



**GLASGOW & CLYDE VALLEY
REGIONAL**

COMPOST MARKET RESEARCH

SUMMARY OF RESULTS

MAY 2005

EXECUTIVE SUMMARY

With significant volumes of composts now available in the Glasgow and Clyde Valley region, and more coming, REMADE Scotland contracted R. Alexander Associates, Inc. (RAA) to complete quantitative market research for the region. The focus of the research was to quantify the current use of green compost, as well as determine realistic current replacement markets for green compost, focusing on 'paying markets' (higher value) for compost. Both mailer and telephone surveying of the potential end users of *green* compost, produced from recycled local authority feedstocks, was conducted in order to obtain market data.

The Glasgow and Clyde Valley region of Scotland possesses a substantial population within eight (8) local authorities including; Glasgow, Inverclyde, East and West Dunbartonshire, North and South Lanarkshire, Renfrewshire and East Renfrewshire.

Based on the market research collected, the following table provides estimates of current green compost usage, as well as estimated volumes of compost that could currently be utilized when replacing similar products in a realistic fashion. Replacement figures were made conservatively, and were based on the technically proper usage of compost (research based) and realistic market penetration estimates.

Current and Projected Green Compost Usage

Market Segment	Estimated Current Usage (m ³)	Estimated Market Size with Replacement Figures (m ³)
Councils/Local Authorities	13,000	17,113
Garden Centres / Retail Nurseries (plus mass merchants)	1,582	11,702
Golf Course/Sports Grounds	6,311	12,730
Historic Buildings and Stately Homes / Parks and Gardens	756	840
Landscapers (landscapers, gardeners)	6,908	49,183
Schools / Universities	0	0
Turf and Soil Supplies	0	847
Wholesale Nurseries	0	1,692
TOTAL	28,557	94,107

The market research also identified several competing products for green compost. They differ because some are direct competitors to green compost (e.g., other composts, peat, peat reduced), while others are products that compost can replace in very specific instances, or where compost can be used in their manufacture (e.g., topsoil, growing media, and topdressing). Aside from green compost, 'other' composts also marketed in the region are forestry waste, mushroom soil and manure-based products. Some of the competing products, such as topsoil and topdress, are primarily marketed in bulk form, whereas the peat and peat reduced are primarily marketed in bagged or baled form. The other composts and mulch are actively marketed in bulk and bagged form.

Latent demand, which is represented as the estimated market size with replacement figures (94,107 m³) can, and no doubt will, be expanded, through education and competing interests as the market matures. It is feasible that this 'potential' demand could be double, triple or quadruple the latent demand. However, it is difficult to estimate this figure at the markets current maturity level.

Several things must occur in order for Glasgow and Clyde Valley composters to realise the benefits of this latent demand, and access high value markets. They are:

1. More composters in the Glasgow and Clyde Valley region need to hire compost sales people (individuals who sell compost on a full time basis). Experience has shown that the more 'sales' activity that takes place in a given region, the faster the markets for compost expand.
2. Improve product availability. Since green compost is already available in the market, this is more a function of promotion. End users don't know that product is available. Further, developing the proper distribution channels for the product, so that it can be purchased in smaller bulk quantities, must also be worked out.
3. A compost use and benefit educational program, directed primarily at landscape architects (both public and private), landscapers and other high volume/price prospects, must be initiated.
4. Work on keeping the cost of the compost competitive, or better, than products we are trying to displace. Some of the bagged peat free and peat-reduced products are more expensive than peat. This situation does not favour rapid displacement of the industry's leading product.
5. Composters will need to consider either producing compost blends in order to penetrate some of the market segments listed above or aligning themselves with 'soil' blenders to do so. These blends should include compost 'manufactured' topsoil, growing media and topdress mixes.
6. Compost producers should consider implementing a packaging (bagging) program or aligning themselves with a contract packager if they want to penetrate the mass merchandisers (e.g. B&Q) and the area garden centres. Educating home gardeners through the sale of product in bagged form is also key to product acceptance and market expansion.
7. Expand government usage and specification of green compost. It is obvious that much of the landscaping work is initiated or controlled by government entities (e.g., parks, football pitches, Councils). All of the Councils must show a commitment to using green compost as an alternative to the various soil ameliorants (e.g., peat, spent mushroom compost), topsoil and even mulch. It is likely that the Glasgow and Clyde Valley Councils could use 100,000 to 200,000 cubic metres of compost per year if they aggressively specified it.
8. Expand compost use education and promotion in general, perhaps through a cooperative effort of all of the producing Councils. Make end users aware of the benefits and uses, and of the environmentally 'friendly' nature of the product.

TABLE OF CONTENTS

	<u>Page #</u>
1.0 BACKGROUND AND PURPOSE	4
2.0 METHODOLOGY	5
3.0 MARKET AREA	6-7
4.0 RESEARCH FINDINGS	8
4.1 MARKET SECTORS	8
4.1.1 Councils/Local Authorities	
4.1.2 Garden Centres/Retail Nurseries	
4.1.3 Golf Course/Sports Grounds	
4.1.4 Historic Buildings and Stately Homes / Parks and Gardens	
4.1.5 Landscapers	
4.1.6 Schools and Universities	
4.1.7 Turf & Soil Supplies	
4.1.8 Wholesale Nurseries	
4.1.9 Other Compost Markets	
4.1.9.1 Landscape Architects	
4.1.9.2 Agriculture	
4.1.9.3 Reclamation Lands	
4.2 MARKET ESTIMATES	18-19
4.3 COMPETING PRODUCTS	19-20
4.4 MARKET EXPANSION	20-22
4.5 COMPOST CHARACTERISTICS	22
5.0 CONCLUSIONS AND RECOMMENDATIONS	22-24

1.0 BACKGROUND AND PURPOSE

REMADE Scotland is a major initiative that seeks to stimulate, develop and strengthen recycled material markets in Scotland. The recycling program was launched in August 1999. It has a fundamental part to play in bringing about change, and improving Scotland's recycling performance by supporting an emerging recycling collection and reprocessing infrastructure in Scotland. This will encourage a more sustainable waste management approach.

Supported by the public and private sector in a unique partnership, the program is developing strategies for priority materials such as:

- glass
- paper/pulp
- organic waste
- wood waste
- plastics

REMADE Scotland's approach to market development for materials made from the organics fraction of the waste stream will be to:

- Promote the development of processing capacity to handle current organic waste arising in a cost effective, value adding manner.
- Link compost producers with potential end users, provide technical assistance to enable producers to meet industry quality standards and customers' needs, and endeavour to breakdown barriers to the increased use of compost.

Changes to European and UK environmental policies have resulted in the implementation of legislation encouraging a shift towards a more sustainable approach in the way we manage our waste. Particularly challenging is the Landfill Directive (EC/31/1991) that requires local authorities to reduce the amount of biodegradable (organic) waste disposed through landfilling.

Organic waste consists of primarily kitchen and garden waste, which account for approximately 20% of the waste arising from households. Although paper and cardboard are also considered organic wastes, they are currently excluded from the REMADE organics program because they can be more effectively dealt through the established recycling industry. In Scotland, householders generate in excess of 700,000 tons of organic waste annually. Further material is also available from numerous commercial premises, wastewater treatment works and farms.

The potential for segregating this waste stream away from disposal is significant, provided that the appropriate waste collection systems are established and that the right type of processing and recycling capacity is developed.

The main alternatives to the landfilling of organic wastes include; composting, anaerobic digestion, incineration, and direct land spreading. Composting is generally seen as the most sustainable option for a variety of reasons, which include 'closing the loop' in relative proximity to where the waste arises and adding value to a waste material. Composting facilities range in size from small-scale community operations and medium sized on-farm operations to large-scale centralized facilities. Larger, centralized composting facilities are now being developed in the Glasgow and Clyde Valley region of Scotland, thus creating greater quantities of compost for sale and distribution.

With significant volumes of composts now available in the Glasgow and Clyde Valley region, and more coming, REMADE Scotland has contracted R. Alexander Associates, Inc. to complete quantitative market research for the region. The focus of the research will be to quantify the current use of green compost, as well as determine realistic current

replacement markets for green compost, focusing on 'paying markets' for compost. The results of that research are contained in the body of this report.

2.0 METHODOLOGY

Both mailer and telephone surveying of the potential end users of *green* compost, produced from recycled local authority feedstocks, was conducted in order to obtain market data, with a goal of contacting approximately 10% of each of the targeted market segments. Standard surveys were developed and used during surveying in order to quantify the use of both existing compost products and competitive, or related 'replacement', products that compost would seek to displace from the market (surveys can be found in Appendix 1). The specific goals of the survey were to identify the types of products used by potential end user groups (market segments), in what quantity, and what barriers or objections had to be overcome in order to increase the quantity of green compost that could be used.

Additional comments regarding the market research and data related to its extrapolation into numerical figures can be found in Appendix 2.

2.1 Market Quantification and Qualification

Each potential market sector was surveyed to determine what products they were currently using for soil or media amending, or as a stand-alone soil-type product. Both suppliers and end users of these organically based products were surveyed to obtain data regarding the types, price, and form (bag or bulk) of products being used. Information regarding competing product quantities and pricing was also obtained, where possible, with the primary focus being on the quantity of materials used. This information will assist in quantifying and qualifying the market, as well as assist us in providing a picture of current and potential market volumes for compost. By doing this, we can demonstrate to current and potential composters that there is a viable market for green compost in the Glasgow and Clyde Valley region of Scotland.

2.2 Market Constraints

These include a range of factors including product characteristics, price and lack of knowledge (primarily resulting from the limited quantity of green compost available in the area). Specific end users will have their own unique product requirements, as well as other issues that constrain the use of new products. Landscapers and horticultural market sectors will, for example, require a product of good texture, consistency and lack of contamination.

3.0 MARKET AREA

The geographical focus of the market research was the Glasgow and Clyde Valley region of Scotland. Several local authorities or councils are located in this region, and it possesses a significant population base. This population base generates large quantities of organic residuals, which must be managed, and has the potential to use large volumes of compost products (soil ameliorant). Prospective compost users from the following eight (8) local authorities were interviewed during the research: Glasgow, Inverclyde, East and West Dunbartonshire, North and South Lanarkshire, Renfrewshire and East Renfrewshire. A brief review of the demographics of each area is listed below.

Glasgow, with a population of around 600,000, is Scotland's largest city and is the commercial capital of Scotland. The City consists of 17,639 hectares (68 square miles). It

is the UK's largest retail centre after London. Situated in the Central Belt of Scotland, on the west coast, it is easily accessible by road, rail and air. Glasgow is one of Europe's top 20 financial centres and is home to many of Scotland's leading businesses.

Inverclyde is one of Scotland's smallest council areas, home to about 84,000 residents, with excellent transport links to Glasgow and the rest of Scotland. The council contains 61 square miles stretching along the south bank of the estuary of the River Clyde.

Situated just north of Glasgow, East Dunbartonshire covers an area of some 20,172 hectares (77 square miles) and has easy access to major motorways. Approximately 110,000 people live within the council, which is bounded to the north by the Campsie Hills. Local communities include Bearsden, Bishopbriggs, Kirkintilloch, Lennoxton, Lenzie, Milngavie, Milton of Campsie, Torrance and Twechar.

Located in the west of Scotland and stretching from the outskirts of Glasgow to the banks of Loch Lomond, West Dunbartonshire is home to just over 93,000 people.

South Lanarkshire is one of Scotland's most diverse areas, combining all the advantages of a modern, prosperous urban economy with a beautiful rural landscape. South Lanarkshire straddles the upper reaches of the River Clyde, extending into the Southern Uplands. In population terms, South Lanarkshire, with 302,110 people is the fifth largest local authority in Scotland. It covers 177,193 hectares, almost 80% of which is in agricultural use. North Lanarkshire council is home to over 320,000 residents.

The Renfrewshire Council area covers the core of the old county of Renfrew, with the historic towns of Paisley and Renfrew at its heart. Approximately 173,000 people reside in the Renfrewshire Council area. East Renfrewshire council is home to about 83,000 people.

The Glasgow and Clyde Valley region, while only accounting for slightly over 10% of the land area in the country, contains over 35% of the population. There are approximately 1,765,000 of Scotland's 5 million people living within region. Typically, regions possessing similar population densities will generate large quantities of organic residuals, while possessing only a limited number of viable waste management options. As mentioned earlier, they can also possess a significant innate demand for suitable organic amendments to replace peat and reduced peat products, currently being shipped in from other parts of Scotland or other countries. It's an area that, in general, appears to be under going a renaissance away from its industrial roots and towards a higher standard of living and affluence for its citizens. These are favorable conditions for the development of compost markets. Residents should have more time and income to spend on landscaping both their homes and businesses, and a local supply of organic amendments can help meet that need. They will become more aware of the environmental benefits of using a renewable source of material, such as compost, instead of products such as peat.

The region is also undergoing a significant amount of development. Industrial sites are replacing farms, and the housing that must support the workforce needed to staff these businesses must grow accordingly. Mr. Jack Roberts, of the Perthshire Machinery Ring (see section 4.1.9.3, below) estimates that there are only 100 - 200 acres of high value (vegetables, flowers, etc.) agricultural land still being farmed in the region. Some of this includes crops grown 'under glass', in greenhouse operations. There is still an undetermined amount of pastureland in service, but that would not be germane to this study (since compost is not usually purchased for use on lower value crops). Essentially, land has become too valuable for it's development potential, to be placed into agricultural production.

4.0 RESEARCH FINDINGS

This section provides a synopsis of the data obtained during the data collection (surveying) process, as well as market size estimates and information on current compost products and competing products being marketed in the Glasgow and Clyde Valley region.

4.1 MARKET SECTORS

A quantitative market surveying approach was used (or attempted) to evaluate those market segments that historically have proven could both:

- Purchase larger volumes of compost, and
- Pay higher prices for it

Those market segments identified as fitting this description in the region are:

4.1.10 Councils/Local Authorities

4.1.11 Garden Centres/Retail Nurseries

4.1.12 Golf Course/Sports Grounds

4.1.13 Historic Buildings and Stately Homes / Parks and Gardens

4.1.14 Landscapers

4.1.15 Schools and Universities

4.1.16 Turf & Soil Supplies

4.1.17 Wholesale Nurseries

Due to time and budget constraints, potential end users of compost within the agricultural and land reclamation sectors were not surveyed. However, information related to their potential utilization of compost was obtained and provided within the report. Also, discussions related to landscape architects, a group that influences the use of compost and other soil-type products, has been included.

The database used during the project was purchased by REMADE Scotland from the yellow book, as well as other in-house sources. These lists proved to be outdated and inaccurate in some of the market segments, which did have a minor impact on our ability to make contact with the desired number of targeted prospects. We focussed our primary surveying efforts on businesses located in the Glasgow and Clyde Valley region, although market research is not a precise science that is necessarily limited by geography. It is important to note that businesses need not be located within this central region of Scotland to conduct business within it. Further, companies located within the target region, do business outside of it. The target market segment demographics are listed in Table 1.

Table 1 – Market Demographics

End User	Number in G&CV Region	Contact Goal %	Contact Goals
Agriculture	N/A	0	0
Councils/Local Authorities	8	100	8
Garden Centres / Retail Nurseries	92	20	18
Golf Course/Sports Grounds	561	5	28
Land Reclamation Sites (landfills, vacant & derelict land)	2594	0	0
Landscapers (landscapers, gardeners)	400	10	40
Landscape Architects	27	0	0
Historic Buildings and Stately Homes / Parks and Gardens	68	10	7

Schools / Universities	1235	N/A	15
Turf and Soil Supplies	14	50	7
Wholesale Nurseries	23	25	6

Once the market data was obtained, it was placed in a series of spreadsheets in order to allow it to be more easily analyzed. Where mailer survey data was incomplete (making it unusable), these organisations were contacted by the telephone to complete the data set (where possible). Difficulties in obtaining complete data, as a result of the lengthy interview process required to obtain it during the telephone surveying process, also required us to re-contact many organisations.

4.1.1 Councils / Local Authorities

Two Councils (North Lanarkshire and Renfrewshire) are already large end users of green compost that they produce themselves (13,000 m³). There is also a fairly significant demand for compost within the Councils, as a replacement for traditional products such as topsoil. All 8 Councils were surveyed about their annual use of competitive products during the market survey. Seven (7) of the Council's reported using a variety of 'soil' products, with topsoil being the single largest material currently being used, that green waste compost would be able to replace. North Lanarkshire and Renfrewshire are already composting green waste and stated that they are using all that they make on Council grounds, primarily for sport pitch maintenance.

None of the Council contacts had any significant objections to the use of green waste compost, provided that it was consistent, weed free, odor free and reasonably priced. All had a variety of acreage under their maintenance in the form of sport pitches and general landscaping use in parks and schools. A total of 580 pitches were identified, ranging from as few as 28 per Council up to 154 for North Lanarkshire. There are probably even more than this, since some contacts could only estimate. The Councils indicated that their role was maintenance only, and that any new construction was typically contracted out to private firms. Six (6) of the Councils also operate golf courses (17 in total) and several operate greenhouse production operations.

Aside from the green compost currently being used, compost has a great potential to replace topsoil (estimated at almost 25,000 tons per year) in this market segment. Compost is not topsoil, in and of itself, and will require blending with other conventional products to produce a suitable replacement. This can be done by either the compost producer, or by a private reseller/landscape supply facility. The same may apply to the use of compost as sports pitch topdressing. It may well need to be blended with sand to make an acceptable replacement product.

The use of green waste compost by the area Councils will grow, with the appropriate education and with a consistent supply of good quality product. They have the land, the need, and are spending money on other products now. It should also be understood that any of the Councils could undertake a large capital project, at just about any time (e.g., highway construction, reclamation project) that is funded internally or externally. These projects have the capability of using huge volumes of compost (although they are nearly impossible to quantify). This is one of the reasons why 'green procurement' initiatives with the Councils are important to undertake. It is estimated that Councils are currently using 13,000 cubic metres of green compost and could use at least another 4,000 cubic metres of green compost as a replacement for other products. These estimates may be considered low by some, as the Councils may actually represent the greatest long-term market for compost. This is because the Councils (or their contractors) have the responsibility for managing sports pitches and specific roads, as well as large capital improvement projects (potentially including brownfield sites) that encompass landscaping components. Further, much of the product used on Council projects will actually

purchased by private landscapers, when the projects are not managed in-house (which is often the case). The Council's future potential is relative to the overall geographical area for which they are in control.

4.1.2 Garden Centres/Retail Nurseries

This market segment has the ability to supply both the home gardener and professional landscapers. Data was obtained from 25 of the 92 identified garden centres located in the Glasgow and Clyde Valley region (27%). Of those contacted, two were the B&Q and Home Base corporate offices.

B&Q is the largest mass merchandiser in the UK and has an extensive garden centre in all of their stores. A wide variety of peat based, peat-reduced and peat-free products, some of which contain green compost, are currently being sold in bagged form. B&Q possesses a strong environmental interest, and as such, they are actively moving towards the reduced sale and use (in the potted plants they sell) of peat. They maintain an "Office of Environmental Responsibility" and were eager to learn more and possibly participate in a local compost purchasing program, provided that both product quality and pricing met their corporate standards. Over 1,000,000 cubic metres of related products are sold throughout their entire store network. This is broken down as about 0.9 million cubic metres of peat based products and 0.1 million cubic metres of peat 'alternatives', sold by 320 stores in the UK. There are 7 B&Q stores within the Glasgow and Clyde Valley region. Although sales figures from these specific stores were not available, we estimate (based on the information provided) that each B&Q location sells over 2,800 cubic metres of peat-based products and approximately 230 cubic metres of peat alternatives (green compost) per year.

HOMEBASE, the largest DIY store chain in the UK, was also contacted to identify their usage of similar products. They identified an overall usage 75,000 bags of green compost, as well as 8 million bags of peat-based products, 200,000 bags of manure and 400,000 bags of topsoil, within their 300 store system. These figures were also extrapolated down to a per store basis and included in our usage estimates. There are six HOMEBASE stores in the Glasgow and Clyde Valley region. Although mass merchants are not true garden centres, we have discussed them in this section because they are a major supplier to homeowners.

The locally owned garden centres also sell a wide variety of packaged products, and also a limited amount of bulk products. These products included; topsoil, mulch, growing media, and peat based, green or organic composts. Based on sales figures obtained from Glasgow and Clyde Valley region garden centres and mass merchandisers, it is apparent that hundreds of thousands of bags of 'soil type products' are sold in the region. These figures have been extrapolated into cubic metres (primarily).

Thirty (30) percent of the garden centres stated that they sell green compost products and 83% stated that they sell product primarily in bagged form. This illustrates the importance of packaging in order to reach home markets.

The reaction to the availability and use of locally produced green compost was, however, mixed from this group. Twenty-five (25) percent stated that they possess very little knowledge about green compost or its availability, while 17% stated that they didn't believe that there was a demand for the product. Various concerns included; product quality issues (overall, weeds, disease), limited customer demand (probably due to a lack of knowledge about green compost benefits, or the poor quality of past products), lack of research (which is untrue) and pricing issues were all raised. A composter wishing to penetrate this market segment will need to offer a packaged product of adequate quality and price, as well as supply educational/marketing material for these outlets to use to both help sell the compost and also to educate their sales staff.

The potential upside for expansion into the garden centre market is significant. Whereas compost currently possesses a market penetration of 21%, peat (68%) and peat reduced (88%) products have a much greater penetration level. It is estimated that over 51,000 cubic metres of peat-based products are currently being marketed by this market segment, yet only less than 1,000 cubic metres of green compost is now being sold.

4.1.3 Golf Courses/Sports Turf

These two market segments were combined since they both manage large areas of turf grass, and would use compost in a similar fashion. Our databases identified 131 golf courses and 269 sports clubs. It should be further noted that market research has shown that much of the maintenance completed on sports pitches is completed by Councils and their contractors, and not by the club itself. Overall, the football and bowling clubs throughout the region simply contract for the use of the pitches through their local Council, and the pitches are primarily publicly owned. Even pitches at many public schools are maintained by the Council staff in which they are located, or by their contractors. There are, of course, exceptions to this rule, such as private clubs.

Interestingly, none of the 10 sports clubs contacted had any experience with green compost, but 80% of them do turf topdressing as a maintenance practice. Therefore, there is an innate market for compost derived products, once product is available and education about the use of it has been completed. In most cases, they use sand-based mixes (as do many golf courses), and therefore, would require a pre-blended product. This could be developed and provided by a composter or by one of their normal supply companies. The regional golf course market, on the other hand, had a much greater experience level with green composts (43%), and in fact two of them were composting at the courses.

In general, golf course superintendents are more educated than many other members of the industry. This allows them to better understand the technical aspects of compost, but it also requires that composters be better trained if they expect to sell to them. The golf courses are overwhelmingly open-minded to the use of a locally produced compost, even though many of them don't currently use organically-based products. All of the golf course superintendents stated that they currently topdress areas of their course, and two use a turkey manure based fertilizer. If compost were used to replace all of the peat in these mixes, at 15% inclusion, less than 4,000 cubic metres could be utilised. However, the potential to use a finely screened and pure (unblended) compost on the fairways (and other sports pitches) is where a large, future potential lies. Based on the limited numerical data that was obtained, it was estimated that over 6,300 cubic metres of compost is being used. We believe that the majority of this product is probably self-produced.

This market segment, like all of the others mentioned above, is in need of consumer education about the benefits of compost use. Composters will need to focus on not only marketing their products but also on producing compost/sand mixes for topdress products. Sports clubs do not, for the most part, tend to their fields' maintenance needs themselves. This work is contracted out to area landscapers or is managed by their local Council. A three-pronged marketing effort directed at Councils, landscapers and the sports ground clubs should help to generate a greater level of compost use. It should also be mentioned that sports pitches in parks and schools (often maintained by Councils or their landscapers), could use compost as a topdressing, but education is needed to expand this market.

4.1.4 Historic Buildings & Stately Homes / Parks & Gardens

This market segment serves as a final 'catch all' for potential users of green waste compost products. There were only 47 contacts on our survey list, and many of these were overlap contacts, already included in other responses. There were 32 parks and gardens (including 12 within the City of Glasgow) and 15 stately homes & historic buildings on the survey list.

Most of the parks and gardens will be under the control of a local Council. Glasgow, for example, has 74 different parks that they maintain (only 12 were listed separately). Product use will be project specific for the most part, with the exception of mulch products. Council staff will typically handle maintenance, while new 'construction' work will be contracted out to private landscapers. Survey responses from both Councils and landscapers have been included in other sections of this report.

Eleven (11) county, regional or national parks were included in the survey. These parks do essentially no routine planting or maintenance, beyond trail restoration. They are designed to be left as close to a 'natural' setting as possible. They do occasionally replace dead trees or on very rare occasions, plant a garden around new construction, but these are very exceptional situations, holding little opportunity for predictable compost use. Fifty-seven (57) percent of the contacts make and use their own compost, with no need for any additional material, except in one situation.

This group of contacts should not be viewed as a viable market for compost use and should not be pursued independently. Their use of compost will come about as a result of working with local Council parks departments and by independent landscapers choosing to use compost on the occasional project for which they contract out. The possibility of having compost included in specifications, through landscape architects, may also be another way to penetrate this market segment, but only as a coincidental benefit of educating them about compost use in general.

4.1.5 Landscapers

Historically, landscape contractors have proven to possess the capacity, as a group, to purchase and use the largest quantity of compost over a sustained period of time. Prior UK market research has identified landscapers as the largest users of soil ameliorants. Compost will be used to amend existing soil, to improve its physical, chemical and biological properties. It will be used directly, as a soil amendment, and indirectly as 'manufactured' topsoil, and also as a component of outdoor growing media. Its coarser fraction can also be used as a mulch or mulch additive. It is estimated that approximately 400 businesses list themselves as landscapers within the Glasgow and Clyde Valley region (which includes 106 companies that are listed as gardening services). Landscapers are a varied lot. Some complete strictly maintenance activities, while others primarily do landscape construction.

Data was obtained from 33 companies, although making contact with this transient group was difficult. Many operate one or two man companies, and are rarely in the office to accept market research based calls. Some open for a year or two, and then move on to other lines of work. Twenty-two (22) percent of those contacted stated that they had experience with green compost, while 53% stated that they use 'other' composts (e.g., mushroom, horse manure, forestry waste). Therefore, an excellent innate market exists for green compost within this sector, as landscapers are already using similar products.

These market penetration figures identify landscapers as the most knowledgeable market segment concerning the use of compost (and similar soil ameliorants). Further, 78% of landscapers stated that they purchase topsoil and over 50% use peat and peat reduced products. Currently, it is estimated landscapers purchase over 14,500 cubic metres of compost, but less than half of this figure is green compost. Landscapers also use over 12,000 cubic metres of peat, 130,000 cubic metres of mulch and 140,000 tonnes of

topsoil. Green compost can be used to replace peat in many landscape applications and can be contained in mulch and topsoil products. With this in mind, it is estimated that the landscaping sector possesses a latent market for over 49,000 cubic metres of green compost.

This market segment will purchase directly from the compost producers, as well as from resellers such as topsoil suppliers and garden centres, once demand has been properly created. Landscapers are sensitive to product quality and price, and can be accessed through landscape architects specifications.

4.1.6 Schools / Universities

Like most regions of Scotland, a large number of schools exist in the Glasgow and Clyde Valley region. The majority of the schools are publicly operated primary and secondary schools, along with a small number of private schools and public universities. With the large number of public schools, the project sought to contact grounds managers in charge of managing the turf from the schools located within specific Councils, instead of individual schools. These individuals proved to be difficult to identify. Further, the list of universities was found to be unusable, as most of the contacts were various offices within the University of Glasgow having nothing to do with our research project.

For this reason, private schools were targeted for contact. This effort was abandoned in order to make the most efficient use of project time and budget after contacting four schools and only obtaining minimal useful data. It was further determined that the Councils previously contacted during the surveying effort were primarily responsible for maintaining sports pitches on public schools, so this data was already in hand.

Although obtaining fruitful data was not possible, past experience has shown that markets do exist for the use of green compost in schools and universities. The primary use has been on the construction and maintenance of sports pitches. Successful penetration of this market will be assisted by knowledge in turf management.

4.1.7 Turf and Soil Supplies

Turf and soil suppliers, and landscape materials suppliers, are known in most regions to primarily market products on a wholesale basis (to professional end users). With this said, it should be noted that companies that resell horticultural and turf products on a retail basis, may also distribute them to industry professionals (many market segments overlap to some degree). In many geographical regions, this market has shown the ability to absorb significant quantities of compost. This is typically the case when companies within this sector are predominantly topsoil suppliers or a well developed bulk landscape products industry exists. This market can also often accept compost on a year around basis, which is important to compost producers who cannot always rely on seasonal markets to meet their production surpluses.

There were 14 companies identified in this market segment, but the majority of them were identified as rolled turf producers. These end users are not known for using composts. Further, it surprised us that additional topsoil suppliers could not be identified. Therefore, we attempted to expand our research to aggregate merchants in order to determine if they were filling the topsoil supplier void. After surveying eight (8) aggregate merchants, out of a possible 65, it appears that some of them do indeed supply topsoil. However, we also believe that there must be additional sources of topsoil that we were unable to identify.

With the inclusion of the aggregate merchants, a total of 11 companies within this category were surveyed. Of the companies surveyed, none use any green compost and

only two (18%) sell topsoil (or 25% of the aggregate merchants). One of the companies was identified as a green compost producer and therefore their data was omitted from the green compost usage calculations. This market could hold potential for the use of compost through the partial replacement of topsoil and as resellers. However, based on the current market research, the potential for the use of green compost appears to be exceedingly low. If these figures are correct, then composters have a great opportunity in the manufactured topsoil market.

4.1.8 Wholesale Nurseries

Professional growers, such as wholesale nurseries, can greatly benefit from the use of compost. Research has illustrated enhanced plant growth rates, reduction in fertiliser use and a reduction in disease expression through the use of various composts. However, wholesale nurseries in the Glasgow and Clyde Valley region offer only limited initial potential for locally produced green compost. A total of 7 nurseries were surveyed during the study from a listing of 15 (47%). None of these nurserymen had purchased compost, nor do they use topsoil or mulch. Seventy-one (71) percent of the nurserymen use peat or peat based growing media in their operations. The cost of these products ranges from £30 to £50 per cubic metre. This relative lack of a wholesale nursery industry is indicative of the changing nature of the area in general.

It is a common misconception that the professional nurseryman is a likely prospect for the use of green compost. It must be understood that this is a very conservative and slow changing market segment. Some of the nurserymen are willing to experiment with green compost, while it is known that larger operations are under pressure from certain customers (e.g., B&Q) to phase out peat usage. With that said, an innate market does exist within this sector, but the small number of companies and the difficulty in changing their use habits makes it a difficult market to consider chasing.

If the nurserymen surveyed could be convinced to accept a growing media that contained 25% compost by volume, the market potential would only be 1,150 metres per year, based on current peat usage of 4,600 cubic metres per year.

4.1.9 Other Markets for Compost

A few other market segments were considered within the research, based on their potential to use compost, as well as their influence on the overall market. This information is noted below. It should also be stated that it is difficult to quantify the usage within these markets, as the number and size of projects change from year to year, as does their overall budget for related products.

4.1.9.1 Landscape Architects

Neither Council (staff) nor private sector landscape architects use or purchase compost. They have the capacity, however, to stimulate the use of vast quantities of compost by requiring it in the landscape, construction or reclamation project specifications that they prepare. Landscape designers, who also typically work as landscapers, also serve a similar purpose.

Most landscape architects are members of the Landscape Institute (LI), their national trade association. WRAP has developed *Compost Specifications for the Landscape Industry*, which were developed in association with the LI, BALI (the British Association of Landscape Industries, and NBS (National Building Specifications). With these specifications already completed and trade association buy-in assured, efforts to gain

support from regional landscape architects should be achievable at a much faster pace. This could expand the usage of compost exponentially. For this to occur, both REMADE Scotland and regional composters must approach and educate landscape architects on an individual and group basis.

This market segment requires aggressive follow-up, as well as continued education, if they are to specify compost. Assisting the landscape architects is an obvious key to increased compost usage in the Glasgow and Clyde Valley region. It should also be stated that these 'specifiers' should be encouraged to specify only green compost (not peat or spent mushroom compost) and directed towards finding ways to use compost instead of topsoil. Using compost, incorporated into existing soil (instead of importing mineral soil), would likely generate markets for 10,000's of cubic metres of compost per year if specified into Council projects.

4.1.9.2 Reclamation Lands

Reclamation lands consist of landfills, contaminated, vacant and derelict lands. Many of these sites can use compost to improve poor quality site soils in order to establish a vegetative cover that is required, based on specific land usage. Although some of the sites may not have the ability to purchase high priced compost, they do have the ability to use large quantities on a per hectare basis. Further, data provided by regional composters regarding inquiries specific to upcoming regeneration projects, illustrates that reclamation lands may provide a viable 'paying' market for green compost. Aside from improving soil quality and encouraging improved vegetation, compost has also been shown to bind heavy metals and degrade petroleum-based substances.

There are some regulatory issues to be concerned about regarding the use of compost in these applications. The finished compost must meet specific quality standards established by SEPA. However, SEPA (Scotland Environment Protection Agency) is very supportive of the use of green compost, in general, in these types of applications. The Scottish Executive Environment Group has developed policy priorities for SEPA, which includes a focus on 'biostabilised waste', used on land to "make it suitable for any intended use through the land planning system". Their edict is that land quality be "protected, maintained or restored". The Plan states that in the short term, the largest volume of composting would be undertaken using..."waste to produce a material which could be put to a valuable use such as restoration of historic landfills or as part of the reclamation of contaminated land."

SEPA has recently issued a position statement on composting. SEPA's current position is that compost which is being produced for a market, is able to meet the quality standards (for example BSI PAS100) before any blending of the compost with other wastes, materials, composts, products or additives, which has certainty of market and can be put to use without further recovery is likely to be taken to be fully recovered. Existing quality standards cannot be met if mixed waste is composted because the standards are specific to source segregated materials. SEPA and the Scottish Executive Environment Group still considers mixed waste derived composts to be waste and its further use is regarded as a recovery option and will require to be permitted. This gives green composts a distinct marketing advantage.

As outlined below, vast areas exist which may be reclaimed, or made more productive, through the use of green compost. Compost application rates on similar types of sites range from 50 to 100 tonnes per hectares, and above.

Landfills

There are many operating and closed landfills within the Glasgow and Clyde Valley region. Every landfill has a need for closure and a final topsoil cover. Not every landfill,

however, will be in a position to purchase this from an outside supplier. Some have stockpiled topsoil for this purpose. Others will be looking for sources of material that will cost them nothing besides the transportation costs. The list below contains the inventory of closed landfill sites within the region. These can be considered as potential users of compost:

<u>Local Authority Area</u>	<u>Estimated Hectares</u>
East Dunbartonshire	402
Glasgow City	274
Inverclyde	56
North Lanarkshire	49
South Lanarkshire	586
<u>West Dunbartonshire</u>	<u>299</u>
TOTAL	1,666

Vacant and Derelict Land (and Contaminated Lands)

Land may become vacant, derelict or contaminated as a result of a variety of human activities and may remain in a state that poses a risk to human health and the environment for considerable periods of time. The majority of contaminated land is associated with industrial processes and those activities that support them. The use of compost to improve soil structure so as to mitigate any environmental risk or improve the site's visual amenity has been suggested for:

- open cast mines or spoil heaps;
- land contamination during use for chemical manufacture and other industrial processes;
- the final restoration of landfill and,
- the land surrounding large construction sites.

There are 1,625 hectares of vacant land and 3,206 hectares of derelict land (4,831 hectares total) contained within the Local Authorities defined above. All land that will not be built on, and that will be placed back into green space, can use compost. The land that will be reclaimed in brownfield projects also possesses potential for the use of compost. It is estimated that 25% of the vacant or derelict land in Scotland is likely to be contaminated.

The issues related to this type of compost use are similar to those described above with landfill closures. They are - timing and expense. One advantage that these parcels have over closed landfills is that it is unlikely that topsoil will have been stockpiled for restoration. Locally produced green waste compost should be the most viable and affordable alternative for this process.

The Glasgow and Clyde Valley Greenspace Trust is very involved in seeing these lands restored and vegetated, where no additional building will take place, and is also very pro-compost. Action to improve the green environment within and around towns and cities in Scotland is piecemeal, and compost use demand will be unpredictable and on a 'catch as catch can' basis. A demand, however, does exist and this market segment must be tracked and nurtured.

The Greenspace for Communities Trust initiative was created to make a significant change in the quantity and quality of green space management throughout Glasgow and the Clyde Valley. It will do so through developing partnerships, particularly with local authorities, voluntary sectors, community and business interests. It will facilitate and encourage communities to take a role in green space management.

The overall objective of the initiative is to enhance the quality of life for residents in Glasgow and the Clyde Valley region by establishing a mechanism that can effectively

deliver enhancement of the green environment. Partnership working should ensure that such improvements contribute to planning, health, social justice and economic as well as environmental agendas; and should stimulate increased involvement and action by local communities in caring for their local environment. By delivering improvements in green space throughout Glasgow and the Clyde Valley, the Trust will be helping to create a healthier and safer environment for the communities of west central Scotland.

Brownfield sites may also provide an excellent opportunity for the use of compost. The term 'brownfield' site refers to land that is or was occupied by a permanent structure, which has become vacant, unused or derelict and has the potential for redevelopment. Land that has not been developed in the past (e.g. parks, recreation grounds, allotments) is not classified as a brownfield. Additionally there are cases where the remnants of a structure, such as a barn, become so well integrated into the land that they are no longer considered a separate structure and thus not classified a brownfield. Some brownfield sites may also contain contaminated land.

It should also be noted that markets developed for higher value, green waste composts could be displaced in the future by products manufactured by composting mixed solid waste (MSW) or through various MBT processes. Although these products may contain more physical and chemical contaminants than green waste compost, they may still be appropriate for many reclamation applications. This will be dependant upon the site, the end users requirements and SEPA regulations. Displacement of green waste composts would only likely happen if these lower quality products were offered at a substantially lower price (or for free).

4.1.9.3 Agriculture

Traditional agriculture possesses a potential for the purchase of compost, typically where high value crops are being grown. A synopsis published in September 2004 on behalf of REMADE Scotland, by Dr. R.A. Szmidt, described a large number of benefits to crop production as a result of implementing a compost use program. These benefits included:

- Increase germination rates
- Increase long term yield potential
- Reduce inputs at a lower N-optimum
- Increase gluten and dry matter
- Increase protein and essential minerals
- Increase P uptake
- Enhance N-fixation in legumes
- Improve long term soil health and quality
- Reduce disease incidence and impact
- Reduce nitrate leaching and residual-N

These benefits were present, to various extents, in a variety of agricultural crops including grains, vegetables, legumes and fruits. They have been demonstrated worldwide, through both laboratory research and field use.

There are some significant challenges, however, which must be overcome in order to make the use of compost by farmers a realistic and practical opportunity. The two most significant challenges are material availability and compost cost.

We interviewed Mr. Jack Roberts of the Perthshire Machinery Ring for his perspective and input on this issue. The Ring is a group of farmers who have identified an imbalance in their machinery capacity (this could be an excess resulting in high fixed costs or a shortage resulting in poor timeliness, both are commonly found on the same farm). The farmers then cooperate to use the surplus capacity on each other's farms. The Perthshire Machinery Ring had 340 members in 2000. Mr. Roberts has been working with REMADE Scotland since 2000 and is very familiar with the project's mission and goals.

There was only one commercial composting operation within the area for which Mr. Roberts was aware. That happened to be an ‘on farm’ composting operation within the Perthshire Ring. This farmer, John McGregor also owns the local landfill and receives a gate fee of approximately £20.00 per tonne of green waste delivered to his landfill. He is applying the product to his own land using a conventional manure spreader at the rate of 35 tons/acre.

A common challenge in many areas of the world (including the UK) is that few farmers have been willing to purchase compost at a comparable rate to ornamental horticultural usage. Common exceptions exist within the organic farming industry and the use of compost in the production of certain row cropped vegetables and small fruits (market gardeners). Mr. Roberts thinks that this can be overcome in the Glasgow and Clyde Valley area. It is his belief, based on a study he conducted in 2001, that farmers will pay up to £10.00 per tonne, plus freight, after they are convinced that compost will produce the benefits described in the REMADE Scotland report. It is his opinion that the increased cost of fuel, and its relation to chemical fertilizer costs, will make compost a more cost effective alternative as time passes. He is also convinced that the environmental benefits of using a recycled product will appeal to area farmers. It is important to note that this figure applies to high value crops only (vegetables, flowers, etc.) and not to grains or pasture land.

Mr. Roberts is also a strong advocate of establishing many more ‘on farm’ composting facilities within the area to replicate the success experienced by the only composting facility that is operating now. He believes that farmers are more oriented to running a successful composting operation than are local authorities. Farmers would rather receive the gate fee to process the ‘waste’, and then use it for ‘free’, rather than purchase it from an independent producer. He thinks that the lack of readily available compost is the main reason why farmers in the area not currently using more.

Unfortunately, based on our experience in the composting industry, we are not as optimistic about farmers purchasing compost from commercial suppliers, as is Mr. Roberts. It is a use opportunity for certain, but generating revenues from the sale of compost to farmers may take a long time to develop, if it happens at all. The dwindling number of high value farmers left in the Glasgow and Clyde Valley region further compromises this opportunity. Industrial development and its accompanying housing needs are absorbing land that used to be dedicated to high value crop production. This market segment, however, should not be ignored and the concept of actually establishing ‘on farm’ composting sites should be thoroughly explored.

4.2 MARKET ESTIMATES

Table 2 illustrates the breakdown of the completed survey contact numbers. Only those contacts that yielded useful data are listed in this table. In accordance with our project goals, market research efforts were concentrated within ‘paying’ or ‘value’ markets for compost, with the goal of obtaining enough data points to complete a quantitative analysis (marketing sizing) for these market segments. Additional market sizing data was obtained for the ‘volume’ markets in the Glasgow and Clyde Valley region.

Table 2 – Surveys Completed

Market Segment	Number in G&CV Region	Survey Goals	Completed Surveys
Councils/Local Authorities	8	8	8
Garden Centres / Retail Nurseries	92	18	25*
Golf Course/Sports Grounds	561	28	24

Historic Buildings and Stately Homes / Parks and Gardens	68	7	7
Landscapers (landscapers, gardeners)	400	40	33
Schools / Universities	1235	15	4
Turf and Soil Supplies	14	7	11
Wholesale Nurseries	23	6	7

*including mass merchant contacts

As can be seen above, based on time constraints, problematic list data and difficulty in contacting specific market segments, not all of the contact goals were achieved during the project. In none of the cases, however, did this situation negatively impact the outcome of the project.

Table 3 provides estimates of current green compost usage, as well as estimated volumes of compost that could currently be utilized when replacing similar products in a realistic fashion. Replacement figures were made conservatively, and were based on the technically proper usage of compost (research based) and realistic market penetration estimates.

Table 3 – Current and Projected Green Compost Usage

Market Segment	Estimated Current Usage (m³)	Estimated Market Size with Replacement Figures (m³)
Councils/Local Authorities	13,000	17,113
Garden Centres / Retail Nurseries (plus mass merchants)	1,582	11,702
Golf Course/Sports Grounds	6,311	12,730
Historic Buildings and Stately Homes / Parks and Gardens	756	840
Landscapers (landscapers, gardeners)	6,908	49,183
Schools / Universities	0	0
Turf and Soil Supplies	0	847
Wholesale Nurseries	0	1,692
TOTAL	28,557	94,107

When considering the estimated current and potential usage figures, it is important to understand that certain market sectors are more likely to purchase compost at a fair market value (e.g., landscapers, nurserymen, etc.) and there are those that typically don't (e.g., reclamation, agriculture). It should also be noted that some of the largest compost users in the area might be obtaining compost for free from current composters.

4.3 COMPETING PRODUCTS

The market research has identified several competing products for green compost. They differ because some are direct competitors to green compost (e.g., other composts, peat, peat reduced, topdressing [in specific applications]), while others are products that compost can replace in very specific instances or where compost can be used in their manufacture. Table 4 outlines the competing products that were quantified during the market research. To avoid confusion, a description of each product is also provided, as is their cost range (as identified by the 'market').

Other potentially competing products are growing media (peat based), which when identified were added to the peat or peat reduced figures, and sand (for topdressing), which when identified was added to the topdressing figures. The 'other' composts identified during the project were primarily forestry waste, mushroom soil and manure (horse, other?) based products. Some of the competing products, such as topsoil and topdress, are primarily marketed in bulk form, whereas the peat and peat reduced are primarily marketed in bagged or baled form. The other composts and mulch are actively marketed in bulk and bagged form.

Table 4 – Competing Products

Type	Other Composts	Peat	Peat Reduced	Mulch	Topsoil	Topdress
Description	'True' composts (e.g., manure or mushroom soil based)	Peat moss	Peat moss blended with other non-peat materials (e.g., bark, wood fibre, compost, etc.)	Bark or wood based used in landscape bed preparation for aesthetics and moisture conservation	Mineral based material which is described as the upper part of the soil profile	A finely screened substrate often sand-based, used to smooth turf surfaces and encourage drainage
Estimated Volumes Currently Used	9,565 cubic metres	46,686 cubic metres	24,142 cubic metres	159,067 cubic metres	177,715 cubic metres	52,806 tonnes
Cost*	£8 – 18 cubic metre	£18 – 30 cubic metre	£1.80 – 3 75 L bag	£11 – 35 cubic metre	£15 – 20 tonne (2 quoted - £6 -8 tonne)	£24 – 35 tonne (1 quoted – £16 tonne – just unblended sand?)
Resale* Prices	£4 – 6 80 L bag	£3 – 5 80 L bag £4 – 6 100 L bag	£3 – 5 75 L bag	£4 – 6 75-100 L bag	£4 25L bag £5 75L bag	N/A

* All cost data is quoted on a delivered price, resale prices are quoted as picked up at the garden centre

Pre-blended growing media was quoted as costing £35.00 to £40.00 cubic metre. It should be noted that most companies reselling bulk products try to resell it at a retail price that is twice the price they paid, while bagged products are often resold for 1.5 to 2 times their cost.

4.4 MARKET EXPANSION

Based on the data obtained during this project, as well as market development experience in the UK and abroad, we believe that there is an excellent opportunity for expanding 'paying' markets for green compost in the marketplace. Typically, compost markets are expanded using three primary methods:

- Replacing similar products,
- Expanding compost (soil ameliorants) usage, and
- Create new products and applications for compost

With this in mind, Scottish composters must work to improve the replacement figures for products outlined in Tables 3 and 4, while expanding overall compost (soil ameliorant) usage. Some of this may only be accomplished if they manufacture and market blended

products that can contain compost (e.g., topdressing, blended soils). Also, a key to expanded usage of compost by Councils, landscapers and on reclamation land is by educating specifiers (e.g., landscape architects, engineers) regarding the use of compost instead of more conventional, but less sustainable products. Some of the greatest areas of product replacement are outlined in Table 5.

Table 5 – Potential Market Expansion Options

Market Segment	Estimated Hectares	Compost Application Rates	Potential Compost Usage
Council capital projects	unknown	250 – 500 m ³ /ha	unknown [†]
Reclamation lands	6,497 ha*	250 – 500 m ³ /ha	1.6 – 3.25 M m ³
Golf courses / sports turf (topdressing unblended compost)	2,938 ha**	30 – 60 m ³ /ha	88,140 – 176,280 m ³
Application	Current Usage	Long-Term Replacement	Potential Compost Usage
Peat / peat reduced replacement <small>(used by Idsprs and sold by garden centres)</small>	30,772 m ³	50%	15,386 m ³
Topsoil replacement <small>(used by Councils and landscapers)</small>	168,380 tonnes	50%	84,190 m ³
Topdressing replacement <small>(used by golf courses and sports turf)</small>	51,354 tonnes	25%	12,838 m ³

[†] The potential treatable area in future capital project could surpass the estimated reclamation land area.

*1,666 ha of landfills + 4831 ha of vacant and derelict land

** Extrapolated from 131 golf courses x 18 fairways x 1 ha/fairway + 580 pitches (at 1 ha/pitch)

Agriculture could also become a large volume end user for green compost into the future, but it is unlikely that it will develop into a 'value' market. A substantial regional market is only likely to occur if the green compost is supplied to them for free, or if they become the actual composter. This would allow them to collect the gate fee and use the product for free.

Potential end users were queried to determine what would encourage them to purchase more green compost. Although there were specific comments made that were germane to a particular end use or market segment, some general comments were also made. They are listed below.

How to increase usage

- Better availability
- Better price / cost effective
- Lower cost, same quality
- Get in landscape architect specifications

These comments make it clear that there are four (4) things that composters must do to expand compost markets in the Glasgow and Clyde Valley region:

- Engage the market – let them know that product is available,
- Provide a high quality product which is competitively priced, and
- Engage specifiers to get compost included
- Take into consideration the characteristic data found in section 4.5
 - Product quality issues
 - Ease of handling

- Field performance, proven track record and customer acceptance

It should be noted that the only green compost mentioned by name during the market research was the product supplied by GP Green. However, several also stated that they produce their own compost (out of green waste). Further, end users are purchasing related products directly from the manufacturers (e.g., Scotts, Aitkens, JCT Hort. Ltd.), through garden centres and mass merchants and from distributors (for peat). To assist in market expansion, composters should consider entering this supply chain, where feasible (e.g., sell to a topdressing manufacturer). If they choose not to, then they must actively market on their own, selling the compost or related blends in bulk or bagged form. It is believed that much of the compost being currently produced is simply being stocked piled or being distributed at no cost (or at a very minimal price) to agriculture or another high volume, low value market.

4.5 COMPOST CHARACTERISTICS

Potential end users were queried to determine the characteristics that they would consider as 'ideal' or 'undesirable' for a green compost to possess. Although there were specific comments made that were specific to a particular end use or market segment, some general comments were also made. They are listed below.

Ideal Characteristics

- Appropriate product cost
- Ease of use / application (not too wet)
- Well decomposed / stabilised
- Supplies nutrients
- Proper performance (*'as good / better than peat or peat reduced products'*)
- Proven track record
- Customer approval / acceptance
- Odour free

Undesirable Characteristics

- Weed seeds
- Physical contaminants
- High cost
- Odour

It should also be noted that minimal concern seems to exist regarding the use of compost produced from kitchen waste. Of the 25 companies responding, 21 had no concerns (84%). Three (3) stated that they had some concern, and one stated that they needed more information before responding.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The current estimated usage of compost, 28,557 cubic metres, in the region is relatively small (suppressed) at the existing time. This is due to:

- The lack of commercial composting operations supplying high quality green compost products (and only one company is actively selling green compost),
- The lack of awareness that green compost exists in the Glasgow and Clyde Valley region, and
- Existing and potential Glasgow and Clyde Valley composters haven't placed enough emphasis on product marketing.

The latent market demand potential for compost in the Glasgow and Clyde Valley region is, however, a much larger 94,107 cubic metres. This latent demand represents the current usage of compost, plus the realistic volume that could be used to replace other products currently being used. Compost has the ability to replace existing competing products, such as topsoil, topdressing and peat based products. These products are already being used in significant quantities by the market segments surveyed (Table 4). Therefore, since applications and requirements for green compost do exist in latent form, composters must focus their marketing efforts on educating prospects on the benefits of compost and how it can replace these other conventional products that have been used successfully for many years. Latent compost demand, can of course, be expanded through education and competing interests as the market matures. It is feasible that the 'potential' compost demand could be double, triple or quadruple the current latent demand. However, it is difficult to estimate this figure at the markets current maturity level.

Several things must occur in order for Glasgow and Clyde Valley composters to realize the benefits of this latent demand, and access high value markets. They are:

1. More composters in the Glasgow and Clyde Valley region need to hire compost sales people (individuals who sell compost on a full time basis). Experience has shown that the more 'sales' activity that takes place in a given region, the faster the markets for compost expand. This is obviously a function of accelerated education. This occurrence will help to expand the use of soil ameliorants, as well as expand the replacement of other products for compost.
2. Improve product availability. Since green compost is already available in the market, this is more a function of promotion. End users simply don't know that product is available, therefore it is actually a perceived issue.
3. A compost use and benefit educational program, directed primarily at landscape architects (both public and private), landscapers and other high volume/price prospects, must be initiated. Although many landscape architects in the region are aware of compost (through the promotion of the WRAP compost specifications for landscaping), many of the potential end others are not. This must be rectified to if we are improve the credibility of compost in the region and expand its usage.
4. Expand compost use education and promotion in general, perhaps through a cooperative effort of all of the producing Councils. Make end users aware of the benefits and uses, and of the environmentally 'friendly' nature of the product.
5. Work on keeping the cost of the compost competitive, or better, than products we are trying to displace. Some of the bagged peat free and peat-reduced products are more expensive than peat. This situation does not favour rapid displacement of the industry's leading product.
6. Composters will need to consider either producing compost blends in order to penetrate some of the market segments listed above or aligning themselves with 'soil' blenders. These blends should consist of compost 'manufactured' topsoil, growing media and topdress mixes in order to provide products for all of the market segments identified above.
7. Compost producers should consider implementing a packaging (bagging) program or aligning themselves with a contract packager if they want to penetrate the mass merchandisers (e.g. B&Q) and the area garden centres. Educating home gardeners through the sale of product in bagged form is also key to product acceptance and market expansion.
8. Expand government usage and specification of green compost. It is obvious that much of the landscaping work is initiated or controlled by government entities

(e.g., parks, football pitches, Councils). All of the Councils must show a commitment to using green compost as an alternative to the various soil ameliorants (e.g., peat, spent mushroom compost), topsoil and even mulch. It is likely that the Glasgow and Clyde Valley Councils could use 100,000 to 200,000 cubic metres of compost per year if they aggressively specified it.

9. Develop/promote new uses for compost. While it is important to work to displace existing products for compost (e.g., spent mushroom compost, peat), we must also illustrate new uses for the product (e.g., topsoil manufacturing, turf top dressing, erosion/sediment control).

Compost has proven to be an excellent alternative to a variety of mainstream horticultural and agricultural products, and it has proven that it can compete with these products on the 'open market'. We believe that the same can be achieved in the Glasgow and Clyde Valley region. However, success will take commitment from regional composters, REMADE Scotland and national marketing efforts (WRAP). These efforts should be coordinated in order to increase the speed in which the market can develop. We further suggest that regional composters consider and act upon the suggestions listed above in order to increase market penetration.

APPENDICES

APPENDIX 1

Market Research Surveys

Compost End User Survey

Local Authorities / Government Sectors

Date: _____

Company Name:

Address:



Contact Name: _____

Position:

Number of Employees:

1) Type of organisation?

.....

2) What types of projects are you involved in: **(Circle all that apply)**

parks maintenance general landscaping golf course maintenance athletic pitches
reclamation/remediation

estate maintenance road construction OTHER?

3) Do you employ landscape architects / soil specialists, or contract them from private companies for specific projects?

.....

➤ Please list the contacts

.....

4) Do you have any experience of using **green/recycled** compost products?

Yes No

If Yes:

➤ What specific type(s) of compost/soil amendments and for what application?

.....

➤ Are you able to obtain the quantity and quality of product you require?

-
- Volumes used?
.....
 - Cost ? (m³ or tonne)

What would get you to buy more?

3) Are you involved in compost production?

Yes **No**

If Yes:

- Do you distribute / sell the product?
.....
- If so, in what form? Bulk Bags Both
- Who are your primary customers?
.....

4) Which of the following organic materials do you currently use? (bag size/# pallets/#t/s)

Organic material	Volume used/sold	Cost	Retail price
Growing Media			
Virgin Topsoil			
Topsoil Blends			
Mulch			
Compost (type)			
Compost (type)			
Peat			
Peat Reduced Products			
Top dressings			
Other			

5) Who are your current suppliers?

.....

6) Do you have any concerns about using green compost? If so please specify:
.....

7) What characteristics would green compost need to have in order for you to use it?

8) Which characteristics would you want to avoid?
.....

9) Any concerns about the use of kitchen waste derived composts?

.....

10) Any further comments?

.....

Compost End User Survey

Date: _____

Horticulture/Landscape/Turf Suppliers Sectors

Company Name: _____

Address: _____



Contact Name: _____ Position: _____

Number of Employees: _____

1) Type of business?
.....

2) Do you have any experience of using/selling **green/recycled** compost products?

Yes No

If Yes:

➤ What specific type(s) of compost/soil amendments and for what application?
.....

➤ Are you able to obtain the quantity and quality of product you require?
.....

➤ Volumes used/sold?
.....

➤ Cost and retail price? (M3 or tonne)
.....

➤ What would get you to buy more?

3) Are you involved in reselling?

Yes No

If Yes: Bulk Bags Both (can they handle bulk materials?)

➤ Who are your primary customers?

4) Which of the following organic materials do you currently use/sell? (bag size/# pallets/#tls)

Organic material	Volume used/sold	Cost	Retail price
Growing Media			
Virgin Topsoil			
Topsoil Blends			
Mulch			
Compost (type)			
Compost (type)			
Peat			
Peat Reduced Products			
Other			

5) Who are your current suppliers?

6) Do you have any concerns about using green compost? If so please specify:

7) What characteristics would green compost need to have in order for you to use it?

8) Which characteristics would you want to avoid?

9) Any concerns about the use of kitchen waste derived composts?

10) Any further comments?

APPENDIX 2

Market Research Data and Evaluation Rules

Numerical Data

- When product volume data was provided by end users in the form of numerical ranges, the average of the two figures was used within the quantitative analysis.
- When end users did not know the volume of a particular product which they stated that they are using, they were considered to be using the average volume of material identified within their market segment (this appears as a “?” in the data spreadsheets).
- It was assumed that topsoil and topdressings (sand-based) identified during the research weigh 1 tonne per cubic metre
- It was assumed 1 tonne of ‘real’ compost yields two cubic metres of compost
- Table 4 (Competing Products) within the report outlined typical product prices reported during the research. Where pricing data was considered as extreme, it was not included in the table. This was done to make sure that the competing product data was realistic.

Market Segment Related

- Aggregate suppliers were considered to be topsoil suppliers within the project, however only few actual topsoil suppliers were identified.
- It is understood that a certain number of wholesale nurseries may be found within the garden centre/retail nursery category within the database. This is a typical occurrence in other areas of the U.K., as well as the U.S.
- RAAs experience has shown that often the number of landscapers identified as existing in a particular geographic is understated by available databases and the ‘yellow book’. It could be assumed that up to 50% more landscapers actually exist.