The Environmental Protection Agency (EPA) conducts annual surveys on waste generation and management in Ireland. The latest findings from surveys of local authorities, recycling organisations, industrial organisations and waste licensed operators are presented in the National Waste Report 2004. The data are presented in further detail in a series of factsheets which are available to download from www.epa.ie/OurEnvironment/Waste.

Compost Facilities 2005

This factsheet presents the findings from a survey of compost facilities. The main findings in relation to compost facilities operating in Ireland in 2005 can be summarised as follows:

- A total of 39 composting facilities were in operation in Ireland in 2005, and a further 7 have commenced or are due to commence operations in 2006.
- The compost facilities operating in Ireland can be broadly split into two categories, facilities that produce a good quality compost substrate for sale to mushroom growers, and waste management facilities that make compost from organic waste.
- Mushroom composting facilities employ a combination of windrow and in-vessel technology and in 2005 they composted 123,766 tonnes of manure and gypsum waste. A total of 5 licensed mushroom compost facilities were operating in 2005.
- In-vessel technology is the most commonly used by the waste management facilities in operation.
- The total tonnage of waste composted at the surveyed waste management facilities was estimated to be 147,585 tonnes in 2005 (65% of available licensed capacity)
- The majority of waste composted at the surveyed waste management facilities was green waste and household organic waste, an estimated 82,693 tonnes in 2005.
- The remaining waste composted was municipal and industrial sludges (28,888 tonnes) and kitchen and canteen waste (4,207 tonnes).
- Almost 55% of the compost produced by waste management facilities was used in landscaping activities. The remainder was used as landfill cover, mainly in remediation and capping activities.

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1. INTRODUCTION

Approximately 74% of household and commercial waste generated in Ireland in 2004 is biodegradable. Of the 1,935,214 tonnes of biodegradable municipal waste generated in 2004, 67.4% was landfilled and the remaining 32.6% recycled. Progressive targets have been set out in the Landfill Directive[1] to reduce the proportion of biodegradable municipal waste landfilled. By 2006, Member States are restricted to landfilling a maximum of 75% of the total weight of biodegradable municipal waste generated in 1995, the baseline year. This target is further reduced to 50% of the 1995 baseline by 2009 and 35% by 2016. In 2004, the amount of biodegradable municipal waste landfilled was 101% of the 1995 baseline so there is a long way to go to reverse this trend and meet the Landfill Directive targets. There are therefore significant challenges ahead with regard to the management of biodegradable waste. The *National Strategy for Biodegradable Waste* published by the Department of the Environment, Heritage and Local Government in April 2006 proposes measures to progressively divert biodegradable municipal waste from landfill by developing other ways of treating biodegradable waste. One example of the treatment of biodegradable waste is to produce compost, which can then be used to help grow crops. This factsheet looks at the current composting infrastructure in Ireland.

Composting is the breakdown of the organic fraction of waste material, such as kitchen or garden waste, by micro-organisms in controlled conditions. A mixture of material can be used in the composting process. Trees, grass, fruit and vegetables and eggshells, for instance, are all organic materials that will decompose. The result is compost; a dark, nutrient-rich soil conditioner.

A list of composting facilities in operation in 2005 was compiled using information gathered from the Cré (Composting Association of Ireland) website, local authorities, EPA licences and through discussions with composting operators. A total of 39 composting facilities operating in Ireland in 2005 were identified in this way. The facilities identified were surveyed by telephone to establish the current composting infrastructure in Ireland. Facility operators were asked to provide details on what composting systems they used and the amounts and types of waste accepted in 2004 and in 2005.

The compost facilities operating in Ireland can be broadly split into two categories, facilities that produce a good quality compost substrate by composting manure, gypsum and wheaten straw for sale to mushroom growers, and waste management facilities that make compost from organic waste. A total of 33 waste management facilities were composting organic waste (Table 1) and six mushroom compost facilities were operating in 2005 (Table 2). A further 7 waste management facilities have commenced or will commence composting organic waste in 2006 (Table 3). In response to the mushroom composting facilities taking in less horse manure, two studs are operating facilities on a trial basis to compost manure produced on-site and the compost is used on land in the stud. No further information was available however.

[1] Council Directive 1999/31/EC on the landfill of waste.

2. COMPOSTING TECHNOLOGY

There are primarily two types of composting systems currently used, windrow and in-vessel. Various patented sub-types of each system exist but due to commercial confidentiality this factsheet will present the data in terms of windrow and in-vessel only.

Windrow composting is a simple method to produce compost. It is suitable for large quantities of various biodegradable wastes, which is shredded, then set in piles. These piles are then turned at set intervals depending upon the waste material and end use. In-vessel composting is used for biological waste such as food wastes, sludges and wastes which tend to be unsuitable for open windrow composting. This type of composting allows for more control as the system is fully or partially enclosed and critical factors such as temperature, oxygen and moisture levels can be more closely controlled.

In the case of the mushroom compost facilities, these generally use an outdoor windrow system to start the process and then move the materials under cover or into an in-vessel system to complete the composting. In-vessel composting is used at the majority of the waste management facilities; with 88,512 tonnes of compost being produced this way in 2005 and 55,776 tonnes using windrow systems.

3. COMPOSTING CAPACITY

The total licensed and permitted capacity of the facilities surveyed was 352,100 tonnes. Of this the mushroom composting facilities account for 126,950 tonnes. Up to the end of 2004, 121,150 tonnes capacity existed in the 23 waste management facilities that composted organic waste. Nine facilities commenced operation in 2005, with an additional 104,000 tonnes capacity (an increase of 85% capacity) and in 2006 a further 130,800 tonnes capacity is due to become available.

4. WASTE TYPES ACCEPTED

The mushroom composting facilities accepted 125,626 tonnes manure and gypsum in 2004 and 123,766 tonnes in 2005. The manure and gypsum are combined with wheaten straw to produce a compost suitable for growing mushrooms.

An estimated 147,585 tonnes of waste was composted at waste management facilities in 2005. The main type of waste being accepted at organic waste management facilities for composting is household organic waste and green waste with approximately 82,693 tonnes having been accepted in 2005. This is probably a reflection of the increased availability of separate collection schemes (known as brown bin collections) for household waste.

Over 28,888 tonnes of municipal and industrial sludge and 4,207 tonnes kitchen and canteen waste from commercial and industrial premises were also accepted in 2005. Interestingly, almost 2,000 tonnes of waste from the fish processing industry was accepted at two facilities in Donegal. No breakdown was available for the remaining 30,000 tonnes.

Table 1. Composting facilities operating in Ireland in 2005

Name	Local Authority	Waste Management Region	Permit/ Licence	Licence/ Permit No.	Year commenced	Technology	Licensed/ Permitted Capacity (Tonnes)	Waste Type(s) accepted	End-Use of Compost	Compost Quality
AES - Midland Waste	Meath	North East	Licensed	W0131-02	2004	In-vessel	15,000	Household organics	Landfill cover	Unknown
Annacotty Waste Facility	Limerick	Limerick/ Clare/Kerry	Cert. of Reg.	R1559[1]	2005	Windrow	1,000	Green waste	Landscaping	Unknown
Ballinasloe Composting site/ Pollboy site	Galway Co.	Connaught	Licensed	W0027-02	2002	In-vessel	500	Household organics	Landscaping	EU Class 1
Bord na Mona PLC	Kildare	Kildare	Licensed	W0198-01	2005	Windrow	50,000	Green waste	Landscaping	Unknown
Carrolstown Estate / Greyhound Waste Recycling	Meath	North East	Permitted	WP2003 39; WP2002 20; 2005/03	2003	Windrow	5,000	Household organics	Landfill cover/ Landscaping	Stabilised Biowaste
Carrowbrowne Waste Recovery Facility	Galway City	Connaught	Licensed	W0013-01	2003	In-vessel	10,000	Household organics	Landfill cover	Unknown
COMP-IRE Composting Ltd.	Kerry	Limerick/ Clare/Kerry	Unknown		2005	In-vessel	5,000	Household organics	Landfill cover/ Landscaping	Grade 3
Crammonds	Wicklow	Wicklow	Unknown		2005	Windrow	1,000	Green waste	Landscaping	Unknown
Cremin Farm Compost[2]	Limerick	Limerick/ Clare/Kerry	Permitted	WP LK 23	-	In-vessel	-	-	-	-
CTO Environmental Solutions Ltd.	Cork County	Cork	Permitted	CK(s) 165/04	2001	In-vessel	6,000	Green waste	Landscaping	EU Class 1
Dungarvan Recycling Centre	Waterford Co.	South East	Licensed	W0032-02	2001	In-vessel	1,000	Household Organics/ Green Waste	Landscaping	Unknown
Enrich Compost	Meath	North East	Permitted	WMP 2004/57	2005	Windrow	6,000	Green waste	Landscaping	UK PAS 100
Enviro Grind Ltd.	Donegal	Donegal	Permitted	Env 143/ WP 04 05	1998	In-vessel	15,000	Green waste/Canteen waste/ Sludges/Fish waste	Landscaping	EU Class 1
Glaslough Peat	Monaghan	North East	Permitted	WP22/4	2002	In-Vessel	500	Spent Mushrooms	Landscaping	Not Specified
Gortadroma Landfill	Limerick	Limerick/ Clare/Kerry	Licensed	W0017-03	2005	Windrow	1,000	Green waste	Landfill cover	Unknown
Kinsale Road Facility	Cork City	Cork	Licensed	W0012-02	2002	Windrow	2000	Green waste	Landscaping	Grade 2
Lismore Recycling Centre	Waterford Co.	South East	-	-	2001	In-vessel	500	Household Organics/ Green Waste	Landscaping	Unknown

[1] Have applied for EPA licence
[2] No further information available

Table 1 (cont.)

Name	Local Authority	Waste Management Region	Permit/ Licence	Licence/ Permit No.	Year commenced	Technology	Licensed/ Permitted Capacity (Tonnes)	Waste Type(s) accepted	End-Use of Compost	Compost Quality
Lucan Green Waste Composting[1]	South Dublin	Dublin	Cert. of Reg.	R261	2000	Windrow	5,000	Green waste	Landscaping	Not Specified
Marine Harvest	Donegal	Donegal	Permitted	Env/143/ WP016	2004	In-vessel	900	Fish waste/Office paper & cardboard	Landscaping	Unknown
Mc Gill Environmental Systems - Molaisin Compost	Waterford Co.	South East	Permitted	WP05/2004	2004	In-vessel	12,000	Industrial sludges	Landfill cover	Not Specified
Mc Gill Environmental Systems - Castletownroche	Cork County	Cork	Permitted	CK(s) 0805	1998	In-vessel	10,000	Sludges	Landfill cover	Unknown
Mc Gill Environmental Systems - OD Recycling	South Tipp.	South East	Permitted	WM-WP-06-03	2003	In-vessel	5,000	Municipal sludges	Landfill cover	Unknown
Milltown Composting	South Tipp.	South East	Permitted	WM-WP-28-03	2004	In-vessel	10,000	Household organics	Landfill cover	Stabilised Biowaste
North Kerry Landfill	Kerry	Limerick/ Clare/Kerry	Licensed	W0001-03	1994	Windrow	50	Household Organics/ Green Waste	Landscaping	Stabilised Biowaste
Organic Gold Marketing Ltd	Meath	North East	Permitted	WP 219-1[2]	1986	Windrow	10,000	Municipal sludges	Landscaping	EU - Class 1
O'Toole Composting	Carlow	South East	Permitted	WP 02/04 WP 04/05	2005	In-vessel	15,000	Household organics	Landfill cover	Unknown
Panda Waste (Nurendale Ltd.)	Meath	North East	Licensed	W0140-02	2005	In-vessel	20,000	Household & Commercial organics	Landfill cover	Unknown
Silliot Hill (Greenstar)	Kildare	Kildare	Licensed	W0014-01	2002	In-vessel	5,200	Biodegradable kitchen & canteen waste	Landfill cover	Unknown
Terralift Ireland Ltd	Monaghan	North East	Permitted	WP 00/5	1994	In-vessel	1,000	Manure	Landscaping	Unknown
Timpeallacht na nOileán	Galway Co.	Connaught	Permitted	WR_08	2003	In-vessel	500	Household organics	Landscaping	Unknown
Tramore Recycling Centre	Waterford Co.	South East	Licensed	W0075-02	2001	In-vessel	1,000	Household Organics/ Green Waste	Landfill cover	Unknown
Waddock Composting Facility	Carlow	South East	Permitted	WP 01/02 & WP 11/04	2005	In-vessel	5,000	HH Organics/Green waste/sludges/manures	Unknown	Unknown
Waterford City Composting Facility (Veolia)	Waterford City	South East	Cert. of Reg.	R1600[2]	2004	In-vessel	5,000	Household organics	Landscaping	EU - Class 1
					TOTAL		**225,150**			

[1] Closed July 2006

[2] Have applied for EPA licence

Table 2. Mushroom compost facilities operating in Ireland in 2005

Name	Local Authority	Waste Management Region	Permit/ Licence	Licence/ Permit No.	Year commenced	Technology	Licensed/ Permitted Capacity (Tonnes)	Waste Type(s) accepted	End-Use of Compost	Compost Quality
Marley Compost Ltd	Monaghan	North East	Licensed	W0118-01	2003	Windrow	9,000	Manure	Mushroom compost	Phase 2 Phase 3
Kabeyun Ltd - Monaghan Mushrooms	Monaghan	North East	Licensed	W0121-01	1989	Windrow	15,600	Manure	Mushroom compost	Phase 2
Carbury Mushrooms Limited	Kildare	Kildare	Licensed	W0124-1	1986	Windrow & In-vessel	56,600	Manure	Mushroom compost	Phase 3
Custom Compost Limited	Wexford	South East	Licensed	W0123-01	1980	Windrow & In-vessel	39,750	Manure	Mushroom compost	Phase 3
Green Hill Compost Ltd	Cavan	North East	Licensed	W0117-01	1998	Windrow	6,000	Manure	Mushroom compost	Phase 2
Kabeyun Ltd. – Foxfield Mushrooms[1]	Cavan	North East	-	-		Windrow	-	Manure	Mushroom compost	-
					TOTAL		**126,950**			

Table 3. Facilities commenced or due to commence operations in 2006

Name	Local Authority	Waste Management Region	Technology	Capacity (Tonnes)	Waste Type(s) accepted	End-Use of Compost	Compost Quality
Inagh Waste Management Facility	Clare	Limerick/ Clare/Kerry	In-vessel	2,000	Green waste	Landscaping	-
Johnstown Recycling	Westmeath	Midlands	In-vessel	2,000	Kitchen & green waste	-	-
Green King Composting Ltd. (King Tree Services)	Wicklow	Wicklow	Windrow	40,000	Green waste	Landscaping/ Landfill cover	-
A1-Nephin Trading Co. Ltd.[2]	Kildare	Kildare	In-vessel	65,000	Green waste	-	-
Dundalk Civic Amenity Centre (V & W Recycling)	Louth	North East	Windrow	1,000	Green waste	Landscaping	-
Bandon Civic Amenity Centre	Cork Co.	Cork	Windrow	-	Green waste	-	-
Padraig Thornton Waste Disposal Ltd.	Meath	North East	-	20,800	Sludges/HH organics/ Kitchen and canteen waste		-
			TOTAL	**130,800**			

[1] Subject to ongoing enforcement action by the local authority and the Office of Environmental Enforcement

[2] Have applied for EPA licence

5. COMPOST QUALITY AND END-USES OF COMPOST PRODUCED

Just over 55% of the compost produced at the waste management facilities was used in landscaping activities. Landscaping includes horticulture, gardening substrate, soil enhancement and organic fertiliser as end uses. The remainder was used as landfill cover, mainly in remediation and capping activities. As nitrate is slow releasing from compost, it can be used as an effective soil conditioner. The use of compost in agriculture has potential and a research demonstration trial is currently underway in Co. Meath to explore the benefits of using green waste compost on tillage land.

At present there are no universal national or European standards governing compost quality. However, some facilities that record the quality of compost production refer to Class 1 and 2 standards as set out in a technical discussion document produced by the European Commission on the *Biological Treatment of Biowaste*[1]. In the absence of suitable quality standards, the EPA and local authorities also have regard to this document when regulating composting facilities, although the European Commission has not developed this document any further and is now considering alternative approaches to develop quality standards.

The uncertainty around quality standards has been identified as a barrier to developing a sustainable market for composting in Ireland in the National Strategy on Biodegradable Waste, published by the DEHLG in April 2006. The Strategy outlines plans to develop a set of standards, which will specify the maximum permissible concentration of various contaminants for Class 1 (premium quality) and Class 2 (good quality), giving regard to the EC technical discussion document and animal by-product legislation[2]. A Market Development Group has been established to work with stakeholders in developing markets for recovered organic waste and maximise the beneficial uses of compost. Cré is investigating the option of taking the standards one step further and establishing a compost Quality Assurance scheme.

6. FACILITIES IN NORTHERN IRELAND

During the course of the survey, five facilities in Northern Ireland were identified. Around 129,500 tonnes of organic waste was composted at these facilities in 2004 and 141,000 tonnes in 2005. Waste types accepted were household organics, green waste and manure. It may be that more facilities are in operation, however this survey was not designed to comprehensively cover Northern Ireland.

[1] Biological Treatment of Biowaste, issued by Sustainable Resources section of DG Environment, Ref. DG ENV.A.2/LM/biowaste/2nd draft of 12 February 2001.

[2] Animal By-Products Regulation (EC) 1774/2002 and associated Regulations; S.I. No. 248 of 2003 as amended by S.I. No. 707 of 2005.

Table 4. Composting facilities operating in Northern Ireland in 2005

Name	Local Authority	Capacity (Tonnes)	Waste Type(s)	End-Use of Compost	Compost Quality
Reen compost	Armagh City & District Council	14,820	Manure/ Agricultural straw	Mushroom Compost	Phase 2 mushroom compost
Keady Composting Facility-Natural World Products	Armagh City & District Council	98,000	Household organics/ Green waste	Landscaping	UK Compost Association - PAS 100 and EU Class 1 + 2
Down District Council Composting Site	Down District Council	4,000	Household organics	Landfill cover/ Landscaping	Unknown
Organic Waste Recycling Limited	Ards Borough Council	20,000	Household organics	Landscaping	UK Compost Association - PAS 100
SimproIreland Ltd	Strabane District Council	8,500	Green waste	Landscaping	Unknown

7. OTHER RELEVANT INFORMATION

1. From National Waste Report 2004 (see http://www.epa.ie/ourenvironment/waste)
   - Twelve local authorities reported the separate collection of just over 20,000 tonnes of organic waste from households through kerbside schemes in 2004 and a further 41,500 tonnes were collected from commercial sources. This is reportedly the most sought after category of organic waste by compost facilities as separately collected material makes the best quality compost.
2. The National Strategy on Biodegradable Waste was published by the Department of the Environment, Heritage and Local Government in April 2006. (see http://www.environ.ie/):
   - It is estimated that around 4% of households have a separate organic waste collection service. The roll-out of more segregated organic waste collection for households in the future will increase the possibility of being able to produce higher quality compost.
   - Approximately 80,000 home compost bins have been supplied by local authorities in the period 2001-2003, suggesting that at least 6% of households have compost bins. If those in multi-storey dwellings are excluded, approximately 1 in 10 households with gardens is likely to be engaged in home composting.
3. Cré is currently developing an accredited course for compost facility operators, the first one of which is expected to run in the next few months.
4. Several composting sites, although they have obtained a waste licence to operate, have been unsuccessful at obtaining planning permission so they have not commenced operations. These would typically have been large-scale facilities intending on accepting household organics and animal by-products (e.g. manure) but getting planning permission has been a challenge, thus slowing the establishment of new purpose built facilities.
5. A map of compost facility locations can be found on the Cré website at www.cre.ie