

Technical Briefing Paper :

PROPOSED HOUSEHOLD ORGANIC WASTE REDUCTION TRIAL

1. BACKGROUND

Organic waste is a priority for management in Christchurch because of the large amount generated, the resulting negative environmental effects if it ends up in the landfill and because organics can readily be converted into a useful resource - compost.

The Christchurch City Council has been investigating ways of reducing organic waste going to landfill for a considerable time. Two likely options have been identified, but further research is required to establish the option most suited to the Christchurch context. A number of related issues have been compiled below that provide the context for the proposed trial.

SUMMARY OF RELEVANT ISSUES:

- Organic waste is a major part of the Christchurch waste stream. Based on 1999 data around 75,000 tonnes of organics are wastefully landfilled each year. This amounts to 33% of the overall waste stream and 46% of the contents of an average household rubbish bag.
- In 1998 Council adopted the target of reducing by 90% by 2010, the amount of organic waste being sent to landfill per person from 1994 levels. To date this target is not on track.
- Central government released the New Zealand Waste Strategy that has the target of reducing greenwaste and commercial organic waste to landfill by 95% by 2010.
- Promising results were achieved from a trial that collected an average of 4.6 kg per week of foodwaste at the kerbside from 320 households over an 8 week period. Nearly all of the households involved (96%) said they would continue to use the service if it was provided and most (88%) noticed a reduction in waste going to landfill. Only 23% of those households approached, took part in the trial (involvement in the trial was voluntary). A year round trial where all households in a selected area are provided a collection service will provide a better measure of participation and seasonal effects. *(Full results of the trial are available at www.ccc.govt.nz/Waste/Composting/KitchenOrganicsTrial.asp)*
- In addition to the trial, a random survey of 300 residents revealed that 60% would be willing to separate food scraps and small types of greenwaste if the Council collected it at the kerbside.
- Field trials into the effectiveness of home composting as a method of reducing organic waste in Christchurch have been limited.
- Council spends \$60,000 each year on home composting education. Research that identified how best to encourage home composting would enable the Council to use its resources to best affect.
- Council has reduced the number of rate-funded rubbish bags to 26 and needs to consider how best assist households to reduce waste.
- A special consultative process is planned on the subject of organic waste management. Outcomes and firm proposals from this trial will form the basis of this consultation (e.g. the trial will establish the cost effectiveness, uptake, amount of waste avoided and this data will be used when consulting on the options).
- On 18 March 2004 the Council resolved not to collect kitchen waste at the kerbside, but to investigate further options for reducing household organic waste taking into account environmental, social and economic factors. Further research of the two likely options for reducing organic waste will aid future Council decisions.

2. AIMS OF THE TRIAL:

1. To provide sufficient information for a decision to be made on how best to reduce household organic waste in Christchurch.
2. To compare the effectiveness, acceptance and cost of two key options for reducing household organic waste.
3. To determine the approach most suited to residents for encouraging the uptake of composting.
4. Evaluate the effectiveness and uptake of a range of different composting options (e.g. EM Bokashi, bucket composting, trench composting, community composting etc).

3. METHODOLOGY

A large-scale and long-term trial (5,000 households over 10 Months) is proposed to assess the effectiveness of two key options for reducing household organic waste:

- (1) “**Decentralised Composting**” which includes the promotion of home composting, existing commercially available greenwaste collection services and other decentralised composting options (see Table 1 for a list of the options available) to households in two distinct ways: a) through existing community networks (2,000 households) and b) in a geographic area (1,000 households).
- (2) “**Organics Recycling**” which involves the weekly kerbside collection of kitchen waste and small types of greenwaste from 2,000 households in a wheeled 40 litre container. The organics collected will be processed at a centralised compost plant.

The methodology used for each of the options above will be discussed separately.

TRIAL 1. DECENTRALISED COMPOSTING

Two different approaches are proposed for this part of the trial and each will be discussed separately.

Part A. Promotion of Composting Through Existing Community Networks

(e.g. 2,000 households that are linked to schools, sports clubs, churches and interest groups will be approached through the existing social networks). This approach will focus on specific target audiences and channel information and support through their existing social networks. It will adopt a “social marketing” approach that will enable information and assistance to be tailored to the particular needs of a target audience and is not based around a geographic location, but a membership to a specific community. It will provide valuable information about the method or approach used to encourage composting.

Target Audience

Audiences that will be targeted for this part of the trial are:

- Families
- Young adults with no children (e.g. under 30s)
- Mature adults with no children (e.g. over 50’s)
- Retired elderly

Promotion

A range of different promotion methods will be used including articles and promotions in community-based newsletters, subsidy for compost bins, and workshops on home composting. Feedback will be sought from those involved and follow-up assistance will be offered.

Processing

Households will be able to choose a composting method most suited to their needs, section size and waste type. A summary of the different options is listed in Table 1.

Measurement

The level of uptake will be evaluated based on the total membership of the particular community group in the trial. Focus groups and surveys will be performed before and after Council intervention and these will be verified by field measurements of the amount of rubbish disposed and the amount composted. Information from the initial focus groups and surveys will also aid in the development of the promotional programme.

Part B. Promotion of Composting In a Geographic Area.

(e.g. 1,000 households in a selected neighbourhood) This approach represents a “traditional” mass marketing approach and will provide information and assistance to residents in a particular geographic area or neighbourhood. This will be directly comparable with the kerbside collection option (also in a geographic area) and will provide a base-line from which to evaluate the “community network” approach (described above).

Location

Around 1,000 households in a geographic locations will be selected to reflect the diversity of household types in Christchurch (e.g. socio-economic, demographic, section size and slope).

Promotion

In the selected area a range of different promotion methods will be adopted including mail drops, subsidy for compost bins, and workshops on home composting.

Processing

Households will be able to choose a composting method most suited to their needs. A summary of the different composting options is listed in Table 1.

Measurement

The level of uptake will be evaluated based on the total number of households in the area selected. Surveys will be performed before and after Council intervention and these will be verified by field measurements of the amount of rubbish disposed and the amount composted.

TRIAL 2. ORGANICS RECYCLING – KERBSIDE COLLECTION

This will trial the weekly collection from 2,000 households, of food waste and smaller types of greenwaste such as prunings and flowers in a wheeled 40 litre container. A biodegradable bag will be provided to line the container to ensure a hygienic service is maintained. ***Note: It is not a large wheeliebin greenwaste collection which is already being successfully implemented by existing commercial waste collectors.***

Location

Four hundred households, in five areas across the city and on different rubbish collection days will be selected for the trial (total 2,000 households). The neighbourhoods will be selected to reflect the diversity of household types in Christchurch (e.g. socio-economic, demographic, section size and slope). All households in the selected areas will be included in the trial, allowing each household to choose how to respond to the trial and service.

Promotion

All the households in the selected areas will be given an initial brochure (mail drop) that will describe the trial and what is involved. Organics recycling kits, containing the necessary materials, will be delivered to each household shortly after. This kit will include detailed information about the service and prompts that can be placed in the kitchen (e.g. stickers and fridge magnets). Additional brochures (reminders) will be distributed towards the middle of and end of the trial period. A final letter will provide feedback to the residents on the results of the trial.

Collection

A single Onyx rubbish collection truck will be converted to enable the collection of organics in a split compartment. This truck would have the capacity to collect from 2,000 households per week and this number has been used as the basis of the trial. The collection will be carried out in the nature of the proposed kerbside organics collection service. Forty litre wheeliebins and a suitable number of compostable bags to line the bins will be provided to all households in the area. The collection of the organics will be weekly on the same day as the rubbish and recycling collection.

Processing

The organics will be taken to Metro Place for composting.

Measurement

Weights will be taken of the organics collected each day (the truck will be weighed). A sample number of households in each of the five areas will be surveyed before and after the trial to determine the acceptability of the service and its impact on waste disposal habits. A sample of organic recycling bins and rubbish bag weights will be taken to verify the survey results and participation. A focus group will be held at the end of the trial to investigate various perspectives of the collection service.

Table 1. Composting options available to households

Option	Description / Use	Characteristics
ON SITE		
Grass recycling	Mulching mowers	<ul style="list-style-type: none"> • More affluent households • Larger section sizes • Not as suitable for families (grass tracks inside the house)
Compost bin – Open	Larger amounts of greenwaste and foodwaste	<ul style="list-style-type: none"> • Larger section size • Keen gardeners and composters • Not as suited to foodwaste
Compost bin – Closed	Smaller amounts of greenwaste, ideal for foodwaste	<ul style="list-style-type: none"> • Smaller section sizes • Large amount of foodwaste
Compost heap – uncontained heap	Larger amounts of greenwaste, not suited to foodwaste	<ul style="list-style-type: none"> • Larger section size – heap often in the corner of the section or behind vegetation • Often just an alternative to disposal – compost is not often used
EM Bokashi	Foodwaste only	<ul style="list-style-type: none"> • Modest amounts of foodwaste • Suit large or small section size
Bucket / hole / trench in ground	Foodwaste only	<ul style="list-style-type: none"> • Larger amounts of foodwaste • Suit large or small section size
Worms	Foodwaste only	<ul style="list-style-type: none"> • Small amounts of foodwaste • High interest or novelty
Assisted home composting	Foodwaste and greenwaste	<ul style="list-style-type: none"> • Households that have the space and need, but lack the knowledge, time or motivation to compost. • Composting on site could be an extension of existing gardening services.
OFF SITE		
Greenwaste collection	Greenwaste only although vegetable trimmings are often included	<ul style="list-style-type: none"> • More affluent households • Regular and modest amounts and items of greenwaste
Refuse station drop off	Greenwaste only	<ul style="list-style-type: none"> • Periodic and large amounts and items of greenwaste
Community garden	Foodwaste only	<ul style="list-style-type: none"> • Modest amounts of foodwaste • Households unable or unwilling to compost onsite • High interest, novelty and community involvement

Cost of the household organic waste reduction trial

	# Unit	\$ / Unit	Total Cost
TRIAL 1 Decentralised Composting			
Part A Community Networks			
Households	2,000		
Weeks (duration 10 months)	40		
Promotional material	10,000	2.00	20,000
Subsidy for compost bin etc	2,000	20.00	40,000
Composting workshops	8	500.00	4,000
Measurement	32,000	1.00	32,000
Survey & focus group	4,000	3.50	14,000
Total			110,000
Part B Geographic Boundry			
Households	1,000		
Weeks (duration 10 months)	40		
Promotional material	1,000	6.00	6,000
Subsidy for compost bin etc	1,000	20.00	20,000
Composting workshops	2	500.00	1,000
Measurement	16,000	1.00	16,000
Survey & focus group	2,000	3.50	7,000
Total			50,000
TRIAL 2 Kerbside Collection			
Geographic Boundry Only			
Households	2,000		
Weeks (duration 10 months)	40		
Collection containers (capital)	2,100	20.00	42,000
Compostable Bags	80,000	0.35	28,000
Prepare and deliver collection kits	2,000	1.00	2,000
Collection truck conversion (capital)	1	32,000.00	32,000
Collection costs	48,000	0.20	9,600
Processing costs	240	57.00	13,680
Promotional material	2,000	6.00	12,000
Survey & focus group	4,000	3.50	14,000
Measurement costs	32,000	1.00	32,000
Avoided landfill costs	240	90.00	21,600
Total			163,680
Overall Cost			323,680