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Organics Recycling for Commercial Businesses in the NEWF

The majority of *food organics* generated in the NEWF Region are sent to landfill. This practice is inconsistent with the principles of the Waste Hierarchy (Waste Minimisation and Management Act, 1995) and principles of Ecologically Sustainable Development (ESD). Food organics in landfill creates methane gas as the organic materials break down. Methane gas is 20x more heating for the atmosphere than carbon dioxide¹.

Diverting food organics from landfill sites will:

- ❖ Reduce global warming effects;
- ❖ Save on disposal costs;
- ❖ Reduce pressure on limited landfill space;
- ❖ Divert valuable resources from landfill to a range of higher resource value applications ie. Compost for gardens and soil improvers for agriculture.

This review identifies a number of commercial scale technologies or systems that can process food organics and convert these materials into valuable, safe and useful end-products (Table 1). Technologies considered include, static, aerated compost bins, tumblers and aerobic digesters. Worm farms have not been included in this review as they are not considered appropriate where high volumes of food waste are to be processed.² Please note, this is not a comparative study; the suitability and associated benefits of these systems is dependent upon site variabilities and materials being composted.

Options for re-use / recycling food organics

Only 3.1% of the total amount of food organics produced by the commercial and industrial sector in NSW, is currently recycled (Waste Inquiry, 2000).³

The lack of progress in diverting food organics, in particular, from landfill is due to the difficulty in collecting, transporting and processing this highly putrescible component of the waste stream. Options for reusing or recycling organic waste include:

1. Human consumption (e.g. food bank);
2. Animal feed;
3. Centralised composting (or similar process);
4. On-site composting.

The ability to divert food organics for human consumption is limited, as the food must

¹ <http://en.wikipedia.org/wiki/Methane>

² Recycled Organics Unit (2002) Best Practice Guideline to Operating Onsite Vermiculture Technologies Recycled Organics Unit, internet publication: www.recycledorganics.com

³ Recycled Organics Unit (2001). On-site Composting: Technology options and process control strategies. Third Edition. Recycled Organics Unit, internet publication: www.recycledorganics.com

be transported and distributed whilst still fresh. Check with your local Neighbourhood Centre, community groups or churches to see if they operate a food bank for the homeless.

Options for diverting food organics from landfill by feeding it to animals is also limited, as only fresh food scraps and non-meat food can be used for this purpose. However, if you can locate a local farmer who is interested in your fresh food waste it is a cheap and simple option.

Centralised processing of organic waste through *anaerobic* digestion or *aerobic* composting are viable options. Unfortunately, no dedicated processing facilities and associated collection services currently exist for food organics in the NEWF region.

Advantages of on-site processing

On-site processing of food (and garden) organics produced by the commercial and industrial sector can be a viable option for converting these materials into useful products that can be used by staff employed by an enterprise, or used onsite by the enterprise for soil improvement.

On-site processing, unlike the other options discussed, can be used for converting the food and garden organics produced by an enterprise into a range of recycled organics products. On-site processing of food and garden organics produced by the commercial and industrial sector has a number of economic and environmental benefits over all of the other options, such as:

- Reduced need for a 'skip' bin for disposing of waste. This translates into reductions in waste disposal costs (including waste collection, transport and tip fees);
- Increased environmental awareness and education of the community;
- Businesses & councils demonstrating leadership and promoting their business as 'clean & green', 'environmentally responsible and sustainable';
- No more smelly bins, organic wastes are diverted from bins into an odour controlled processing system;
- Processing on-site eliminates the need for a centralised organics processing facility — therefore reducing greenhouse gas emissions and impacts on urban amenity from waste collection and transport activities (e.g. noise and diesel emissions);
- Reduced levels of organics to landfill, conserves landfill space and lessens the impact landfills have on the environment — such as greenhouse gas emissions and contamination of ground and surface water; and
- Produces a range of valuable recycled organics products that can be used to improve soil on site.⁴



The Earth Machine static
Aerobic composter

⁴ Recycled Organics Unit (2001). On-site Composting: Technology options and process control strategies. Third Edition. Recycled Organics Unit, internet publication: www.recycledorganics.com

Organisations that could use an on-site processing system

A number of organisations within the commercial and industrial sector can potentially use on-site processing as an alternative organics management system to landfilling. Organisations that could consider an onsite composting system include:

1. Accommodation enterprises (hotels, caravan parks, retirement villages);
2. Food manufacturing enterprises;
3. Food retailing outlets (wholesale markets, shopping centres, cafés, restaurants, supermarkets, grocery stores, fresh food retail outlets);
4. Wholesale food outlets (e.g. health food shops, fruit and vegetable markets);
5. Local and state government organisations (local councils, leisure centres, correctional facilities, military facilities and other government departments);
6. Sport and recreational facilities (government facilities, registered clubs, golf courses, leagues clubs etc.);
7. Developers of apartment and unit residences;
8. Educational institutions (e.g. universities, TAFE colleges, schools, boarding schools).

On-site composting systems do not need to be confined to organisations that have landscaped areas. A range of options for use of recycled organics products exist for such organisations including selling the product to clients, giving the product to staff, clients, local school gardens or community gardens.

Choosing the right system

The right composting unit for your business will depend upon a number of factors including environmental and economic.

When choosing an appropriate system you need to consider a number of factors:

- ❖ Site location whether you need sun or shade;
- ❖ Access to water;
- ❖ Vehicle access to drop off or pick up compost materials;
- ❖ Potential for odour;
- ❖ Leachate management;
- ❖ Staff training to ensure correct materials are added to the compost mix;
- ❖ Time to manage the system
- ❖ Carbon materials to add to the compost ie. Wood chip, sawdust

Joraform 270L Tumbler also available in a Restauranteer 400L



Commercial systems available in Australia

Table 1: Processing Options

Processing Method	Model Type	Supplier	Processing capacity L/week	Investment	Country of Origin	Time to make compost
Aerobic Tumbler	Joraform 270L Home Composter	Vitality 4 Life: Byron Bay	25-30	\$795	Switzerland	3-6wks
Aerobic Tumbler	Joraform 400L Restauranteer	Vitality 4 Life: Byron Bay	50-80	\$2475	Switzerland	3-6wks
Aerobic Industrial food digester	Joraform Kompost 5100	Vitality 4 Life: Byron Bay	3500	\$49500	Switzerland	3wks
Aerobic static bin	Aerobin 400	Most hardwares can order	90-120	\$400	Australia	6 mths
Static aerated black bin	Norseman Earth Machine 300L	Source Separation Systems: Newcastle	60-90	\$90	USA	6-9mths
Static Aerated bin	Thermobin 200L to 2000L		30-200	Price varies depending on size	Austria	6 mths
Aerobic tumbler	Easy Composter 200L	Easy Composter	40-60	\$395	Australia	4-6wks

Management considerations

The installation and management of composting systems requires careful planning and consideration. Good management is needed to ensure the composting continues to meet the objectives of the user(s) or organisation, and that the quality of the surrounding environment is not negatively impacted upon. Good process management involves routine monitoring and maintenance to ensure odour and *leachate*, or the attraction of pests and vermin are minimised.

Further information

North East Waste Forum: www.northeastwasteforum.org.au

Recycled Organics Unit UNSW: www.recycledorganics.com

Department of Environment and Climate Change: www.environment.nsw.gov.au

Disclaimer: The information provided in this document is in good faith, the buyer should source further advise from the supplier or manufacturer before purchasing any product.