



Compost Mapping 2004 - 2005

A Review of Organic Waste Composting in Scotland

April 2006



## Executive Summary

The Compost Mapping 2004 – 2005 report is intended to give a snapshot review of the organic waste composting industry in Scotland.

The report focuses on the four key areas of interest for the market sector, these being organic waste collection, compost production and use, gate fee revenues and product value.

The report has been created by analysing the Local Authority Waste Arising Surveys for 2004 – 2005 in conjunction with the Caledonian Environment Centre Recycling Model and other key data sources and guidance.

It is noted that there are inherent problems in utilising historical data sets for modelling purposes, however in the absence of primary data sets for 2005 – 2006 Remade Scotland has endeavoured to ensure that all data is as relevant and accurate as possible.

The research has made some key observations about organic waste composting in Scotland for the year 2004 – 2005.

- For the year 2004 – 2005 a total of 174,786 tonnes of organic wastes were collected by Local Authorities for processing.
- Of this 174,786 around 57% was converted to quality compost, with the remaining balance being lost as moisture, respired gas and contaminants.
- This equates to the production of around 99,850 tonnes of quality compost in Scotland.
- The dominant area of compost production is in Glasgow and the Clyde Valley, closely followed by Lothian and Borders.
- The leading product across Scotland appears to be soil conditioners in the range of 0-10mm and 0-20mm.
- Gate fee continues to be the main source of income for all composters representing around 82% of the total achievable revenue.
- The combined value of gate fees based on the present perceived high and low market rate is in the region of £3.8 million to £4.5 million.
- The combined value of compost based on the present perceived high and low market rate is in the region of £599,000 to £899,000

In addition the report has highlighted some key areas where more research is required to fully validate these figures and assess the full impact of organic waste composting on the National Waste Strategy and Landfill Allowance Scheme (Scotland).

- The true and actual gate fees paid by local authorities, both externally to private contractors and internally between departments.
- The true and actual sale values of composts by region and by product type.
- The relationship, if any, between authority types, extent of scheme roll out and arisings.
- The impact of home composting on organic waste arisings.
- The impact of MBT and advanced treatment in specific Local Authorities such as Argyll & Bute, Aberdeenshire and Dumfries and Galloway.
- The true and actual sales distribution of the quality compost between the dominant end users such as landscaping, restoration and remediation and horticulture.

## Contents

<b>1</b>	<b><i>Introduction and Context</i></b>	<b>5</b>
1.1	<b>Aims</b>	<b>5</b>
1.2	<b>Objective and Key Questions</b>	<b>5</b>
1.3	<b>Background</b>	<b>6</b>
<b>2</b>	<b><i>Collection</i></b>	<b>7</b>
2.1	<b>Collection Method Distribution 2004/5</b>	<b>7</b>
2.2	<b>Total Collection by Local Authority 2004/5</b>	<b>7</b>
2.3	<b>Total Collection by AWP Region 2004/5</b>	<b>8</b>
2.4	<b>Collection Distribution by Local Authority Type 2004/5</b>	<b>9</b>
2.5	<b>Collections per Household by Local Authorities 2004/5</b>	<b>10</b>
2.6	<b>Collections per Household by Area Waste Plan Region 2004/5</b>	<b>11</b>
2.7	<b>Collections per Household by Authority Type 2004/5</b>	<b>12</b>
2.8	<b>Summary Conclusions on Collection 2004/5</b>	<b>12</b>
<b>3</b>	<b><i>Compost Production and Use</i></b>	<b>13</b>
3.1	<b>Total Composted Product by Local Authority 2004/5</b>	<b>13</b>
3.2	<b>Total Composted Product by Area Waste Plan Region 2004/5</b>	<b>13</b>
3.3	<b>Compost Producers in Scotland</b>	<b>14</b>
3.4	<b>Product Application by Region</b>	<b>15</b>
3.5	<b>Summary Conclusions on Production and Use</b>	<b>16</b>
<b>4</b>	<b><i>Gate Fees</i></b>	<b>17</b>
4.1	<b>Estimated Gate Fee by Local Authority 2004/5</b>	<b>17</b>
4.2	<b>Estimated Gate Fee by Area Waste Plan Region 2004/5</b>	<b>17</b>
4.3	<b>Estimated Gate Fees Paid by Private Sector / Public Sector Distribution</b>	<b>18</b>
4.4	<b>Summary Conclusions on Gate Fee 2004/5</b>	<b>19</b>
<b>5</b>	<b><i>Product Value</i></b>	<b>20</b>
5.1	<b>Estimated Product Value by Local Authority 2004/5</b>	<b>20</b>
5.2	<b>Estimated Compost Product Value by Area Waste Plan Region 2004/5</b>	<b>20</b>
5.3	<b>Estimated Compost Product Value by Private Sector / Public Sector Distribution</b>	<b>21</b>
5.4	<b>Summary Conclusions on Product Value 2004/5</b>	<b>22</b>
<b>6</b>	<b><i>Conclusions and Recommendations</i></b>	<b>23</b>
6.1	<b>Conclusions</b>	<b>23</b>
6.2	<b>Recommendations</b>	<b>24</b>

## Figures and Tables

FIGURE 1 COLLECTION METHOD DISTRIBUTIONS FOR ORGANIC WASTES 2004/5.....	7
FIGURE 2 TOTAL ORGANIC WASTES COLLECTED FOR COMPOSTING BY LOCAL AUTHORITIES 2004/5.....	8
FIGURE 3 TOTAL ORGANIC WASTE COLLECTED FOR COMPOSTING BY AREA WASTE PLAN REGION 2004/5.....	9
FIGURE 4 TOTAL ORGANIC WASTES COLLECTED FOR COMPOSTING BY LOCAL AUTHORITY TYPE 2004/5.....	10
FIGURE 5 TOTAL ORGANIC WASTES COLLECTED FOR COMPOSTING BY LOCAL AUTHORITIES PER HOUSEHOLD 2004/5.....	11
FIGURE 6 TOTAL ORGANIC WASTES COLLECTED FOR COMPOSTING PER HOUSEHOLD BY AWP REGION 2004/5.....	11
FIGURE 7 TOTAL ORGANIC WASTES COLLECTED FOR COMPOSTING PER HOUSEHOLD BY AUTHORITY TYPE 2004/5.....	12
FIGURE 8 TOTAL ESTIMATED COMPOSTED PRODUCT BY LOCAL AUTHORITIES 2004/5.....	13
FIGURE 9 TOTAL ESTIMATED COMPOSTED PRODUCT BY AREA WASTE PLAN REGIONS 2004/5 .....	14
FIGURE 10 ESTIMATED GATE FEES PAID BY LOCAL AUTHORITIES FOR ORGANIC WASTES FOR COMPOSTING 2004/5.....	17
FIGURE 11 ESTIMATED GATE FEES PAID BY AREA WASTE PLAN REGIONS FOR ORGANIC WASTES FOR COMPOSTING 2004/5.....	18
FIGURE 12 ESTIMATED GATE FEES PAID BY PRIVATE/PUBLIC DISTRIBUTION 2004/5.....	19
FIGURE 13 ESTIMATED COMPOST PRODUCT VALUE BY LOCAL AUTHORITY 2004/5.....	20
FIGURE 14 ESTIMATED COMPOST PRODUCT VALUE BY AWP REGION 2004/5.....	21
FIGURE 15 ESTIMATED COMPOST PRODUCT VALUE BY PRIVATE/PUBLIC DISTRIBUTION 2004/5 .....	22

## 1 Introduction and Context

### 1.1 Aims

The aim of this paper is to ascertain a number of key facts about the state of the composting sector in Scotland, as a snapshot, utilising the data as presented in the most recent Local Authority Waste Arisings Survey reports from 2004 – 2005. In addition this report is intended to provide data and information which assist the compost sector in making decisions on potential needs for investment and capacity.

In addition to the LAWAS<sup>1</sup> data for 2004 – 2005, Remade Scotland utilised a number of other key data sources including:

- Composting Association PAS 100 Supplier List November 2005
- Materials Recycling Week Markets Information
- Lets Recycle Pricing Datasets<sup>2</sup>
- Caledonian Environment Centre Recycling Model
- Glasgow & Clyde Valley Market Research Report 2005 (Remade; R.Alexander)
- Various Remade Scotland and WRAP fact sheets on compost utilisation

This paper examines the four areas considered to be of key importance:

- Collection of organic wastes for composting
- Compost production from collected organic wastes
- Estimated gate fee values paid by local authorities for organic wastes
- Estimated compost product values per tonne of quality compost

These key facts can then be subject to further analysis and validation of the data to establish whether there are key relationships forming in terms of:

- Collection method distribution
- Collection tonnages per authority and by area waste plan regions
- Collection distribution by authority type
- Collection distribution per household by authority, type and region
- Estimated compost production by authority
- Estimated compost production by area waste plan region
- Estimated gate fees by authority
- Estimated gate fees by area waste plan region
- Estimated gate fees by private sector or public sector distribution
- Estimated compost product value by authority
- Estimated compost product value by area waste plan region
- Estimated compost product value by private sector or public sector distribution

### 1.2 Objective and Key Questions

The objective of this paper is not to compare the efficiency, effectiveness or success of local authority organic waste collection schemes, although there shall inherently be some information that may be of assistance in continuous improvement programmes. Rather, this paper seeks to establish some key data sets to be monitored, and establishes some relationships that are of interest to the composting sector throughout the supply chain. These shall include but not be limited to:

- The key method of supply of organic wastes for composting
- The key authorities supplying organic wastes to composters

---

<sup>1</sup> Local Authority Waste Arisings Surveys for all 32 Scottish Local Authorities as provided by SEPA for the year 2004 - 2005

<sup>2</sup> Lets Recycle datasets available at [www.letsrecycle.com](http://www.letsrecycle.com)

- The area waste plan regions that are integral for large scale supply of organic wastes
- The authority type that is performing most successfully in organic waste collection
- The authority and area waste plan region that is supplying the most organic waste for composting per household
- How much compost is being supplied into markets
- Where are the key points of compost production across Scotland
- Where should the focus of efforts be for the marketing of green waste compost
- Estimate how much local authorities may pay in gate fees
- How much of the gate fees are paid to private sector companies?
- What is the value of the green waste compost produced in Scotland?

### **1.3 Background**

European legislation has become the key driver for national and regional biodegradable waste policy. The targets for diverting biodegradable municipal waste from landfill set out in the European Landfill Directive (EC/31/1999) have led to significant developments. The Waste and Emissions Trading (WET) Act 2003 provides the framework for the Landfill Allowance Trading Scheme (LATS) designed to meet the diversion targets laid down in the Landfill Directive. The UK targets have been divided up between England, Northern Ireland, Scotland and Wales, and the relevant government body in each nation is responsible for dividing the targets between local authorities who manage disposal.

#### **Landfill Allowance Trading Scheme (LATS)**

The Landfill Allowance Trading Scheme which came into force in Scotland on 1<sup>st</sup> April 2005 is a market-based mechanism that introduces progressively tighter restrictions on the amount of biodegradable municipal waste (BMW) that authorities can landfill. Local authorities are allocated an annual landfill allowance for BMW and are under a duty not to exceed this allowance, facing punitive fines for every tonne landfilled above the total amount of allowances they hold. Local Authorities who divert more material than they are allocated may then trade this extra capacity with those authorities who have been unable to meet their own allowance limit. EU fines imposed on the UK for failure to meet the targets will be split between local authorities in direct proportion to their contribution in breaching the targets.

#### **National Initiatives**

The devolved nations have each set incremental recovery, recycling and composting targets to improve performance in the management of household waste. The national targets are divided between local authorities depending on individual performance. In England the aim is to achieve a combined recycling and composting rate of 33 % of household waste by 2015, in Wales the target is 40 % recycling and composting of municipal waste by 2010 (with a minimum of 15 % from composting).

Scotland meanwhile has set municipal waste targets of 35 % recycling and 20 % composting by 2020.

#### **SEPA Composting Position Statement**

Scotland differs from the rest of the UK by using a standards based approach whereby PAS 100 accredited composted material is considered to be 'compost' and has set longer-term targets for segregated collections of organic waste. Stabilised organics derived from mixed wastes will still be considered a waste and its further use is regarded as recovery rather than composting.<sup>3</sup>

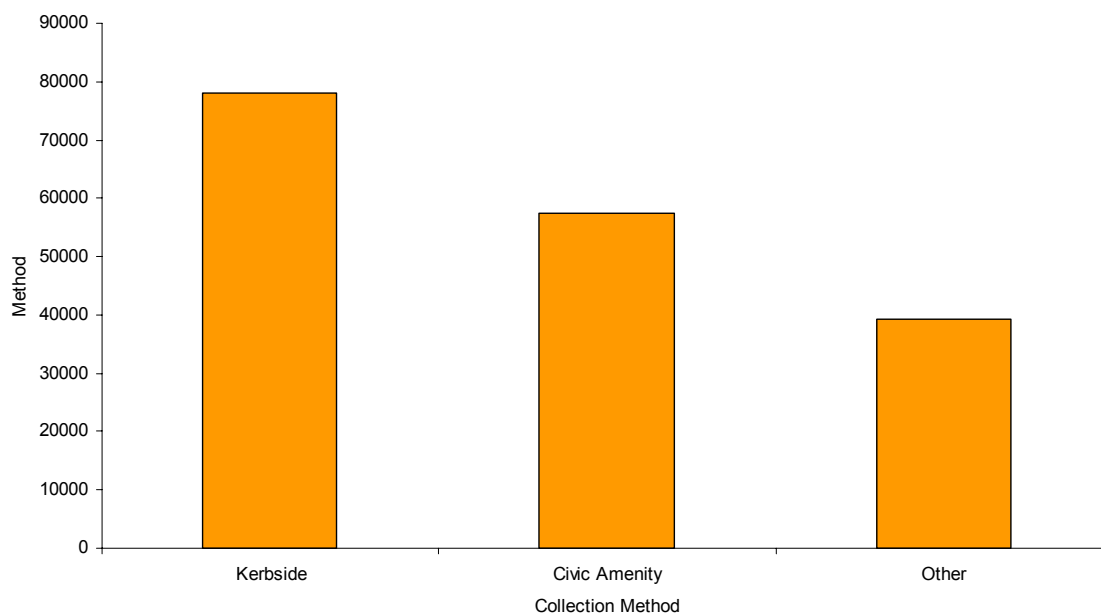
<sup>3</sup> SEPA Composting Position Statement 2004 available from [www.sepa.org.uk](http://www.sepa.org.uk)

## 2 Collection

### 2.1 Collection Method Distribution 2004/5

As expected, the continual roll out of new kerbside collection schemes targeting organic wastes in 2004 – 2005 dictated that, in total, kerbside yielded a higher tonnage of raw organic wastes for composting than the other available options

**Figure 1 Collection method distributions for organic wastes 2004/5**



Kerbside collections throughout Scotland yielded a total of 77,971 (44.6%) tonnes whilst Civic Amenity Sites contributed 57,515 (32.9%) tonnes with additional other collections including parks and gardens and market wastes contributing 39,300 (22.5%) tonnes.

It is predicted that the percentage contribution of kerbside collections shall continue to grow as these schemes reach 100% of maximum roll out capacity.<sup>4</sup>

### 2.2 Total Collection by Local Authority 2004/5

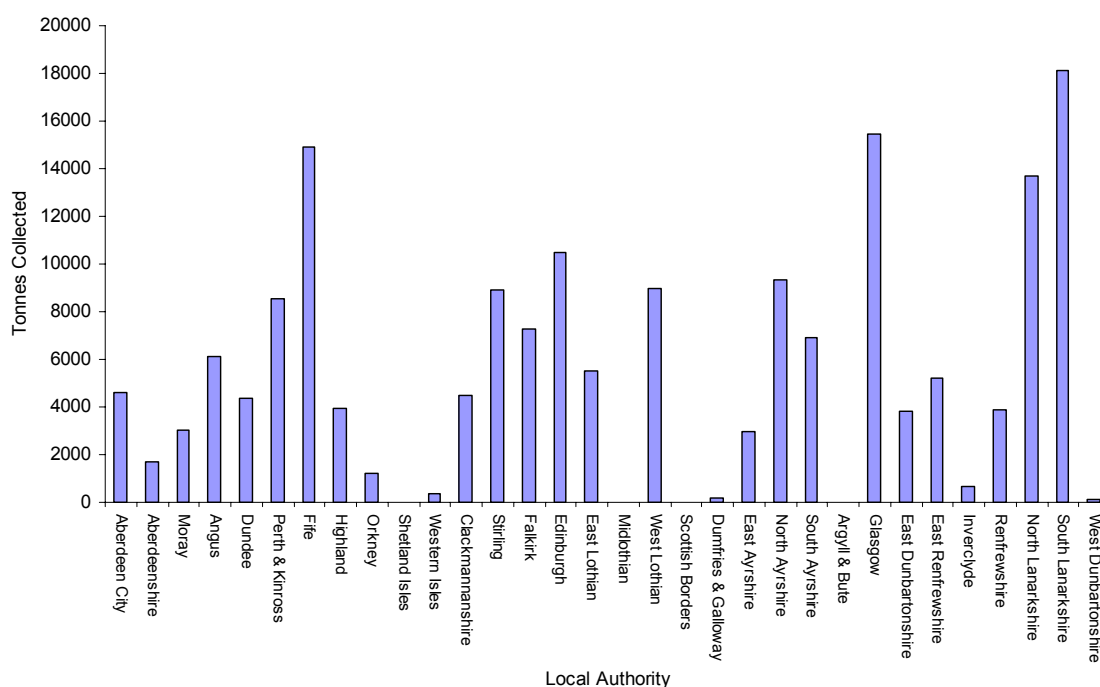
From the figures collated in the 2004 – 2005 LAWAS it would appear that the Local Authorities that have yielded most tonnage in the collection of organic wastes for composting are South Lanarkshire Council, Glasgow City Council and Fife Council.

South Lanarkshire who operated kerbside collection, civic amenity sites and local authority owned parks, gardens and grounds collection schemes contributed over 10% of the total organic wastes collected for composting whilst Fife who operated kerbside collection and civic amenity site schemes contributed over 8% of the total collected tonnage. Glasgow City Council meanwhile operated kerbside and civic amenity site collections, as well as integrating collection of the organic waste arisings of some other authority departments, generating 8.85% of the total organic waste arisings.

This analysis excludes to a certain extent the performance of Argyll & Bute Council, Dumfries & Galloway Council, Shetland Council, and Aberdeenshire Council as a segregated organic waste collection does not form an integral part of their long term diversion strategy.

<sup>4</sup> Whilst it is not known what percentage of scheme roll out had occurred in 2004-5, it is understood that they had not yet been rolled out to their full extent.

Figure 2 Total organic wastes collected for composting by local authorities 2004/5



### 2.3 Total Collection by AWP Region 2004/5

The total collection of organic wastes for composting by Area Waste Plan Region is considered to be of strategic importance as this allows a focus and emphasis of resources both in the public and private sector on those areas who are either performing well and may require assistance in seeking markets, or performing less well and thus require assistance and potential additional investment in collection and options analysis.

From the data presented in the LAWAS it appears that the Glasgow and Clyde Valley is collecting more total organic wastes than all other AWP Regions.

There are a number of reasons why this may be the case, such as the density of housing, the extent and progression of the roll out of schemes in comparison to other AWP Regions and the blend of council types between mixed, urban and rural Councils etc.

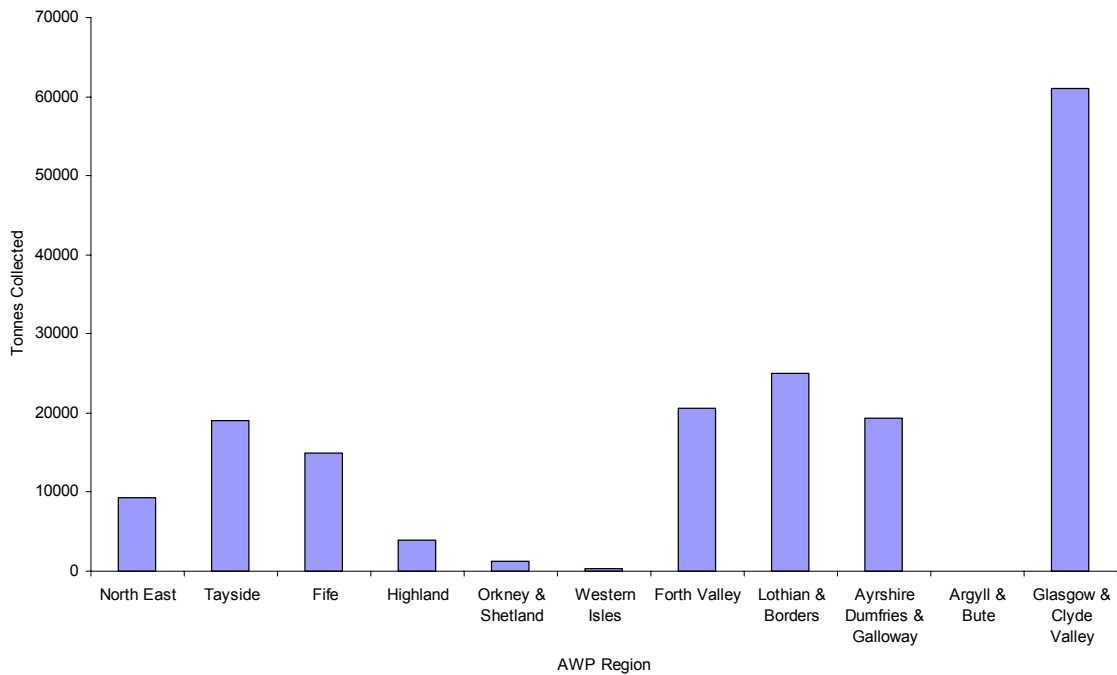
However, due to the historical nature of the datasets provided and the lack of presentable information on the extent and progression of roll out, any analysis as to the reasons behind Glasgow and Clyde Valleys exceptional performance is problematic. This shall however, be addressed in the 2006 Remade Market Development Report.<sup>5</sup>

It is predicted that the areas that shall show (or have the capacity to show) considerable improvement in collection are Forth Valley, Lothian and Borders and Ayrshire. This shall be verified in the 2006 Remade Market Development Report which shall provide a more focussed analysis of collection scheme performance.

<sup>5</sup> The Remade Market Development Report is due to be published in early 2007.



**Figure 3 Total organic waste collected for composting by Area Waste Plan Region 2004/5**



#### **2.4 Collection Distribution by Local Authority Type 2004/5**

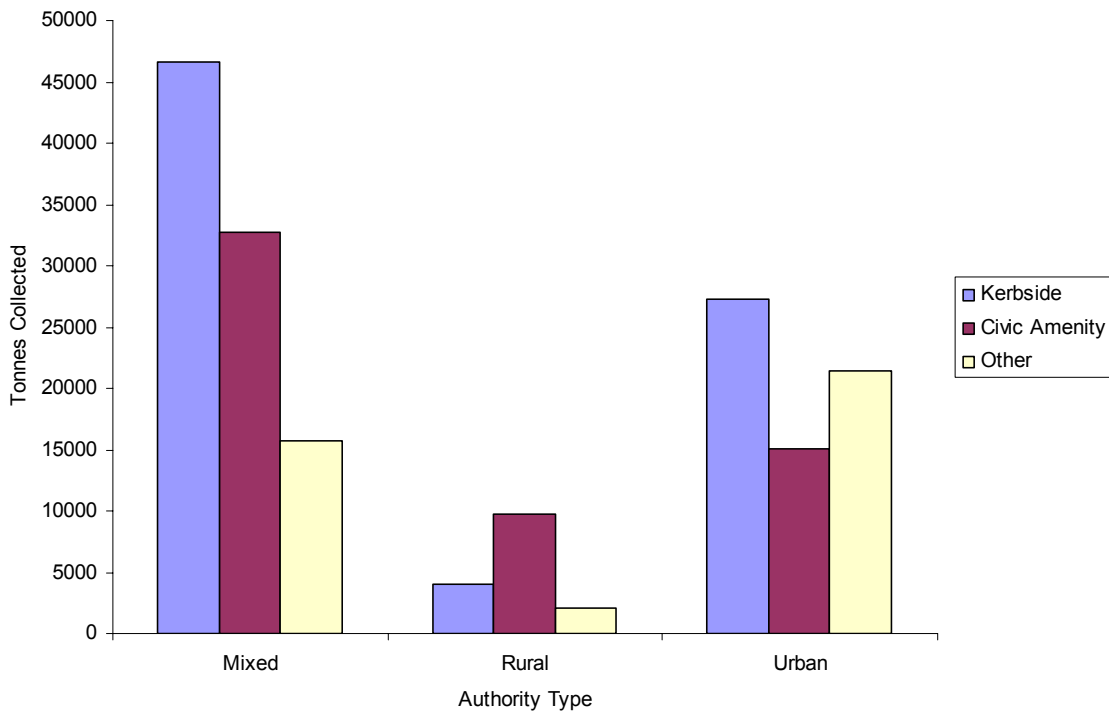
An interesting area of analysis to be explored further is that of assessing the performance of differing authority types in order to ascertain where each authority type is yielding most of its organic tonnage for composting.

From the data presented it would appear that mixed councils have a relatively common split between kerbside, civic amenity and other sources, where kerbside is the dominant supplier of organic waste into composting, followed by civic amenity sites with some additional tonnage being presented from other sources.

Rural councils however, appear to be somewhat dependant on civic amenity sites for their green waste arisings, although there is some evidence to suggest that this is primarily due to the fact that the councils who are grouped in the rural category include those whose diversion strategy is not based heavily upon a segregated green waste collection such as Aberdeenshire, Dumfries and Galloway and Argyll and Bute. In addition it is suspected that there may be a relationship between the roll out of home composting units and the level of green waste arisings collected by local authorities, although this would require additional analysis on the level of waste minimisation this delivers for particular authorities.

An interesting point presented from the data is that it would appear that urban councils are yielding more organic material for composting from “other” sources than civic amenity sites. It is suggested that this is perhaps due to the integration of wastes from parks, gardens or grounds which traditionally are more present in larger urban cities. North Lanarkshire for example collected over 70% of its material in 2004 – 2005 from local authority owned parks, gardens or grounds.

**Figure 4 Total organic wastes collected for composting by local authority type 2004/5**



## 2.5 Collections per Household by Local Authorities 2004/5

The analysis of collections per household by local authorities is a problematic area of analysis to analyse with a historical dataset. In principal it is always advisable to ascertain a collection in kilograms per household serviced by that collection scheme.<sup>6</sup>

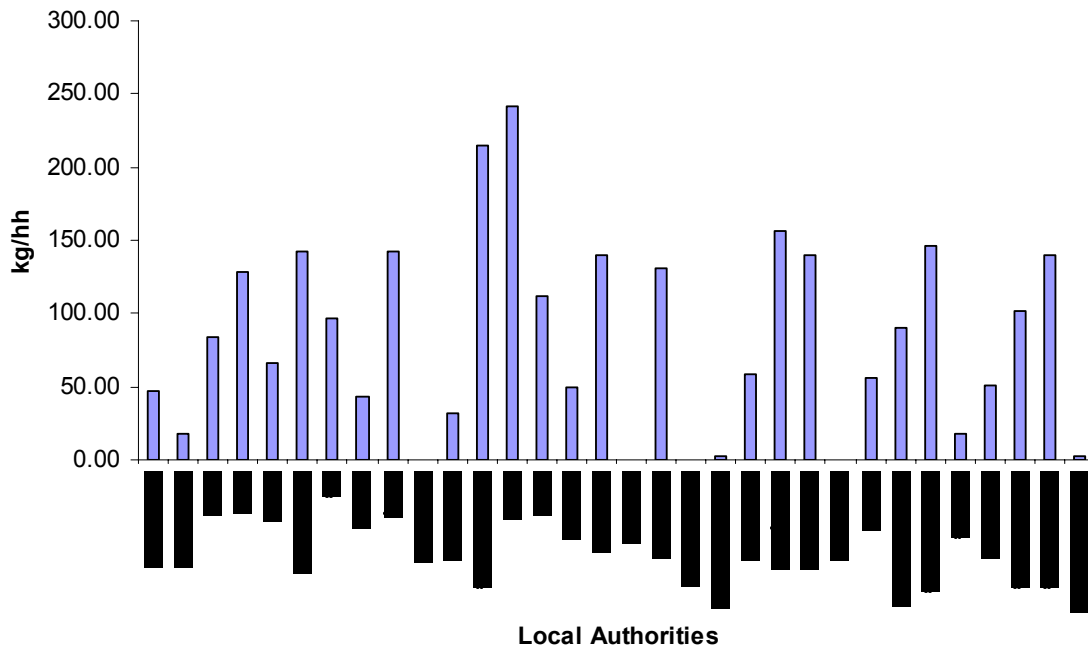
*However, this analysis presents the total organic wastes collected per household total by local authority<sup>7</sup> due to a lack of information on the percentage completion of roll out of segregated collection services in 2004/5.*

This has been considered of importance as this shall allow some rationalisation of the data presented on area waste plan regions and authority types. For example, we are aware that Glasgow City Council, South Lanarkshire Council and Fife Council provide more organic waste for composting than any other council. However, it is interesting then to note that, per household, Stirling Council and Clackmannanshire Council collect and present more organic material.

<sup>6</sup> This data is unknown and as such all kilograms per household analysis is based on the total households in a local authority.

<sup>7</sup> Household data taken from National Statistics database at [www.scotland.gov.uk](http://www.scotland.gov.uk)

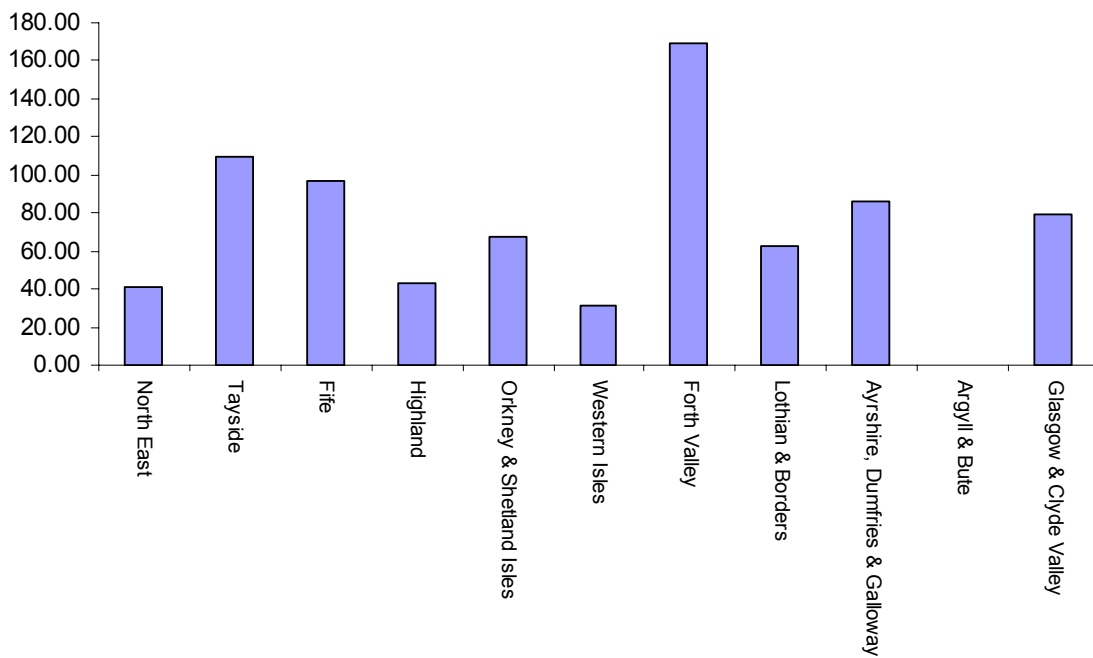
**Figure 5 Total organic wastes collected for composting by local authorities per household 2004/5**



**2.6 Collections per Household by Area Waste Plan Region 2004/5**

In addition to the variance shown in the per household performance by local authority, whilst it is known that Glasgow and Clyde Valley presents more organic wastes for composting than any other area waste plan region, it is interesting to note that, per household, Forth Valley collected most organic waste with around 168 kilograms per household.

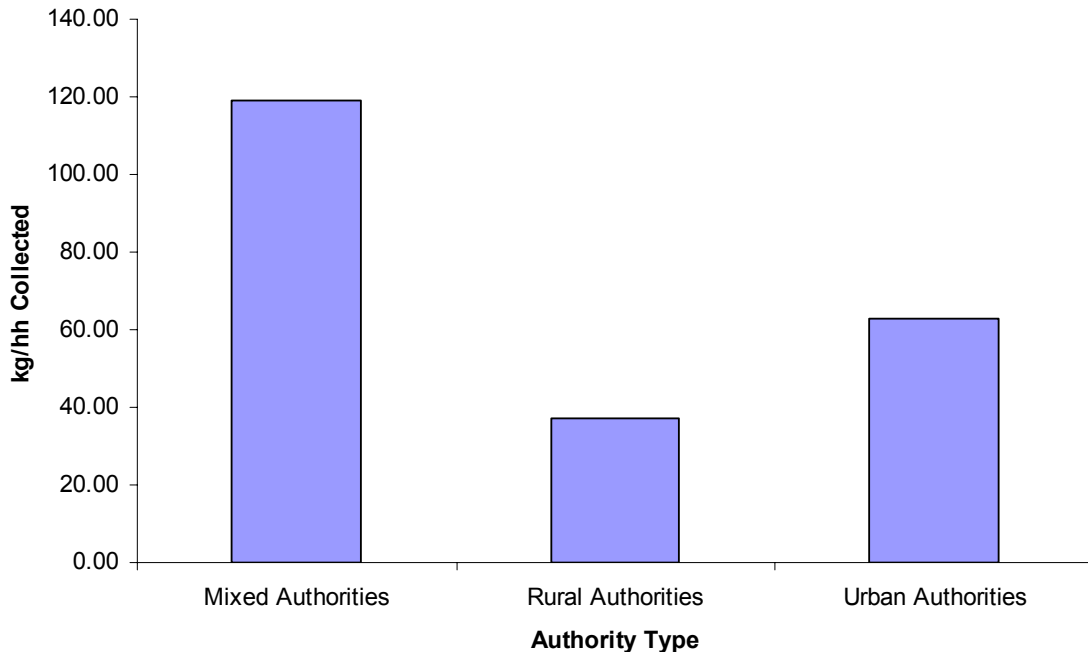
**Figure 6 Total organic wastes collected for composting per household by AWP Region 2004/5**



## 2.7 Collections per Household by Authority Type 2004/5

On average, mixed authorities yielded more organic waste for composting per household than either urban or rural councils. The extent to which this is significant remains unclear, and should only be analysed in the context of those authorities ability to meet diversion targets. However, from the data presented, mixed councils collected almost double the tonnage of organic wastes per household than that of urban authorities, and more than three times that of rural authorities.

Figure 7 Total organic wastes collected for composting per household by authority type 2004/5



## 2.8 Summary Conclusions on Collection 2004/5

From the data presented and analysed we can ascertain that:

- *Most organic waste collected is by kerbside segregated collection*
- *The highest tonnage collected in total was in South Lanarkshire, Glasgow City and Fife*
- *The highest tonnage of collection occurred in Glasgow & Clyde Valley Area Waste Plan Region*
- *Mixed authorities had a common split of collection method, whilst rural areas depended more on civic amenity site performance, with urban authorities showing some preference to other sources such as parks and gardens*
- *Per household the greatest tonnage collected was in Stirling and Clackmannanshire*
- *Per household the greatest tonnage collected by Area Waste Plan occurred in Forth Valley*
- *Per household mixed authorities yielded almost double that of urban authorities and more than three times that of rural authorities.*

### 3 Compost Production and Use

#### 3.1 Total Composted Product by Local Authority 2004/5

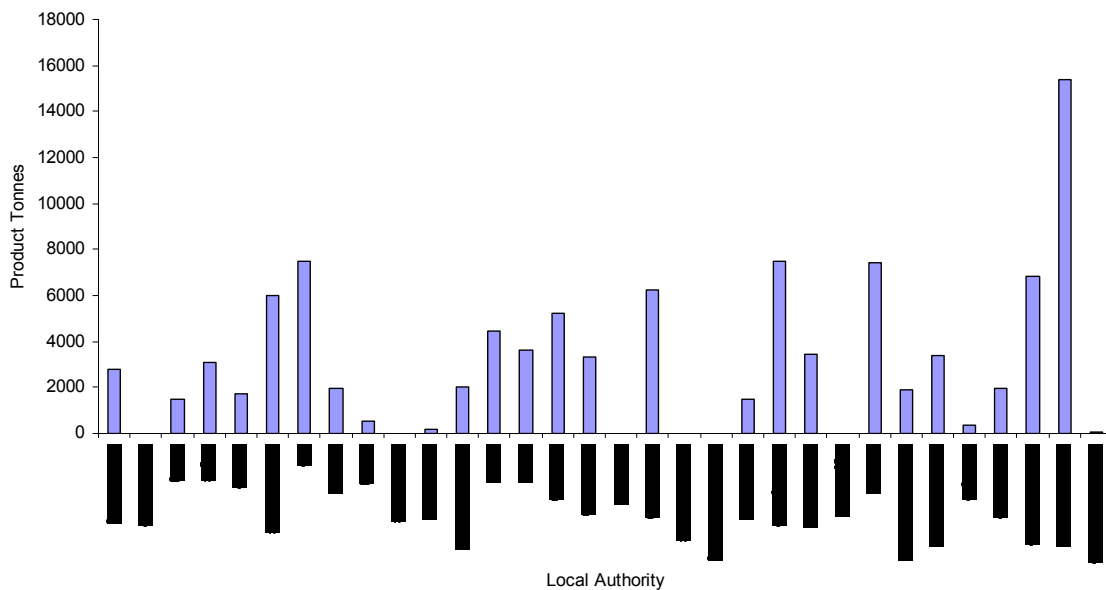
The analysis of total composted product is considered to be of importance as this allows for a focus to be placed on those regions that are producing a quantity of quality compost that could potentially service a large scale marketplace, such as landscaping or site remediation and restoration.

In addition this analysis allows all stakeholders to make decisions on marketing and selling strategies based on the estimated and potential yield of compost in that area, and in comparison to the larger composting community, in order to ascertain whether smaller scale sales to localised industry would be of more strategic stability.

From the data provided it would appear that around 57% of all organic waste collected for composting is converted to quality compost with around 43% lost in the process as moisture and respired gases. This corresponds to around 99,850 tonnes of composted product.

Of this 99,850 tonnes of compost South Lanarkshire Council provided the largest quantity of material to the marketplace and accounted for over 15% of the total tonnage produced.<sup>8</sup>

Figure 8 Total estimated composted product by local authorities 2004/5

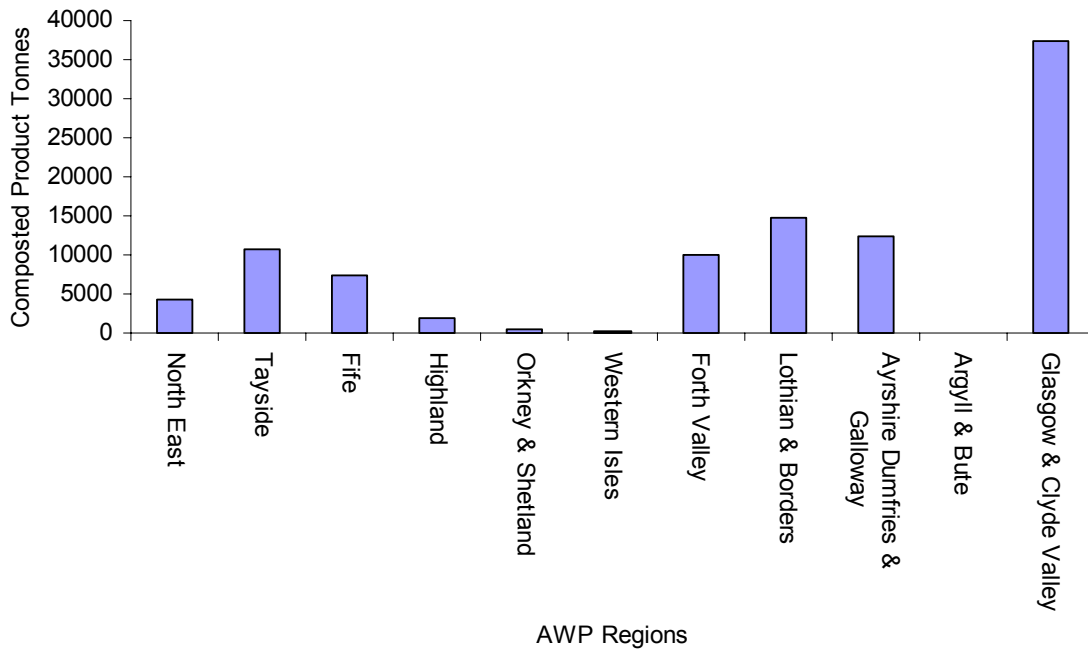


#### 3.2 Total Composted Product by Area Waste Plan Region 2004/5

An analysis of the total composted product output by Area Waste Plan regions shows the continued dominance of the central belt with Glasgow and the Clyde Valley presenting more material to the marketplace than any other AWP region with over 37% of the total composted product output.

<sup>8</sup> South Lanarkshire figures for composted product require additional verification as they assume a minimal loss of moisture and mass.

Figure 9 Total estimated composted product by Area Waste Plan Regions 2004/5



### 3.3 Compost Producers in Scotland

At present there are twelve composting sites in Scotland that have successfully been certified, or are working towards certification to the PAS 100 scheme for quality composts. Of those working to PAS 100 requirements there are two local authorities, one utilities services provider, three waste management services providers, and five companies that have taken a vertical integration route into composting.

Table 1 Compost producers in Scotland

<b>Local Authorities</b>	Stirling Council Fife Council
<b>Utilities Services</b>	Scottish Water
<b>Waste Management Companies</b>	William Tracey Snowie Ltd Barr Environmental
<b>Diversification</b>	GP Green Keenan Recycling Limited Tarmac (West Lothian) Forth Resource Management AW Jenkinson <sup>9</sup>

The geographical location of these companies can be mapped out to ascertain the coverage “on the ground” of PAS 100 quality compost producers. As the present status of contracting in Local Authorities is unclear it has been assumed that each of the service providers shall be focussing their service provision in their own Area Waste Plan region.

<sup>9</sup> AW Jenkinson are based in Cumbria, but are assigned as Scottish in the PAS 100 Suppliers List for November 2005

*Table 2 Compost producers in Scotland by area waste plan region*

<b>PAS 100 Composting Service Provider</b>	<b>Area Waste Plan Region</b>
Keenan Recycling Limited	North East
Fife Council	Fife
Scottish Water	Glasgow and Clyde Valley
GP Green	Glasgow and Clyde Valley
Snowie Ltd	Forth Valley
Stirling Council	Forth Valley
Tarmac (West Lothian)	Lothian and Borders
Forth Resource Management	Lothian and Borders
William Tracey	Ayrshire, Dumfries & Galloway
Barr Environmental	Ayrshire, Dumfries & Galloway
AW Jenkinson	Ayrshire, Dumfries & Galloway

There appears to be relatively equitable split in terms of PAS 100 quality compost service providers in the dominant areas of collection, these being Lothian & Borders, Ayrshire, Dumfries & Galloway and Glasgow and Clyde Valley. It is suggested that there is little scope for more new start business in Fife and in Forth Valley, as both Fife Council and Stirling Council shall seek to maximise their efforts by retaining the largest quantity of organic waste possible.

As such, one can expect there to be no new significant entry into the green waste market, with the possible exception of the new TEG Environmental facility in Perth & Kinross, which has not been included in this analysis as it is not presently operational, or listed by the Composting Association as having made application for PAS 100 certification.

### **3.4 Product Application by Region**

*Table 3 Compost products by area waste plan region<sup>10</sup>*

<b>Area Waste Plan Region</b>	<b>Compost Products Produced</b>
Forth Valley	Soil Improver 0-10mm Soil Improver 0-16mm
Fife	Soil Conditioner 0-25mm
Glasgow and Clyde Valley	Soil tonic 0-20mm Soil guard <75mm & >10mm, Soil booster 0-20mm Soil Improver 0-20mm
Ayrshire, Dumfries & Galloway	Soil Improver 0-10mm Soil Improver 0-25mm Soil Improver 0-75mm
North East	Turf dressing 0-5mm Soil Improver 0-12mm Mulch/agriculture 0-40mm
Lothian and Borders	Soil Improver 0-10mm Soil Improver 0-40mm

In order to ascertain the key markets for composted product it is clear that an understanding of the products produced and their regionalisation is required. Clearly there is dominance in the marketplace in the production of soil conditioners / improvers in the region of 0 – 20mm. It is suggested that the 0 – 20mm fraction is where the majority of the post processed tonnage

<sup>10</sup> Data taken from the Composting Association PAS 100 Suppliers List November 2005

is apparent and thus gives composters a greater ability to provide equitable balance between process cost and product sales.

Typically a soil conditioner can be “any material added to soil to improve its structure, texture, tilth or drainage” and as such this gives a broad scope for the supply – demand element of this product. As such we can assume that the broad range of soil conditioners (occasionally referred to as soil improvers) that are characterised as between 0 – 75mm, are being produced due to the inherent flexibility they offer in terms of the sales approach.

In addition from research undertaken by WRAP<sup>11</sup>, soil conditioners in the 0 – 20mm range appear to have the greatest potential in terms of novel and substitute application options as it can be utilised successfully in:

- Arable Agriculture
- Root Crops
- Planting Beds
- Turf Establishment
- Turf Top Dressing (excluding fine top dressing)
- Tree & Shrubs
- Topsoil Production

From the WRAP research those soil conditioners that exceed the 25mm range are not regarded as suitable for applications other than:

- Soil Improvement in Arable Agriculture
- Mulch Applications

It is suggested that further research and primary data collection from compost producers/sellers be undertaken to ascertain a more comprehensive picture of the production and sale of these various products to the marketplace. In addition it would be useful to correlate the production of products to the dominant land use in each region, in order to deduce whether it would be more prudent to produce a more specific product that would be of use in that area (i.e. production of a >25mm soil improver in a predominantly rural/agricultural location).

However, what can be ascertained is that each of the area waste plan regions has a dominant production of a multipurpose product, 0 – 20mm compost, that can, if correctly manufactured, compete with existing products across a broad range of markets.

### **3.5 Summary Conclusions on Production and Use**

From the data presented and analysed we can ascertain that:

- *Around 57% of all organic waste collected for composting is converted to quality compost. This corresponds to around 99,850 tonnes of compost product.*
- *South Lanarkshire Council provided over 15% of the total tonnage produced.*
- *Glasgow and the Clyde Valley presented over 37% of the total compost product.*
- *There are twelve composting sites in Scotland that have successfully been certified, or are working towards certification to the PAS 100 scheme for quality composts.*
- *There appears to be relatively equitable split in terms of PAS 100 quality compost service providers in the dominant areas of collection, these being Lothian & Borders, Ayrshire, Dumfries & Galloway and Glasgow and Clyde Valley*
- *There is dominance in the marketplace in the production of soil conditioners / improvers in the region of 0 – 20mm.*
- *Each of the area waste plan regions has a dominant production of a multipurpose product, 0 – 20mm compost, that can, if correctly manufactured, compete with existing products across a broad range of markets.*

---

<sup>11</sup> Organics Fact Sheets 1 – 7 available from WRAP at [www.wrap.org.uk](http://www.wrap.org.uk)



## 4 Gate Fees

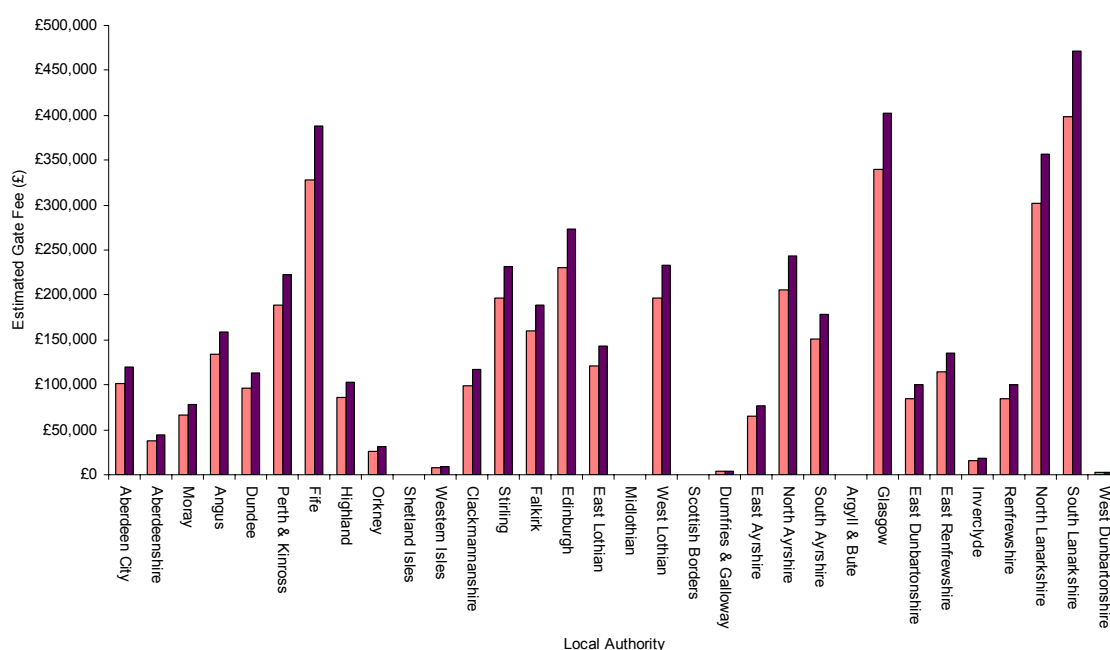
### 4.1 Estimated Gate Fee by Local Authority 2004/5

The estimated gate fee is calculated by establishing the total tonnage collected for composting and a “market rate” for gate fee of compostable materials. Due to a lack of feedback from authorities on the gate fee paid for compostable materials, the “market rate” was taken as the low and high averages as presented in *letsrecycle.com*<sup>12</sup> and *Materials Recycling Week*.<sup>13</sup> The low value for gate fee is taken as £22 and the high at £26.

The estimated gate fee is the first set of data in calculating the GBP **value** of the present green waste composting industry in Scotland. As one would expect the highest estimated gate fees paid are in areas where there has been the highest recovery of compostable materials. However, Remade would expect that there would, in reality, be some reduction in gate fee due to the economies of scale implied in the increase in green waste delivery. To this extent, these figures remain as estimates based on “market knowledge”, with further work required ascertaining a full knowledge of the “true” gate fee cost.

The total value of gate fee for green waste in Scotland in 2004 – 2005 is estimated at between £3.8 million and £4.5 million.

**Figure 10 Estimated gate fees paid by local authorities for organic wastes for composting 2004/5**



### 4.2 Estimated Gate Fee by Area Waste Plan Region 2004/5

The estimates on gate fee by AWP region show Glasgow and Clyde Valley and Lothian and Borders to be the most attractive in terms of gate fee received based on the average rate achieved. This analysis also shows the perceived gate fee “savings” that are being achieved by those local authorities, such as Argyll & Bute, that are not following a segregated collection and processing strategy.<sup>14</sup>

<sup>12</sup> Data taken from letsrecycle.com on 3<sup>rd</sup> April 2006

<sup>13</sup> Data taken from MRW from January 2006, February 2006 and March 2006

<sup>14</sup> Argyll & Bute Council utilise a mixed waste composting strategy

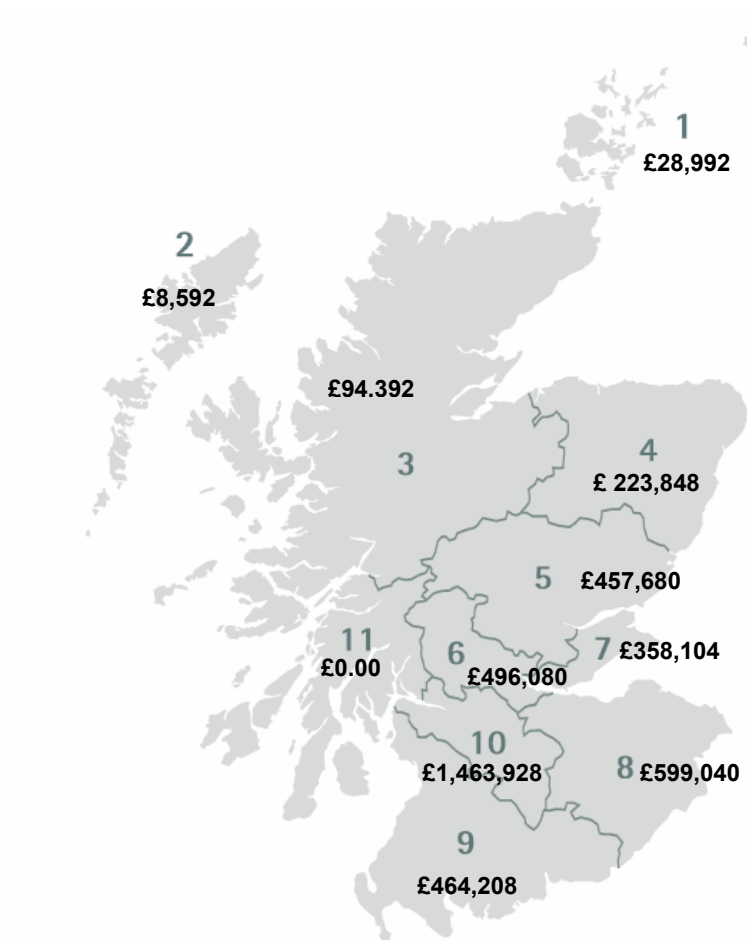


Figure 11 Estimated gate fees paid by Area Waste Plan Regions for organic wastes for composting 2004/5

#### 4.3 Estimated Gate Fees Paid by Private Sector / Public Sector Distribution

A key element of the estimation of the composting market in Scotland is in understanding the distribution of the inherent wealth in the composting of organic wastes. It is known that some local authorities collect and compost organic material themselves, and therefore have no requirement for any assistance from the private sector. This can have an effect on the GBP value of the composting industry in area waste plan regions in terms of investment and diversification of services, as this is more commonly associated with private enterprise rather than a “risk conscious” public sector.

The local authorities that are known to collect and compost organic wastes themselves are:

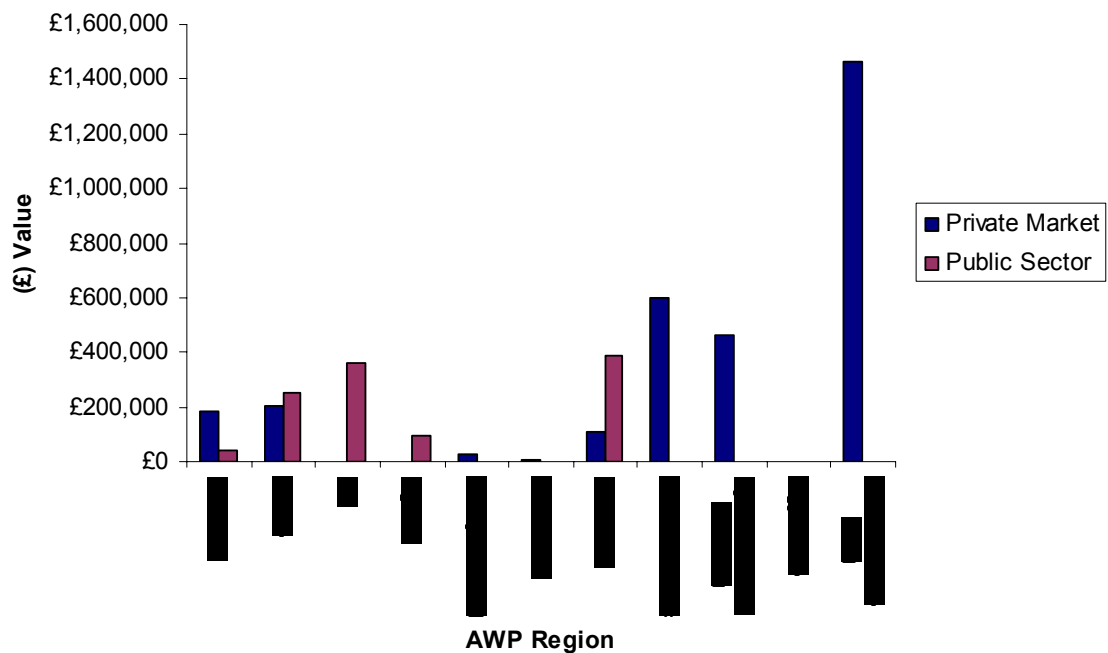
- Aberdeenshire Council<sup>15</sup>
- Angus Council
- Dundee City Council
- Fife Council
- Highland Council
- Stirling Council
- Falkirk Council

<sup>15</sup> It is understood some material from Aberdeenshire is processed by Keenan Recycling, this has been taken into account in the figures

To this extent the distribution of gate fees that are paid out to private and public sector (if the same average gate fee rate is applied) should be 72% private enterprise to 28% public sector.

In principal this means that of the arithmetic mean gate fee total of £4,191,864, the private sector would receive £3,061,848 with £1,133,016 being paid internally between local authority departments. However, this analysis should be treated with caution as it is unlikely that local authorities are charging a “full market rate” to internal customers. For the purposes of a wider analysis however, the use of this figure is justified.

Figure 12 *Estimated gate fees paid by private/public distribution 2004/5*



#### 4.4 Summary Conclusions on Gate Fee 2004/5

From the data presented and analysed we can ascertain that:

- *The total value of gate fee for green waste in Scotland in 2004 – 2005 is estimated at between £3.8 million and £4.5 million*
- *Estimates on gate fee by AWP region show Glasgow and Clyde Valley and Lothian and Borders to be the most attractive in terms of gate fee received based on the average rate*
- *The private sector receives as an average £3,061,848 with £1,133,016 being paid internally between local authority departments based on application of the “market rate” gate fee*

## 5 Product Value

### 5.1 Estimated Product Value by Local Authority 2004/5

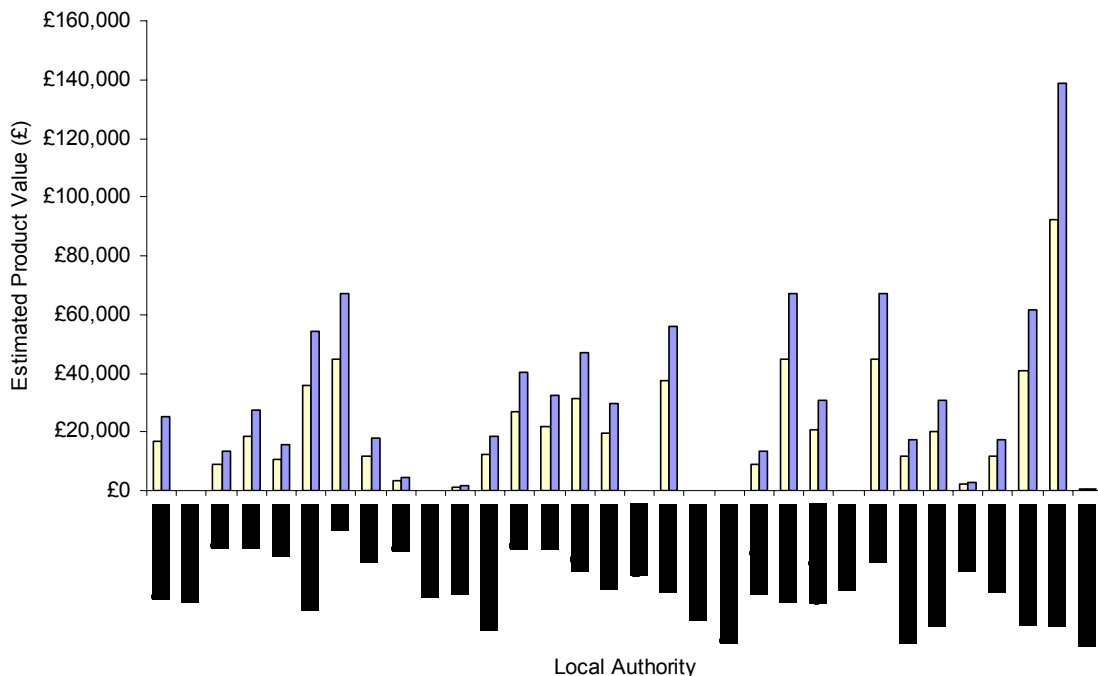
The estimated product value analysis looks at the total tonnage of product that has been presented by each local authority and utilises the present “market rates” from letsrecycle.com and MRW to establish what “GBP value” there is in the “product”.

The low value for green waste compost is given as £6, with a high rate of around £9 per tonne based on an estimated of 600kg per m<sup>3</sup> of green waste compost.<sup>16</sup>

As such the total estimated product value in Scotland in 2004 – 2005 was between £599,000 and £899,000.

In effect, this means that the estimated product value comprises between 15.5% and 19.7% of the total estimated revenue of the service provided.

Figure 13 Estimated compost product value by local authority 2004/5



### 5.2 Estimated Compost Product Value by Area Waste Plan Region 2004/5

Estimated product values can provide a useful tool in terms of predicting where the focus of future efforts in maximising sales and marketing support should lie. At the present time, the estimated product value is taken as an average rate, and as such the areas that are producing most product are shown as having the highest product value.

However it is known that, as in any market, supply and demand economics shall play an integral part in establishing the actual value of the product in its regional marketplace. This is especially true in an industry that is predominantly governed by variables such as fuel and haulage.

To all intents and purposes therefore, the compost values as presented on this regional analysis should be presented as a baseline to be established for further analysis.

<sup>16</sup> Figures presented were ascertained at the same point as the gate fee figures presented

What has been illustrated by the presented data is that of the estimated mean total product value for Scotland of £748,905 there is a continued dominance in the central belt where Glasgow and Clyde Valley account for over 37% of the total value.

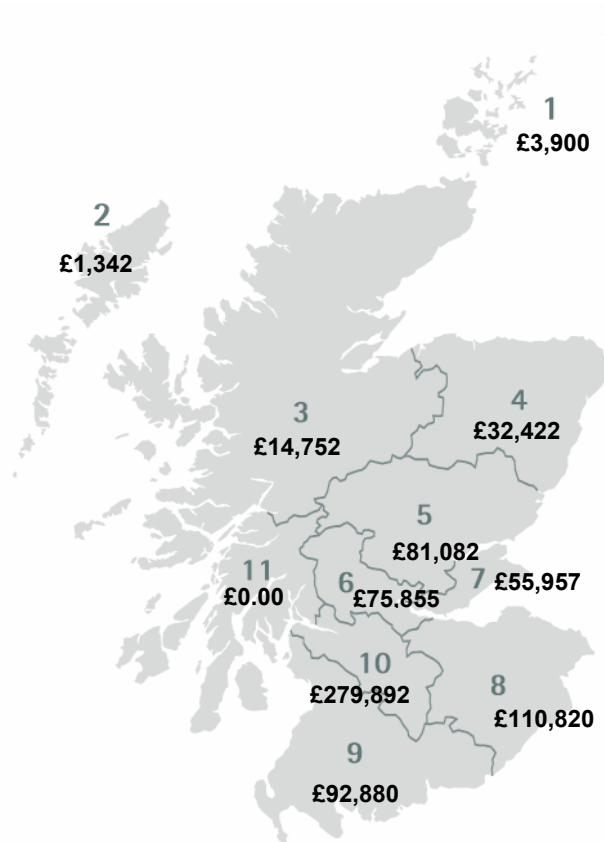


Figure 14 Estimated compost product value by AWP Region 2004/5

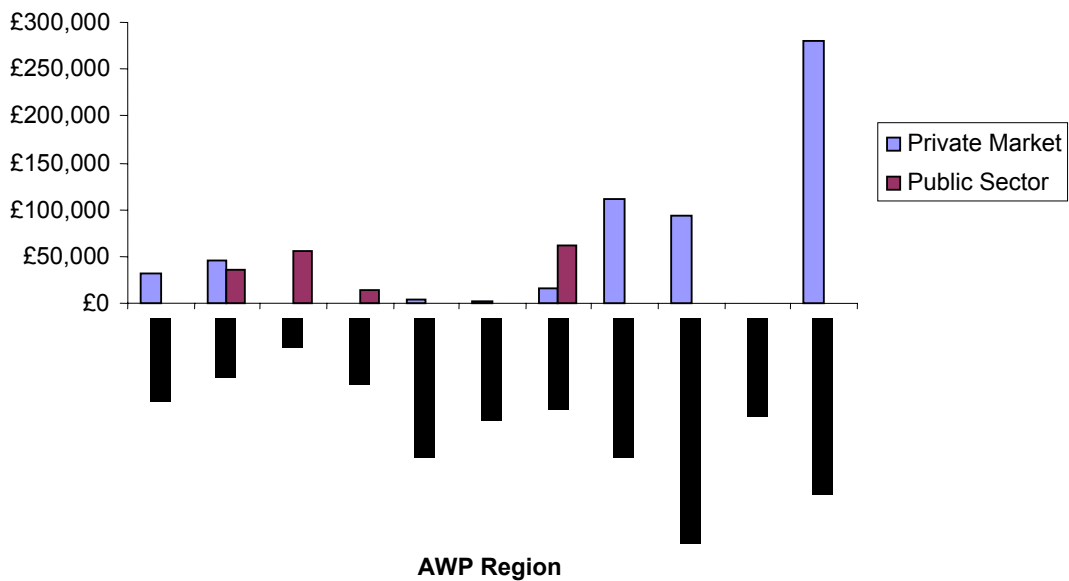
### 5.3 Estimated Compost Product Value by Private Sector / Public Sector Distribution

In a similar vein to section 4.3, it is of importance to take into consideration the distribution of product value between that compost which will be produced by the private sector and that which will be produced by local authorities. As section 4.3 explains, not all collected organic waste is composted by the private sector and as such, there will be a percentage of compost that will be “sold or utilised” (that would otherwise be available for sale) by local authorities.<sup>17</sup>

This relationship is of importance due to the fact that, as commercial composting seeks to create a demand for quality compost, there is a dependence on the public sector to maintain that approach and continue to work to “market rates”. Any move outwith the “market rate” in the commercial composting industry could potentially undermine the advancement towards a more sustainable relationship between gate fee, product value and operating balance.

<sup>17</sup> In addition it is known that several private commercial composters use the material on site as opposed to marketing and selling this on the open market.

Figure 15 *Estimated compost product value by private/public distribution 2004/5*



Calculated at the arithmetic mean of the present high and low rates there is a split in the value of the product between the private sector, which presently has an estimated compost product value of £581,505 (77.65% of the total value) and the public sector which retains an integral product value of £167,400 (22.35% of the total value).

#### 5.4 Summary Conclusions on Product Value 2004/5

From the data presented and analysed we can ascertain that:

- *The total estimated product value in Scotland in 2004 – 2005 was between £599,000 and £899,000.*
- *The estimated product value comprises between 13.5% and 16.5% of the total estimated revenue of the service provided.*
- *Of the estimated total product value average for Scotland of £748,905 there is a continued dominance in the central belt where Glasgow and Clyde Valley account for over 37% of the total value.*
- *The private sector presently has an estimated compost product value of £581,505 (77.65% of the total value)*

## **6 Conclusions and Recommendations**

### **6.1 Conclusions**

From the 2004 - 2005 data presented it would appear that Scotland's composting sector is developing effectively and is now composting over 174,000 tonnes of green waste organic material, producing more than 99,000 tonnes of quality compost. However there are some key areas of importance highlighted by the report which shall require additional improvement and progress in order to sustain growth in the sector.

#### *Economic Stability*

A key consideration in the ongoing assessment of the sustainability and economic stability of the composting marketplace shall be the shifts in the source of revenue, from gate fee to product sales. At present the dominance of the gate fee as the key source of income is indicative of an industry which has yet to flourish in terms of end use sales and marketing. It is understood that this will be a key area for stakeholders and support organisations over the next 24 months.

#### *Compost Value and Final Utilisation*

In line with the economic stability of the composting sector there is a legitimate concern over the final utilisation of the compost product and how this may undermine the value of the material and exacerbate the issues outlined above. At present there are five main producers of quality compost to the 'end user marketplace', with the remaining participants in the composting sector utilising the material on site. Whilst it is agreed that this provides benefits to some producers and local authorities, there is a requirement on all stakeholders to ensure that a quality driven compost market is perceived to deliver a high quality and high value product irrespective of whether it is sold or used on site. In effect, there is a requirement for all stakeholders in the organic waste composting industry to recognise that the stability of the market is dependant on following a commodity paradigm as opposed to a landfill diversion strategy.

#### *Supply and Demand*

While this report provides a summary of compost production and its distribution, more work shall be required to ascertain whether the supply and demand models that are being sought are pragmatic and justified. In short, all support organisations should be aware that excess demand can be as harmful to this burgeoning industry as excess supply due to the manner in which the organic material is collected and it's potential for expansion. It should be remembered that the key point in this supply chain is Local Authority based collection schemes, which have a finite capacity for growth. Additional work shall be required to ascertain the level of demand on a regional basis and link this with the estimated supply 'to the end user marketplace' in those regions from quality compost suppliers.

#### *Markets and Product*

As presented in the report the dominant compost product in Scotland is the soil conditioner in the 0-10mm and 0-20mm range. As alluded to above, additional research shall be required to ascertain whether the continued production of this material will satisfy the potential markets in each region. In 2005 Remade Scotland produced a market research report on the potential total consumption and consumers of quality compost in Glasgow and the Clyde Valley. However, further research into other AWP regions is required, with a concise focus not only on the estimates of consumption, but also the specification of material that would be required to satisfy that latent demand. As such Remade Scotland shall be engaging in this market research for Lothian and Borders in 2006.

## **6.2 Recommendations**

Whilst this report provides a snapshot of the composting industry in 2004 – 2005, it is understood that more research and independent analysis is required to provide a more current set of analyses. As such a programme of work is required to unpick the various elements of the impact that organic waste composting has on the National Waste Strategy, the LAS targets, and how the sector is poised to develop and grow.

### *Data Collection*

More current data is required from Local Authorities, not only in terms of waste arisings, but also in terms of gate fees paid, contracts held and also on the roll out of organic waste schemes. In addition, more information is required from the composting community in terms of the final use of the material, and the revenue derived from product sales. It is intended that this type of analysis shall allow stakeholders and support organisations to have an accurate picture of the stability and sustainability of the industry and its potential for development.

### *Impacts Analysis*

A central aspect to the impact that organic waste schemes can have, is the interrelationship between the available options. In particular, additional analysis is required to ascertain the effect that home composting, and large scale mixed waste composting will have on the PAS 100 oriented composting industry as this will effectively limit feedstocks in certain areas. As such the regionalisation of production and use shall become increasingly evident, and indeed, stakeholders must react by taking necessary steps to focus on the key regions where support shall be required.

### *End Users Surveys*

The majority of organic waste compost end user surveys have been initiated in waste, environmental and regulatory organisations and in particular WRAP, Remade Scotland and the Composting Association. To date there have been successful liaisons with BALI and the Landscape Institute among others, although it is fair to say that response rates have not been as high as expected. It is therefore recommended that high level talks are requested of the leading support organisations for the end users that Remade, WRAP and the Composting Association have indicated, with a view to initiating a more comprehensive approach to assessing end user attitudes to organic waste composts. It is intended that this should allow a more cohesive and focussed programme of activity to be undertaken in providing support to the composting industry in Scotland.