

2.6.2 Feedback Cards

All composters that were sold during the fall school fundraiser were sold with postage paid comment/feedback cards. Staff elected to also mail the same feedback cards to those residents that purchased a composter in the spring. The results compiled from the feedback cards for this report included only those residents that were not contacted through the telephone survey. Therefore, the results of 10 completed feedback cards would be examined in this report. The feedback cards would allow the Region of Peel to receive comments from buyers about their experience of purchasing a backyard composter and to what degree they are using the composter. A copy of the feedback card can be seen in Appendix B.

2.6.3 Home Compost Weighing Program

A total of five randomly selected households within the Region of Peel were asked to place their food waste into a 3.2 litre kitchen compost collector. The households were also requested to record the foods they placed into the container for statistical purposes. These containers were also given to those residents that purchased a backyard composter through the fundraiser project. Each resident was then given a week to fill up a container. At the end of each week, for a total of four weeks, a waste management staff member collected the five full containers and recorded its weight along with the list of food waste placed in the container on a data sheet. A summary of the weighing results is shown in Table 3.4.2 and a complete list of the foods added along with the weighing results can be seen in Appendix C. Once recorded, the food waste in the kitchen collector were removed and thrown into a central backyard composter and returned to the resident.

The diversion rate of food waste was calculated by combining the average weight of food waste that can be placed in one of the kitchen compost collectors with the rate at which resident's fill up their container with food waste before throwing it out into their backyard composter. This fill up rate was determined in part by the results of the telephone survey. Following that, the calculated diversion food waste figure was compared to the value calculated in a related 1995 report titled "City of Mississauga's Waste Minimization Demonstration Project—Home Composting". Yard waste was not weighted in this report but it was weighted as part of the 1995 report. The resulting diversion rate of yard waste was combined with the calculated food waste diversion rate so that the total diversion rate of all organic waste could be determined.

3.0 STUDY RESULTS

3.1 Backyard Composter Sales

The sales of backyard composters for both the spring and fall fundraiser differ substantially and both sale levels were far below what was expected. The five schools that participated in the spring BYC fundraiser sold 56 backyard composters whereas the one school that participated in the fall BYC fundraiser sold four. As a result, a total of 60 backyard composters were sold as shown in Table 3.1

Table 3.1 Total backyard composters sold during the Backyard Composter School Fundraiser Pilot Project

SPRING BACKYARD COMPOSTER SCHOOL FUNDRAISER PROJECT		
School	Units Sold	Municipality
St. Edith Stein Separate School	1	Mississauga
Kenollie Public School	9	Mississauga
Hickory Woods Public School	36	Brampton
St. John Bosco Separate School	2	Brampton
Macville Public School	8	Caledon
FALL BACKYARD COMPOSTER SCHOOL FUNDRAISER PROJECT		
Ridgewood Public School	4	Mississauga
TOTAL	60	

3.2 Compiled Results of the Telephone Survey

Table 3.2.1 Purchases of backyard composters

Question	Sample Size	Responses	Results	Percent (%)
Was this your first time purchasing a backyard composter?	20	Yes	15	75
		No	5	25

Results indicate that the majority of respondents have never purchased a backyard composter before the fundraiser. Seventy-five percent as seen in Appendix C were first time buyers whereas 25 percent of the respondents have purchased a composter once before.

Table 3.2.2 The percentage of resident's that found purchasing a composter through the Backyard Composter School Fundraiser was easier than other locations

Question	Sample Size	Responses	Results	Percent (%)
Did you find purchasing a backyard composter from a school easier than purchasing it from these other locations (i.e. Environment Days, a one day truckload sale or at a waste management facility)?	5	Yes	4	80
		No	1	20

The sample size of 5 represents those same respondents that have purchased a backyard composter previous to the fundraiser. Eighty percent of the respondents found it was easier to purchase a backyard composter from a school fundraiser than purchasing it from other locations, such as a waste management facility or a randomly held Environment Day. Only 20 percent or one respondent indicated that it was not as easy since it still required to be transported awkwardly in her vehicle (refer to Appendix C).

Table 3.2.3 Participation in Composting

Question	Sample size	Responses	Results	Percent (%)
Are you currently using your composter?	20	Yes	14	70
		No	6	30

The participation in composting was very high as seen in Appendix C. Seventy percent indicated that they are currently using their backyard composter whereas only 30 percent stopped composting due to reasoning expressed in the table below. The results of this question were combined with the results of the same feedback card question. The total participation rate in composting was approximately 73 percent as seen in Appendix C.

Table 3.2.4 Main reasons for not composting

Question	Sample Size	Responses	Results	Percent (%)
What was the main reason for not using the Composter you purchased?	6	Odours		
		Pests (i.e. flies)		
		Animals (i.e. racoons)		
		Have not had time	3	50
		Not enough space available	1	16.7
		Information package provided was not helpful		
		Just did not want to compost	1	16.7
Other (please specify)				
* Have not found a good location yet			1	16.7

Out of the 6 respondents that indicated they are not currently composting, half of them stated that they had not had the time to start composting since the purchase of their unit back in spring. The other half of respondents were not using their composters for various reasons, which range from not having enough space, still searching for a good location and just deciding not to compost. See Appendix C for graphical representation of this data.

Table 3.2.5 Public opinion of the information kit, provided with the purchased composter(s)

Question	Sample Size	Responses	Results	Percent (%)
Did the materials in the kit provide helpful information and easy to follow instructions?	14	Yes	13	92.9
		Somewhat	1	7.1
		No, not helpful enough		

Approximately, 93 percent of the 14 respondents that are currently using their composters found the information kit provided to be helpful. Only 7 percent indicated that the information kit was just somewhat helpful and there was no indication that the information package was not helpful at all.

Table 3.2.6 Common organic food waste added to purchased composter(s)

Question	Sample Size	Responses	Results	Percent (%)
What do you put inside your backyard composter?	14	Fruit and vegetable scraps	14	100
		Coffee grounds/teabags	11	78.6
		Leaves	8	57.1
		Grass	9	64.3
		Garden Plants, weeds & stems	6	42.9
		Other (please specify)		
		* Soil and dirt	3	21.4

Participants most commonly placed fruit and vegetable scraps in their composters. Approximately 79 percent of the respondents as seen in Appendix C indicated that they composted coffee grounds and tea bags and around 64 percent composted grass. The remaining organic items that respondents composted were leaves, garden plants and soil.

Table 3.2.7 Residents that were still using kitchen compost collector

Question	Sample Size	Responses	Results	Percent (%)
Are you still using the kitchen collector provided to you with the purchase of the Backyard composter?	14	Yes	11	78.6
		No	3	21.4

With every purchase of a backyard composter residents were also supplied with a handy kitchen compost collector. Almost 79 percent of respondents indicated that they were still using the compost collector whereas about 21percent stopped using this container.

Table 3.2.8 Substitute container or method used to add compostable material to purchased composter(s)

Question	Sample Size	Responses	Results	Percent (%)
What type of container/bag are you using to collect your compostable material?	3	Plastic bag (grocery bag)	1	33.33
		Rigid Container (ice cream container)	1	33.33
		Materials placed directly into the composter	1	33.33
		Other (please specify)		

The 3 residents that either stopped using or lost their kitchen compost collector were asked an additional question regarding their composting habits. Each respondent was asked if they had a similar container or another method of adding compostable material to their composter. Each respondent stated they either used a plastic grocery bag or a rigid container of some sort or decided to place the organic material directly into the composter.

Table 3.2.9 The average rate at which kitchen compost collectors were added to composter(s)

Question	Sample Size	Responses	Results	Percent (%)	Avg. of kitchen collectors added per week
On average, how much compostable food waste do you add to your backyard composter(s), per week?	11	1 full kitchen compost collector	5	45.4	2
		½ of a kitchen compost collector			
		¼ of a kitchen compost collector			
		Other (please specify)			
		*2 kitchen compost collectors	2	18.2	
		*3 kitchen compost collectors	4	36.4	

The 11 residents that were still using a kitchen collector revealed that the kitchen compost collectors were being used to their full potential. Approximately 45 percent of the respondents as seen in Appendix C added one full kitchen collector of food waste into their composter per week. The other 55 percent of respondents either added 2 or 3 full kitchen collectors of food waste into their composters per week. An ensuing average of 2 kitchen compost collectors of food waste was added to each of the resident's composter(s).

Table 3.2.10 Average of people per household

Question	Sample Size	Responses	Results	Percent (%)	Avg. of people per household
How many people reside in your household?	11	One	0	0	3.1
		Two	3	27.3	
		Three	5	45.5	
		Four	2	18.2	
		Five	1	9.0	
		Other (please specify)			

The 14 residents that were currently using their composter were also asked about the size of their household. However for this study, only the responses of the 11 residents that were still using a kitchen collector were tabulated and graphed in Appendix C. Out of the 11 respondents, an average of 3.1 people per household was calculated.

Table 3.2.11 The use of finished compost by households

Question	Sample Size	Responses	Results	Percent (%)
Have you, or do you use your finished compost for your garden plants, lawns or houseplants?	14	Yes	5	35.7
		No	9	64.3

The time it takes to make finished compost varies, although done properly can result in finished compost in as little as six months. It depends on the amount of kitchen and yard waste added, moisture of material and the outside temperature. Approximately 36 percent of the respondents were successful in making compost. The other 64 percent will most likely have to wait until next spring to use the finished compost.

3.3 Compiled Results of the Feedback Cards

Table 3.3.1 The percentage of resident's that found purchasing a composter through the Backyard Composter School Fundraiser a worthwhile experience

Question	Sample Size	Responses	Results	Percent (%)
Did you find purchasing a backyard composter from a school fundraiser easy and worthwhile?	10	Yes	10	100
		No	0	0

Respondents overwhelmingly indicated that they found purchasing a backyard composter from the school fundraiser easy and worthwhile. As seen in the table above all the respondents answered yes to this question.

Table 3.3.2 Participant's satisfaction of the purchased composter(s)

Question	Sample Size	Responses	Results	Percent (%)
Are you pleased with the composter that you just purchased?	10	Yes	10	100
		No	0	0

Respondents again overwhelmingly indicated that they were pleased with the backyard composter that they purchased. As seen in the table above all the respondents answered yes to this question. This establishes that residents were happy with the product after they begun to use it.

Table 3.3.3 Public opinion of the information kit, provided with the purchased composter(s)

Question	Sample Size	Responses	Results	Percent (%)
Did the material in this kit provide helpful information and easy to follow steps on how to compost?	10	Yes	9	90
		No	1	10

The information included with the purchase of the composter, provided easy to follow instructions. Similar to the results in the telephone survey the majority of the respondents agreed that the kit provided helpful information. The remaining 10 percent or the one respondent out of 10 disagreed.

Table 3.3.4 Participation in composting

Question	Sample Size	Responses	Results	Percent (%)
Are you currently using your backyard composter?	10	Yes	8	80
		No	2	20

Out of the 10 respondents, the percentage of those participating in composting was slightly higher than those results gathered in the telephone survey above. In this case, 80 percent of respondents were currently using their backyard composter whereas only 20 percent stopped composting for some reason. The results of this question were combined with the results of the same telephone survey question. The total participation rate in composting was approximately 73 percent as seen in Appendix C.

Table 3.3.5 The rate at which compostable materials was added to purchased composter(s)

Question	Sample Size	Responses	Results	Percent (%)
How often do you place compostable materials (food and yard waste) into your backyard composter(s)	10	Every day	2	20
		Once a week	2	20
		Every couple of days	4	40
		Not on a regular basis	2	20

The rate at which compostable material was added to a composter is quite equally distributed. Approximately, 40 percent of the respondents as seen in Appendix C indicated that they added food and yard waste every couple of days. The other 60 percent of respondents were evenly divided between adding material every so often, every day, and once a week.

3.4 Diversion Impacts

The method of tracking the diversion potential and usage rate of the composters sold during the course of the Backyard Composter School Fundraiser Pilot Project was accomplished in accordance with the method and results published in a 1995 City of Mississauga's Waste Minimization Demonstration Pilot Project, Vol. III: Home Composting. The Consulting Service Proctor & Redfern Ltd. prepared the report in conjunction with the City of Mississauga, Ministry of Environment, Region of Peel and Mississauga Clean City Campaign (now called EcoSource Mississauga). The 1995 report published results of a Home Composting Controlled Weighing Program, similar in theory to the one undertaken in the BYC School Fundraiser Project. The findings from both studies will be compared even though the sample size and procedure differ slightly. In the case of yard waste, the 1995 report measured the amount of yard waste that was being diverted into composting units. This measurement was difficult to obtain and as a result it was adopted in order to determine the total diversion of organic material. Furthermore, the measurement of diversion potential per composting unit was also calculated in the 1995 report based on a participation survey that was conducted in each household within each of the 4 sample areas. Assumptions used to obtain the measurement were also assumed for this report.

3.4.1 Results of Home Composting Weighing Program

Food waste

The amount of food waste that was diverted per household in each of the 1995 study areas in each of the two test periods is shown in Table 3.4.1. The results from Table 3.4.1 indicated that, for those households using backyard composting units, only approximately 70% of all household kitchen organics potentially divertable, are being diverted into backyard units.

Table 3.4.1 Capture Rates for food wastes from 1995 Controlled Weighing Program

Sample Period	Quantity Diverted (kg)	Quantity Not Diverted (kg)	Total Quantity Generated (kg)	Diversion Rate (%)
Sample Period #1	2.8 kg	1.1 kg	3.9 kg	72%
Sample Period #2	2.5 kg	0.8 kg	3.3 kg	76%
Average of Two Periods	2.7 kg	1.0 kg	3.7 kg	73%

The average of the sample two periods from the controlled weighing program suggested a quantity diverted of 2.7kg/hhld/week or 140 kg/hhld/year with an average of 3.3 people per household. This produces a diversion rate per person of approximately 0.82kg/week or approximately 43 kg/person/year.

The amount of food waste that was diverted per household in this BYC School Fundraiser Project is shown in Table 3.4.2.

Table 3.4.2 Capture Rates for food waste from the BYC School Fundraiser Weighing Program

Sample Households	Quantity Diverted (kg) in one 1 full kitchen composter collector	Average fill up rate of kitchen compost collector/week	Quantity Diverted (kg)/week
Household #1	0.911 kg	2 k.c.c	1.822 kg
Household #2	0.826 kg	2 k.c.c.	1.652 kg
Household #3	0.986 kg	2 k.c.c	1.972 kg
Household #4	0.939 kg	2 k.c.c.	1.878 kg
Household #5	0.733 kg	2 k.c.c.	1.466 kg
Average of all Households	0.879 kg	2 k.c.c.	1.758 kg

The average of the 5 sample households from the controlled weighing program suggested a quantity diverted of 1.76 kg/hhld/week or 92 kg/hhld/year with an average of 3.1 people per household. This produces a diversion rate per person of approximately 0.57 kg/week or approximately 30 kg/person/year.

Table 3.4.3 Comparison of diversion rates for food waste between the Waste Minimization Demonstration Project and the Backyard Composter School Fundraiser Pilot Project

Study	Diversion Rate (kg/hhld/week)	Diversion Rate (kg/hhld/yr)	Diversion Rate (kg/person/week)	Diversion Rate (kg/person/yr)
Backyard Composter School Fundraiser Project 2000	1.76	92	0.57	30
Waste Minimization 1995 Demonstration Pilot Project	2.7	140	0.82	43
Difference in Diversion Rates	0.94	48	0.25	13

The diversion rates per household and per person calculated for each study demonstrated contrasting results. As seen in Table 3.4.3, the 1995 study indicated a diversion rate, which was higher than the diversion rate that was calculated through the Backyard Composter School Fundraiser Project.

The 1995 Waste Minimization Demonstration Project also suggested that by using the average generation rate of 85 kg/person/year for food generation from the waste characterization table and assuming that 80% of that food can be diverted into backyard composting units (i.e. 20 % is comprised of meat, dairy and other foods that do not qualify for placement into composting units) the diversion rate can vary from 43/68kg/person/year.

The difference in the diversion rate estimates may have been the result of the sample period. The quantity of food waste generated over the sample period was not quite equal to the average produced per week. To extrapolate the results any further would require sampling of the total waste stream for an entire year to determine generation rate patterns for food wastes.

Yard Waste

Measuring the amount of yard waste material that is being diverted into backyard units is a difficult exercise. The 1995 report conducted a study whereby residential yard waste was weighted over a three-month period from mid-September through mid-December. The overall average quantity of material being diverted into backyard units ranged from 1.3 kg/hhld/week to more than 14 kg/hhld/week. The households that were diverting more yard waste materials into the backyard units generally had more than one unit.

Assuming a 35 week yard waste period per year (i.e., approximately April 1 to December 1), between 45 and 500+ kg/hhld could be diverted into backyard units annually. By removing the extraneous higher diversion rates being achieved a range of 50 to 90 kg of yard waste per household/year would be more representative of the average being diverted per household. As a result, the total amount of organic waste diverted through the Backyard Composter School Fundraiser Project would be approximately 142 to 182 kg/hhld/yr or 2.7 to 3.5 kg/hhld/week.

3.4.2 Diversion Potential of Backyard Composter School Fundraiser Project

The results of the participation survey which was completed in the 1995 Waste Minimization Study suggests that each participating household in a composting program has approximately 1.3-1.4 units. Assuming the average number of units was 1.4 and approximately 142 to 182 kg of food and yard waste is being diverted per household per year, each composting unit would be diverting approximately 101.4 to 130 kg of food and yard waste per year; shown as follows:

$$\frac{142 \text{ kg}}{1.4 \text{ units/hhld}} = 101.4 \text{ kg/unit to } \frac{182\text{kg}}{1.4 \text{ units/hhld}} = 130 \text{ kg/unit}$$

On average, each participating unit would divert approximately 120 kg or 0.120 tonnes of organic material each year. By taking into account the fact that the BYC School Fundraiser Project sold 60 units and assuming 73.3 % of all composters sold are in use, the ensuing total amount of organic material potentially diverted through this project would be 5.30 tonnes each year. Over a 10-year period this would result in approximately 53 tonnes of waste being diverted.

3.5 Interpretation and Observations

While the sample size of the study is statistically too small to draw firm conclusions for general application, the results do provide insights on why people do what they do, and how their attitudes, perceptions and feelings impact upon their decisions and behaviour.

In general, participants enjoyed the program and considered their purchase of a composter during the course of the fundraiser a worthwhile experience. The information kit provided with the purchase of a composter was regarded as very helpful to participants. Furthermore, participants that had previously purchased a composter preferred purchasing a composter from a fundraiser over other locations, such as a waste management facility. This positive feedback was expressed both through the telephone survey and feedback cards. Generally, once a participant purchases a composter, they are satisfied with the product.

At face value, backyard composting is a relatively simple process, the decision to compost depends on a complex set of motivations and lifestyle factors. Factors influencing non-participation is related more to lifestyle issues as opposed to concerns on the process. The lifestyle issues included such responses as, “Have not had time” and “Have not found a good location yet.” Whether or not these responses are real concerns, perceived problems or perhaps only “excuses” is irrelevant. What is relevant is that they are still valid to the individual and it is unlikely that a change in behaviour will happen without reinforcing positive motivation regarding composting.

The selling of composters as a school fundraiser has the potential of being a successful composter distributing program for the Region of Peel. Although the sales were modest between the two periods and school participation was minimal the lessons learned from this pilot project will benefit the Region as it pursues to carry out this program in the future.

The season at which the latter half of the fundraiser was carried out was a contributing factor to the limited participation by schools. During the fall season many teachers and principals expressed that the timing of the fundraiser was not very accommodating for different reasons. The first reason being that most teachers incorporate environmental related topics such as composting in their spring curriculum. The springtime according to some teachers provides an excellent opportunity for lessons about nature’s growth cycle, in particular vegetation growth and the need for fertilisers (compost) to help vegetation grow healthy.

The other reason relates to the preconceived notion associated with the fall season. Most people identify the fall season as the period in which vegetation ceases to grow and wilting begins. Most people believe that the temperature in the fall and winter months is inadequate for composting to occur and the winter weather may prevent people to get out to their composter. On the contrary, composting can be done all year round.

As long as there is space in the composter, and there is access to the composter an individual can continue to add material. In the winter, material will freeze, breaking down the fibres. In the spring, as the temperature increases, the composting process will be activated once again.

The last reason relates to the timing of the fundraiser and other fundraising commitments. Most schools usually make arrangements to undertake two major fundraisers during the entire school year. This responsibility of selecting and organizing school fundraisers falls on the School Council. The majority of members on a School Council are parents or guardians of students enrolled in the school. Other members include principals, teachers and support staff members. During one of their regular meetings fundraising projects are decided one year in advance. In most cases fundraising initiatives were pre-determined for the up coming school year. This explains why school participation during the fall season was difficult to secure for this program since most schools already have committed themselves to other fundraising initiatives.

In the future, the Region will distribute the fundraising information packages directly to the School Council Chair in advance. Presentations to the School Council, which will explain the Backyard Composter Program, may be a viable option in securing future participation as well.

Both public relations and education components are required for an effective program. Seeing as composting is experimental, education must be on going, it is not enough to provide only “start-up” assistance. Education involves continuing support and information to advance and reinforce the learning experience over time and clearly this is the role that the local Community Clean City Groups and the Region of Peel provides. Schools that require further educational support can utilize both these groups in order to convey the importance message behind composting.

4.0 TRANSFERABILITY TO OTHER REGIONS/MUNICIPALITIES IN ONTARIO

Overall, other municipalities will find the results of this project useful if they are considering to implement or support a backyard composter distributing program, which encompasses some sort of subsidy or give away component incorporated in it. It has been documented that sales of backyard composters have increased substantially since 1990 as composters sold in Peel were subsidized.

For this particular project, other municipalities can use the findings to increase the diversion of residential organic waste through the sale of backyard composters if they can overcome a number of the barriers outlined above in the results section. The timing in which the Backyard Composter School Fundraiser is conducted and being able to secure school participation well in advance will improve the success of the program. Lastly, and most importantly is the challenging task of influencing non-participants to start composting. By being able to provide composters at a reasonable price is the first step. Although there also needs to be an effective education component established along with providing an on going support should people’s misconceptions about composting change. Most people prefer to receive information in different ways and many have a variety of learning styles. In view of that, there needs to be a multifaceted approach to program development. Once this is accomplished the actual composting unit takes care of the rest, resulting in the satisfaction of most people with the end product that it provides.