A SURVEY AMONGST GROWING MEDIA PRODUCERS IN THE UNITED KINGDOM WITH A VIEW TO ESTABLISHING DISTRIBUTION CHANNELS FOR FIBREGRO EXPORTS

Submitted in part fulfilment for the Masters
In Business Administration Degree
By Dave Dobson
June 2004

Executive Summary

A new peat replacement product is being manufactured in South Africa. This product which is marketed under the brand name Fibregro is made from spent wattle bark originating from the tanning extract manufacturing process. Fibregro is currently being used in South Africa to dilute and in some instances replace local peat in mushroom and horticultural applications. In addition to its role as a peat replacement, Fibregro is in a position where it could also qualify to carry a Forest Stewardship Council (FSC) label. Once in full production it is estimated that the company will be able to produce more products than can be sold locally. As a result export opportunities need to be pursued.

The United Kingdom (UK) was identified as a potential export destination on account of developments in this country in respect of the certification of forest products (especially FSC certification) and moves to reduce peat mining. A mail survey was undertaken amongst growing media producers in the UK to address two key issues relating to Fibregro, namely:

- Whether Fibregro's peat free status could be exploited in the UK growing media and mushroom casing markets.
- Whether enough advantages existed in the UK market to justify the extra effort and cost associated with qualifying Fibrego to carry an FSC label.

Key findings arising from this survey indicate that a niche is developing in the UK growing media market for a good peat substitute. The addition of an FSC label will render the product unique in the growing media market in this country.

A number of recommendations arise from this work. These are:

- In order to penetrate the UK growing media market Fibrgro must be positioned as an effective peat reducing agent which is capable of extending the peat reduction levels beyond that of composts.
- Fibregro distributors should be identified from amongst the larger growing media producers in the UK.
- Potential use of Fibregro as a mushroom casing in the UK appears to be limited.
- A combination of peat free and FSC labelling while capable of rendering Fibregro unique in the UK growing media market needs to be carefully considered on account of chain-of-custody requirements along the supply chain.

Acknowledgements

The author wishes to acknowledge the encouragement and assistance of a number of people, who made this work possible.

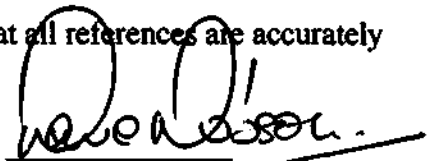
Thanks must go to the Chairman, Mr Bailey Bekker, and the Board of NTE Co-operative, for their support and encouragement. Permitting me to use the Fibregro survey for this dissertation and for financing my visit to the United Kingdom, which assisted so much with the survey, is much appreciated.

To my dear wife Gill, who spent so many hours typing and retyping this manuscript, many, many thanks.

Finally, to my family, Gill, Matt and Mel, thanks guys for putting up with an absent husband and father while I studied for this degree.

Declaration

The author certifies that this work is his own and that all references are accurately acknowledged.



DAVE DOBSON

TABLE OF CONTENTS

Chapter 3: Research Methodology **Page**

Chapter 4: Data Presentation, Analysis and Discussion

CHAPTER 1.

The Problem and its Setting

1.0 Background

Tanning extract manufacture in South Africa is undertaken by two co-operatives. The largest manufacturer, NTE Co-operative Limited (NTE), is based in Pietermaritzburg and has factories at Hermannsburg in the Kwa Zulu Natal Midlands and also at Iswepe, 30 km north of Piet Retief in S E Mpumalanga. The third factory is owned by Union Co-operative Limited (UCL) and is situated in Dalton, also in the Kwa Zulu Natal Midlands.

Tanning extract is manufactured from the bark of mature Black Wattle trees (*Acacia mearnsii*, de Wild), which are grown in commercial plantations, mainly in the Kwa Zulu Natal Midlands and S E Mpumalanga regions of South Africa. The tanning extract is used to tan heavy leather, which in turn is used to produce goods such as belts, harnesses, saddlery and leather shoe soles. In addition, the extract also forms the basis of an adhesive, Bondtite, which is used in the manufacture of various wood based products, such as chipboard, plywood and MDF board. Fresh wattle bark is delivered to the extract factories in bundles 2,4 metres long after which it is chipped into 6mm chips and conveyed to autoclaves for processing. The extract is leached from the bark chips in a process that takes 8 to 10 hours at temperatures of between 110°C and 120°C . The waste product which results from this manufacturing process, the detannalised wattle bark chips (known as "spents"), has traditionally been burned in the factory boilers.

The vegetable tanning extract industry worldwide is currently in the decline phase of the product's life cycle. Annual world shipments of tanning extract have been declining steadily at about 1.7% per annum over the last 15 years (Dobson, 2001). Nevertheless, the good prices achieved for tanning extract continue to make this an attractive business.

NTE, mindful of the need to secure the long-term future of the co-operative, are actively seeking new investments in related businesses.

Attempts were made in the past to use the spents generated at the various extract factories as a growing medium to raise Black Wattle seedlings (Nixon, 2003). While the seedlings germinated well, they soon died. No reason could be found for this and the use of the product as a nursery growing medium was abandoned. Recent research undertaken in conjunction with NTE has now shed light on the reasons for the initial failure and made it possible to reconsider the usefulness of this material as a nursery growing medium. Further work on the composting and processing of the spents, has resulted in the manufacture of a fibrous, peat-like product that can be used as a peat substitute in both the mushroom and horticulture industries. This new product is currently being marketed under the brand name "Fibregro".

Fibregro, mixed with composted pine bark and vermiculite, makes an excellent seedling and potting mix. The water-holding capacity of Fibregro provides an advantage for this product over the traditionally used pure composted pine bark. Fibregro is also being supplied to the South African mushroom industry, where it is being used in mixes with locally mined peat as a casing material (Dobson, 2003). This casing material normally consists of a uniform 5cm layer of organic material (neutralised peat is the most commonly used), which is applied to the surface of the spawn-run compost, some 14 to 21 days after the compost filling. This is done to facilitate pinning (the formation of fruiting bodies).

In order to gain access to established distribution channels for growing media products in South Africa, NTE entered into a joint venture agreement with Elro J Braaks (Pty) Ltd, who manufacture and market composted pine bark growing medium. The new company formed as a result of the joint venture agreement, Fibregro (Pty) Ltd, is tasked with the business of manufacturing, marketing and distributing the full range of Fibregro products. It is expected that once in full production, the company will be capable of producing some 150 000 m^3 of Fibregro products annually. Initially, Fibregro is to be

positioned to compete with locally mined peat and composted pine bark in the South African horticulture and mushroom casing markets.

Peat is mined from wetland areas known as mires or bogs, which in the South African context are synonymous with "vlei" areas. These wetland areas are environmentally important in terms of the type of flora and fauna they support, but they also perform another important function in the landscape. They are able to absorb large amounts of water, thus slowing runoff from rainfall catchment areas. This runoff is filtered and released slowly into streams. Water flows are kept stable, thus preventing flooding and relieving droughts (Du Toit, 2004). A decline in the number and extent of wetland areas thus increases the risk of flash flooding with resultant downstream damage which degrades the quality of available water, and endangers the habitat and thus existence of numerous species of flora and fauna. The mining of peat world-wide has led to a decline in wetland areas and this has become of great concern to a number of environmental groups, who are now lobbying for the reduction of peat mining and a limitation on the use of peat.

The quantity of peat mined and used locally amounts to between 70 000 m^3 and 85 000 m^3 per annum (Grundling, 2002). Environmental pressure on peat mining operations and the need to rehabilitate mined sites is increasing the price of South African peat (Stewart, 2003). A niche is thus developing for a good quality peat substitute, which Fibregro is in a position to exploit. However, given the quantity of locally mined peat in use in South Africa, it is likely that once in full production, Fibregro will have excess capacity. An alternative market must therefore be sought to accommodate this extra production.

1.1 Strategic Basis of the Research

Pressure in the United Kingdom (Great Britain and Northern Ireland) to reduce peat usage in growing media and soil conditioner applications together with retailer interest in certified forest products make this market an attractive proposition for Fibregro

exports. Retailers who have committed themselves to purchasing certified forest products, peat-reduced growing media and soil conditioners, have made supplier access to this market difficult (raised entry barriers to the retailer market). This serves to benefit those suppliers able to achieve these requirements. Market access and competitive advantage over other suppliers is thus a distinct advantage available to compliant suppliers.

In both instances "green" pressure groups (e.g. Friends of the Earth and World Wildlife Fund) have forced major retailers in the United Kingdom (UK) (e.g. B&Q, Homebase, Wyevale Country Gardens) to reconsider their policies related to the purchase of forest and peat products. The introduction of forest certification requirements for knockdown furniture exported to B&Q has resulted in many South African forest owners having their plantations certified. The dominant certification system adopted was that of the Forest Stewardship Council (FSC). FSC certification is also widely acknowledged and accepted amongst UK consumers. With the raw material from South African forests now certified it makes sense to seek other marketing opportunities for minor forest products (e.g. bark) emanating from this source.

1.2 Peat-free Products

The Fibregro peat replacement product, although still in a developmental stage, has already begun to attract interest in the UK. An enquiry, for example, was recently received from an import/export agent in that country who had obtained information of early Fibregro developments on the Braaks' website and was keen to obtain further product and research and development details. It would appear that some 3.44 million cubic metres of peat are being used annually in the UK (DETR, 2000 p.8; Waller and Temple-Heald, 2003). The proportion of peat sourced from the UK however has fallen steadily from $\pm$70% in 1993 to $\pm$40% in 1999 with Eire being the major source of imported peat producing 52% of this volume, followed by the Baltic states at 13% (DETR, 2000, p.28; Waller and Temple-Heald, 2003).

These developments appear to have been precipitated by pressure from environmental groups on existing peat harvesting operations in the UK. This has led the UK Government to set an initial target that 40% of the requirement for soil conditioners and growing media should be met by peat alternatives by 2005 (DETR, 1995; Holmes *et al*, 2000; B&Q, 2001). The UK Bio-diversity Action Plan also prescribes action on peat alternatives. It requires all four UK countries to undertake and promote research and development of sustainable alternatives to peat in order to speed up the reduction in its use. Their aim is for 40% of total requirements to be peat-free by 2005 and 90% by 2010 (Adlam and Rainbow, 2001).

While the consumption of peat reached a plateau in the UK during the period 1996 to 1999, there was at the same time a significant increase in the use of peat alternatives as soil improvers. Interestingly, these peat alternatives were unable to penetrate the growing media market in any meaningful way during this same period (DETR, 2000, p.7). Waller and Temple-Heald (2003) confirm this trend in their findings that of the 300 000m³ of green compost produced in the UK in 2002, which was of the appropriate grade for growing media use, only 68 000 m³ was actually sold to growing media manufacturers. Waller and Temple-Heald (2003) go on to mention that in the next two to three years, the volume of green compost suitable for inclusion in growing media is likely to rise to about 275 000 m³ per annum. However, they feel that the utilisation of this alternative will require incorporation in peat-based growing media in the UK of up to 30%, which will provide a technical and economic challenge.

1.3 Forest Certification

Forest certification has been defined as a market-based, voluntary approach to attempt to stem the loss of vast areas of boreal, temperate and tropical forests. This is encouraged, by providing an economic incentive to forest owners to improve their forest management and to produce sustainable wood products (Upton and Bass, 1995, p.17; Tissari, 2001). The economic incentive takes the form of restricted market access

favouring those forest owners who are capable of demonstrating that they are able to produce wood products on a sustainable basis.

The Forest Stewardship Council (FSC) plays a prominent role in forest certification, having gained significant recognition within selected markets where certified products are in demand. FSC certification is an international system, which has produced standards specifically for the certification of major forest types (boreal, temperate and tropical) in a manner that brings together the economic, social and ecological interests related to these forests. The system focuses on forest management and sets basic standards as a requirement for certification as opposed to ISO certification, which focuses on process standards (Upton and Bass, 1995, pp.36 - 37).

1.4 The Role of Pressure Groups

The drive for forest certification has been led by environmental pressure groups. Selected traders and retailers of forest products have been targeted, forcing them in turn to react to perceived customer demands to safeguard their market share and image (Upton and Bass, 1995). A number of studies have indicated a willingness amongst some consumers to pay a premium for certified forest products (Read, 1991; Winterhalter and Cassens, 1993; Centre for European Economic Research, 1995; Ozanne *et al*, 1999). Retailers however, remain reluctant to introduce premium prices, especially in the case of the early adopters of the products (Upton and Bass, 1995; Ozanne *et al*, 1999). This is understandable, as the system was firstly not consumer based, and secondly, not widely applied by all retailers. The consequence is that the cost of forest certification, regardless of the system, is borne by the forest owner.

The success achieved with the forest certification campaign appears to have encouraged the environmental lobby to use similar tactics in addressing peat mining and usage in the UK. The same environmental pressure groups (Friends of the Earth and World Wildlife Fund) have targeted the major retailers in the UK (B&Q and Homebase), persuading them to take the initiative in phasing out the use of peat as a growing medium and soil

conditioner. The manner of its introduction and the consequences thereof, appear to mirror the forest certification campaign.

1.5 Importance of the Research

Although Fibregro is a new product, the demand for which has not yet been fully tested in the South African market, estimates indicate that once in full production, supply is likely to exceed local demand (Dobson, 2003). Plans for the future production and development of Fibregro must take into account the need to accommodate exports. The UK market has been identified as a potential export destination on account of developments there in respect of certified forest products and peat usage.

In order to access this market, suitable distribution channels must be sought. Members of the Growing Media Association have been identified as having the potential to provide access to the growing media market. In order to exploit this distribution channel fully, the needs of these potential customers in relation to Fibregro's two unique attributes, namely, peat free, and FSC certified, would be useful. The peat-free nature of the product is important on account of the peat reduction targets that have been set by UK retailers and the British Government (DETR, 1995; B&Q, 2001). Similarly, retail traders in this country have also committed themselves to purchasing certified forest products (Buckley and Ansell, 2002). As Fibregro is capable of contributing to both target requirements, products such as growing media or mushroom casing manufactured from Fibregro should be of genuine interest to manufacturers and suppliers of these products. As a consequence there appears to be a strong basis for the establishment of a mutually beneficial export initiative between Fibregro (Pty) Ltd. and suitable Growing Media Producers in the UK.

1.6 Discussion of Research Objectives

The strategy adopted to underpin this research is to identify Growing Media Producer attitudes towards the peat-free nature of Fibregro, as well as its potential to carry an FSC label. Further, the research needs to establish whether these attitudes are similar amongst Growing Media Producers and if different, to shed light on the reason for the difference. This information will be of benefit to the Fibregro Board in its decision making with regard to an export initiative targeted at the UK market for growing media and mushroom casing.

Sufficient FSC certified wattle bark is available at the two extract factories to qualify Fibregro to carry an FSC label. However, in order to achieve this, chain-of-custody procedures need to be implemented at these factories. This would add to the cost of manufacturing Fibregro since chain-of-custody expenditure cannot be justified for the wattle bark extract as no demand exists for such a product in the leather market. Benefits such as premium prices, market access and competitive advantage need to be weighed up in making this decision.

The use of peat-free material in growing media production is reported to be very low with peat still making up 90% of this product (Waller and Temple-Heald, 2003). The reasons given for this are lack of consistency and poor performance of alternatives. Fibregro is a consistent product that is performing well in South Africa as a component of growing media and mushroom casing material. Although the availability and performance of peat-free growing media in the UK is reported to have improved (Waller and Temple-Heald, 2003), there is a perception arising from the literature that continued "green-pressure" to meet peat-free targets should provide opportunities for the marketing of consistent, good quality peat-free growing media. Waller and Temple-Heald (2003) in fact allude to this in their remarks that green compost incorporation levels in peat-based growing media approaching 30% will be both technically and economically challenging. Imported coir has been used as a peat free growing medium and appears to have commanded a price premium. More recently however, coir prices

are reported to have declined in order to counter problems that have arisen on account of the poor quality in some batches, an unreliable supply and poor performance of the product, but the price nevertheless remains near that of higher value peat (DETR, 2000, p.43).

1.7 Conclusion

Wattle tanning extract is in the decline phase of its product life cycle. NTE Co-operative, the major producer of tanning extract in South Africa is actively seeking new investments in related businesses. The use of spent wattle bark to produce a peat substitute (Fibregro) is one such investment. While a niche is developing in the South African market for a good quality peat substitute once in full production it is anticipated that more product will be produced than can be sold locally. In addition, moves to certify South African forests under the Forest Stewardship Council (FSC) label have proved to be most successful. Since certification takes place at plantation level all products emanating from these plantations (including wattle bark) qualify to bear this FSC label.

The UK has been identified as a potential export destination for Fibregro products on account of developments in that country in respect of peat usage and the well developed market for certified forest products (in particular FSC certified products). In order to investigate this option a survey amongst the Growing Media Producers, who could potentially act as distributors of Fibregro, is required. The objectives of such a survey are to asses the importance of peat-free growing medium and mushroom casing in this country and whether FSC certification of Fibregro would be justified in terms of competitive advantage.

CHAPTER 2.

Literature Review

2.0 Introduction

This literature review was undertaken to provide base line information on two unique and important attributes of Fibregro, notably its peat-free nature and forest certification.

There has been a strong move in South African forestry towards the certification of plantations. This has been encouraged by new government legislation and access to export markets, especially in the UK. The result of these developments is that many local commercial forest plantations have become certified, primarily under the Forest Stewardship Council (FSC) label. Much of the wattle bark being delivered to the NTE wattle extract factories originates from these FSC certified plantations and should chain-of-custody procedures be introduced, the products derived from this bark would also qualify to carry the FSC label. Fibregro, which is manufactured from "spent" wattle bark, is one such product. While the researcher has not encountered a South African market for certified forest products, such a market is known to exist in the UK (ENDS Report, 1999; Dunne, 2000; UNECE/FOA,2002). A better understanding of the dynamics of this market will assist the Fibregro Board in its decision making.

Fibregro is currently being marketed in South Africa as a peat substitute for use in the mushroom and horticulture industries. Environmental pressure on peat mining activities in South Africa and elsewhere provides Fibregro with an extremely attractive niche market opportunity. In order to be able to exploit this niche properly, a good understanding of the nature and impact of this environmental pressure is necessary.

The literature review focuses on the UK market for two reasons, firstly, to narrow down the scope of the investigation and secondly on account of the fact that early initiatives to introduce certification arose from the need to certify forest products destined for export

to that country. In addition, the UK was also understood to be a substantial user and producer of peat and peat products.

2.1 Forest Certification

FSC certification is described by Upton and Bass (1995, p.xvii) as a non-government, market based, voluntary approach to stemming the loss of vast areas of boreal, temperate and tropical forests worldwide. The system is voluntary in the sense that its ultimate effectiveness is dependent on whether or not affected firms are willing to participate. The performance criteria are established by private individuals in the environmental field, and certification is carried out by private commercial undertakings hired by the participating firm.

FSC specifies particular performance standards that the management system must fulfil before the forestry firm may register. The standards in turn have been established with a view to improving the management of these forests in a manner that promotes sustainability by bringing together the economic, social and ecological interests affecting the forests. Products emanating from certified forests bear labels demonstrating in a verifiable manner, through the use of independent certification bodies, that they originate from certified forests (UNECE/FOA, 2002, p.158).

Of interest from a marketing perspective is the manner in which the forest certification movement was initiated. Research has shown that about 42% of U.S. consumers are willing to pay higher prices for "green" or environmentally friendly products (Kotler, 2000, p.148). Polsen (1999) in similar vein refers to people who factor in environmental considerations when making purchasing decisions, contributing to a growing speciality market for a range of products from legal pads and cleansers to electric cars. However, in the case of forest certification, pressure groups targeted selected traders and retailers for attention.

FSC have been particularly aggressive in their attempts to enlist industry to their cause. By establishing buyer groups they have successfully enlisted the support of market forces. Large retailers such as B&Q and Homebase with their extensive supplier networks have been persuaded to support the cause and set standards for the rest of the industry. This in turn has raised the profile and increased the demand for the FSC label translating this into market demand from which suppliers have been able to benefit.

Upton and Bass (1995, p.44) and Buckley and Ansell (2000, p.84) report that Hardwood Traders tended to dismiss this action as simply reaction to perceived customer image. A more generous view however, would be that these organisations perceived the existence of a potential or latent preference that had not been fully exploited in the market place. The forest certification movement provided an opportunity for these companies to influence demand and create a new, unique competitive space. As successful innovators they would be best positioned to dominate this new competitive space.

The growth of FSC certification has undoubtedly been facilitated by the fact that retailers in the UK market, were early adopters of this scheme (ENDS Report, 1999). Certification has become a barrier to entry forcing suppliers to comply with these requirements in order to gain access to the market place. UNCTAD (2001) raise the concern that certification requirements could be viewed as a barrier to trade. However, as certification is voluntary, and used primarily as a marketing tool, this does not appear to be a valid concern.

The actual consumer demand for certified wood products appears unclear. Polson (1999) mentions that national distributors of "green wood" in the United States of America had reported a strong increase in sales of certified products. Similarly, the World Wildlife Fund reported in 2000 that the demand for FSC wood far outstripped its supply and that there is a good deal of evidence to suggest that foresters are scrambling to become certified (WWF Press Release, 2000). This is confirmed by UNECE/FOA (2002, p.157) who report that the market for certified forest products has continued to grow exponentially with market share of total wood consumption estimated at 10% in

the UK, 7% in the Netherlands and less than 1% in Germany. In the UK the market situation is reported to vary by sector. The DIY sector headed by large companies like B&Q shows the most demand for certified forest products.

Rametstein (2002, p.163) on the other hand reports that demand by private consumers in major European markets remains an insignificant factor in the market for certified forest products. Although forest certification is increasingly becoming the main instrument for communicating sustainable forest management, many consumers in the most advanced markets of the UK, Germany and the Netherlands, are reported to be unaware of even the longest established logo (FSC logo) (Rametstein, 2002, p 163). This would appear to be simply a case of poor differentiation at consumer level with consumers regarding certification as an irrelevant attribute to signal the value of the product. UNECE/FOA (2002, p.163) report that public relations campaigns have been launched in order to raise awareness of certified forest products. It remains to be seen whether these efforts will in fact raise consumer awareness and enhance market growth.

It would appear that vested interests might play a role in the pronouncements that are emanating from certain sectors, particularly the pressure groups (e.g. WWF, Greenpeace, Friends of the Earth). However, where retailers and buyers have committed themselves to purchasing certified wood products, they have effectively introduced barriers to entry to the retail market. It is thus little wonder that the hardwood industry in general has expressed concern about the restricted use and sale of hardwood products as a result of certification schemes (Buckley and Ansell, 2000, p.184). It is little wonder too, that where the opportunity arises foresters scramble to become certified.

2.2 Chain-of-Custody

A chain-of-custody certificate is issued to a manufacturer of both wood and non-wood forest products who can demonstrate that the product used in the manufacturing process comes from an FSC certified forest. In this fashion, retail pressure for FSC certified

products is cascaded through the system to the forest. Thus, although FSC is a management certificate based on how the product is produced, a second certificate, the chain-of-custody certificate now links the management scheme to the product. In 2002, the potential timber supply from the worlds certified forests was estimated at 234 million cubic metres annually (Atyi and Simula, 2002). Only a small fraction of this potential annual supply however was actually traded as certified forest products, with the large majority being marketed without reference to its certification status. The reason for this appears to lie with the lack of chain-of-custody certificate holders. UNECE/FOA (2002) report that during 2002, about 2500 chain-of-custody certificates were issued worldwide, of which FSC accounted for 94%.

2.3 Percentage Based Claims

While strategically astute, the chain-of-custody product label soon came under pressure. When FSC first began certification, only timber products that were made from 100% FSC wood could use the product label. This was quite acceptable for manufacturers of knockdown furniture and garden furniture for example. However, pressure soon mounted from retailers to offer a certificate for pulp products (e.g. paper) and particleboard where the manufacturer accepts his raw material from a wide range of vendors, some certified and others not (Buckley and Ansell, 2000). In response to this demand, the FSC adopted a new set of rules for product labels in February 2000. These new rules or "percentage based claims" requirement allowed for public recognition for products with less than 100% FSC endorsed raw materials (Environmental News Service, 2000; Perez, 2000). By relaxing the requirements for the FSC label, the organisation has done a great deal to increase the popularity of the scheme. However, FSC has also been criticised by both retailers and environmental groups for taking this step.

Chain-of-custody certification which ensures that the manufacturer is able to demonstrate the quantity of product used in the manufacturing process coming from FSC certified forests is a crucial element in the percentage based claims requirement.

The minimum requirement was initially set at 30% with the proviso that this percentage must rise progressively to 50% by 2005 (Environmental News Service, 2000; Perez, 2000, p.3; Qualifier Programme, 2000).

With the introduction of percentage based claims requirements, FSC were able to widen the application of their certification system and encourage manufacturers to apply for chain-of-custody certificates.

2.4 FSC Certification in South Africa.

FSC is the dominant forest certification process in South Africa (FSA, 2002, p.17; Kassrils, 2003). South Africa was an early adopter of the system. In May 2000 South Africa, with 780 000 hectares of plantation forest certified, accounted for 51.8% of all FSC certified plantations world-wide (Morkel, 2000). By April 2003, some 889 000 hectares of South African plantation forest was registered, which then accounted for 18.8% of FSC certified plantations worldwide. The total FSC certified plantation area in April 2003 stood at 4 723 581 hectares (FSC, 2003).

Although certified forest products, and with them, FSC certification of plantations, have no following amongst South African retailers, the process was driven in this country principally by B&Q (a large UK hardware retailer) via their local agents, Alpine Trading (Dunne, 2000, p.9). The perceived marketing benefits offered by B&Q, together with the expectation that FSC would rapidly spread to other UK markets resulted in the system being taken up by South African furniture manufacturers (Dunne, 2000, p.13). In addition, new government forestry legislation introduced in 1998 was based on principles of sustained forest management. In fact, the basis of this legislation was the criteria and the indicators set by the FSC. As a result of the management infrastructure already existing in the South African forest industry together with the "incentive" of new government legislation, FSC certification became widely adopted.

Initially, Alpine Trading's experience of promoting FSC was that the system spread slowly with some firms regarding this as a "money making racket". B&Q's suppliers however were under pressure to obtain certification if they wished to maintain their relationship with the company (Dunne, 2000, p.9). That these manufacturers supplying B&Q were unable to obtain chain-of-custody certification without an FSC certified timber source, illustrates the cascading effect of certification down through the supply chain. Sawmillers supplying the lumber were thus placed under pressure to obtain certification for themselves and their source forests. According to Alpine Trading, the biggest breakthrough for FSC in South Africa was the decision taken by Mondi's single biggest lumber customer to go for FSC certification (Dunne, 2000, p.9).

Although the initial FSC requirement was for pine knockdown household furniture, DIY products and Saligna garden furniture (Dunne, 2000, p.7), growers were compelled to certify their entire properties. As a result of this, many wattle plantations were included in the net even though at that early stage, no direct advantage accrued to the owner in respect of wattle products arising from these plantations.

Currently, 64% of the wattle bark processed at the two NTE factories originates from FSC certified plantations. An analysis of the suppliers to the two factories indicates that with careful allocation of the bark, both would be capable of producing wattle bark products which would qualify to carry the FSC label (Feely, 2003). In both instances the amount of FSC certified bark available to the factories would be in excess of the 50% requirement stipulated in the FSC Board's percentage based claim.

Although South Africa was a leader in plantation forest certification, the country has been slow in taking full advantage of the fact. Morkel (2000) reporting on the FSC Trade Fair held in London in 2000, comments on the fact that few people outside South Africa were aware of the high percentage of the country's forests that were certified. South Africa, he felt, should have been synonymous with certified forest products, something which simply was not the case. Some of the country's competitors, e.g. Brazil and Scandinavia, were promoting their achievements on a country basis to great effect.

Even non-certified competitors (e.g. Fletcher Challenge in New Zealand), were actively marketing their intention to certify to great effect. He concluded that marketing was the key to achieving benefits from certification and that marketing on a country basis was likely to be more beneficial than on a company basis.

With the introduction in February 2000 of the FSC Board's percentage based claims, the market demand for certified forest products changed. By August 2001, NCT Forestry Co-operative Ltd. (NCT) was urging its members to obtain FSC certification for their plantations. This was in reaction to moves by Mitsubishi Paper Mills in Japan prioritising the purchase of chips from FSC certified sources. Their initial aim was to have 30% of their chip pile supplied from FSC certified forests as soon as possible and to be the first Japanese paper mill to market paper manufactured from FSC certified raw material (NCT, 2001).

In order to encourage members to certify their wattle and gum pulpwood, NCT introduced a bonus of R5.00 per tonne, payable at the end of each financial year for FSC certified pulpwood supplied through the co-operative (NCT, 2001). In addition, members who certified their plantations also received preferential treatment in respect of orders. A year later, Shincell (the Mondi chip export facility at Richard's Bay) received their FSC chain-of-custody certification and began taking FSC certified gum logs. In this case, Shincell aimed to have 70% of their chip pile consisting of FSC certified material (NCT, 2002). The strategic advantage of being able to market FSC certified timber was now being realised.

By 2003, Japanese woodchip buyers were under pressure to increase the amount of FSC certified pulpwood in their chip piles. This was in line with commitments to raise the percentage of FSC certified wood in their pulp from 30% to 50% by 2005 in order to continue to qualify to use the FSC label (Environmental News Service, 2000; Perez, 2000 p.3; Qualifier Programme, 2000). South Africa is currently the second largest supplier of pulpwood to the Japanese paper industry, accounting for 26% of the supply. With Australia being the largest supplier, but at this stage unable to produce certified

pulp, South African certified supplies have become extremely important and guarantee the country's certified timber growers valuable market share (Keyworth, 2003).

2.5 Cost of Certification

The costs of certification are difficult to quantify with any accuracy. There are both direct and indirect costs involved. Direct costs relate to the hiring of private accredited certifiers. Additional costs may accrue if the firm chooses to hire a consultant to prepare for certification or to appoint a dedicated staff member to the task. Dunne (2000) estimated that for a firm employing less than 150 employees and low levels of complexity, the cost of an initial audit would be approximately R10 000 with an additional R2 000 transport cost. Two audits are required a year in order to maintain certification. While these fees relate to the year 2000, this does give an indication of the cost of an audit should a manufacturer decide to undertake chain-of-custody certification.

In the case of smaller timber growers, group schemes, used by the co-operatives (NCT Co-operative Limited for example) work out cheaper, since individuals in the group share one registration number. As a result, one accreditation fee is paid. In addition, the two audits per year are shared between participating individuals thus also reducing the overall cost. In the case of the NCT group scheme, the charge per participant is R10/hectare, with a minimum of R2000 per farm. This is reduced in the second year to R2000 for the first 500 hectares with an additional R3 per hectare for each hectare over 500 hectares (Clendennan, 2003).

Indirect costs relate to the need to change to FSC suppliers or the reallocation of FSC supplies to achieve the 50% FSC certified raw material throughput requirement to use the FSC label. In addition, any premiums paid for FSC certified supplies must also be taken into consideration.

2.6 Certified Forest Products and Premiums

A number of studies have been conducted to examine consumer perceptions about certified wood products and the willingness of buyers to pay a premium for these products. Read (1991) reports on a study done by the World Wide Fund for Nature (WWF) that found that 60% of consumers in the U.K. would be willing to pay a premium. Winterhalter and Cassens (1993) found that 56% of affluent United States (U.S.) consumers (household incomes in excess of US$50 000) would be prepared to pay a premium for sustainable (certified) wood products. German consumers were also found to be prepared to pay a premium for certified wood products (Centre for European Economic Research, 1995). In a study done amongst New Zealand consumers it was found that on average they would be prepared to pay a premium depending on the item considered, and the initial cost. The premium they were willing to pay generally declined as the premium rose (Ozanne *et al*, 1999).

While there appears to be evidence at consumer level indicating the possible existence of a market segment for certified wood products, the evidence at retail level is more confused. Hansen and McAlexander (1997) report on a qualitative study conducted in the U.S. and the U.K. examining retail perspectives on certification which found little demand for certified products at either Home Depot or Sainsbury's, two major home centre retailers. Ozanne and Vlosky (1997) found that industrial forest products business customers in the U.S. were not very supportive of wood products certification efforts and few felt that their customers would pay a premium for certified products. Collins Pine, a wood products manufacturer located in the U.S. which has attempted to market certified wood products also found little willingness on the part of consumers to pay a price premium for certified products (Punches and Hansen, 1997). Ozanne *et al* (1999) found that New Zealand retailers were rather pessimistic about consumers paying a premium.

The question of forest certification and with it, the existence of certified forest products, has presented marketers with both opportunities and problems. Pro-active companies

such as B&Q have capitalised on these ecological issues and are attempting to influence demand in a manner that will create a new competitive space in the wood products market. In order to achieve this, these retailers have, in committing themselves to purchasing certified forest products, placed restrictions on their suppliers. Suppliers capable of producing certified forest products are thus placed in a strong position, not only in relation to other competitors in the supply chain, but also in relation to the retailers. However, as Dunne (2000) comments, price remains a crucial determinant of competitiveness and as a result, price premiums for certified forest products are unlikely.

2.7 Peat in South Africa

The current volume of peat used in South Africa varies between 70 000 m^3 and 85 000 m^3 per annum. Mushroom farmers use about 44 000 m^3 of moist peat per annum as casing, while nurseries use between 30 000 m^3 and 40 000 m^3 of moist peat per annum (Grundling, 2002). The demand for peat however, has declined over the past 10 - 15 years. The nursery industry used to utilise between 40 000 m^3 to 60 000 m^3 of peat per annum, and the current reduction in its use is ascribed to the partial replacement of peat by composted pine bark. Peat utilisation in the mushroom industry has also declined from 52 000 m^3 per annum 40 years ago, to 42 000 m^3 in 1999. It has since risen to its current 44 000 m^3 per annum (Grundling, 2002).

Sites and annual volumes where peat is currently being mined in South Africa are as shown in Table 1 overleaf.

Table 1: Sources of South African Peat

PEATLAND	NEAREST TOWN	ESTIMATED ANNUAL VOLUME MINED (M^3)
Rietfontein	Bapsfontein	12 000
Rietspruit	Tarlton	15 000
Witfontein	Randfontein	<1000
Gerhard Minnebron (2 mines)	Potchefstroom	30 000 - 40 000
Schoonspruit	Ventersdorp	10 000 - 20 000?

Source: Grundling (2002)

70% of the peat lands that have been mined are located in the catchment of the Vaal River. Others are in the Limpopo, the Crocodile and the Olifants rivers (Grundling, 2002). Mushroom farmers who are reliant on peat mined locally for use as casing material used in the production process on their farms have on numerous occasions expressed extreme frustration to the author in respect of the service received and quality of local peat. In addition, the product is sold wet and loose making transport a significant factor in the cost of acquisition. During 2003, attempts were made under the auspices of the South African Mushroom Farmers Association (SAMFA) to regulate the supply of peat to the industry and to rehabilitate previously mined sites. This has resulted in an increase of up to 330% in the cost of the material ex-peatland (Stewart, 2003).

The South African government is also actively involved in the programme to rehabilitate wetlands and peatlands. The poverty relief programme, Working for Water, has officially renamed its wetland rehabilitation programme the Working for Wetlands programme. R30 million was allocated in the 2000/2003 financial years from the Department of Water Affairs and Forestry to rehabilitate degraded wetlands. Included in the rehabilitation programme for this financial period were 9 peatlands (Grundling, 2002). The wetland conservation community is applying more and more pressure on government departments to implement wise-use principles in terms of its commitment to the Ramsar Convention and peat mining is not recognised as a wise use of wetlands. In

discussions with various government officials, the author has been led to believe that the government is keen to close down peat mining operations but are constrained by the lack of a viable alternative to peat, particularly in the mushroom industry.

2.8 Fibregro Production

Fibregro is produced from composted wattle bark spents, a waste product of the wattle tanning extract manufacturing process. The conversion of wet wattle bark (the raw material used for tanning extract manufacture) is roughly 1 tonne of wet wattle bark : 1 cubic metre of Fibregro. As a result the total potential production of Fibregro is expected to be in the order of 189 800 m^3 (about 190 000 m^3) per annum provided all the commercially available wattle bark is taken in for processing. Conservatively, the annual production is set at 50 000 m^3 per factory or a total of 150 000 m^3 (100 000 m^3 for the two NTE factories and 50 000m^3 for the UCL factory). This is in excess of estimated local requirements (70 000 m^3 to 85 000m^3) rendering it necessary to consider the export market for the additional volumes.

Fibregro has a number of advantages over the locally mined peat. It is an environmentally acceptable product, which can be supplied on a sustainable basis. Since production is a factory driven process, consistency in terms of quality and quantity are readily achievable. In addition, the product is dried, baled and palletised, which results in significant transport efficiencies.

2.9 Fibregro Trials

Fibregro is currently undergoing intensive testing at nurseries and mushroom farms around South Africa. In many cases, the product is already being used for commercial production.

Fibregro is similar to imported Canadian peat and coir, which are currently being used in nursery seedling and potting mixes. All three provide bulk, are low in nutrients and

have a high water holding capacity. Low nutrient levels suit nurserymen in that it enables them to regulate the nutrient regime to suit the plants. The high water holding capacity reduces the amount of water that needs to be applied to the plants.

Although Fibregro is being used by some mushroom farmers in its pure form as a casing material, it has been found to slow the case run by about 3 days with the result that mushroom production is delayed. The reason for this lies in the fact that Fibregro builds up a higher water pressure when it reaches saturation, than does local peat (Moriamez, 2003). Where mushroom farmers are mixing Fibregro with local peat in ratios of 30% to 50% by volume Fibregro:Peat, the case run is not affected.

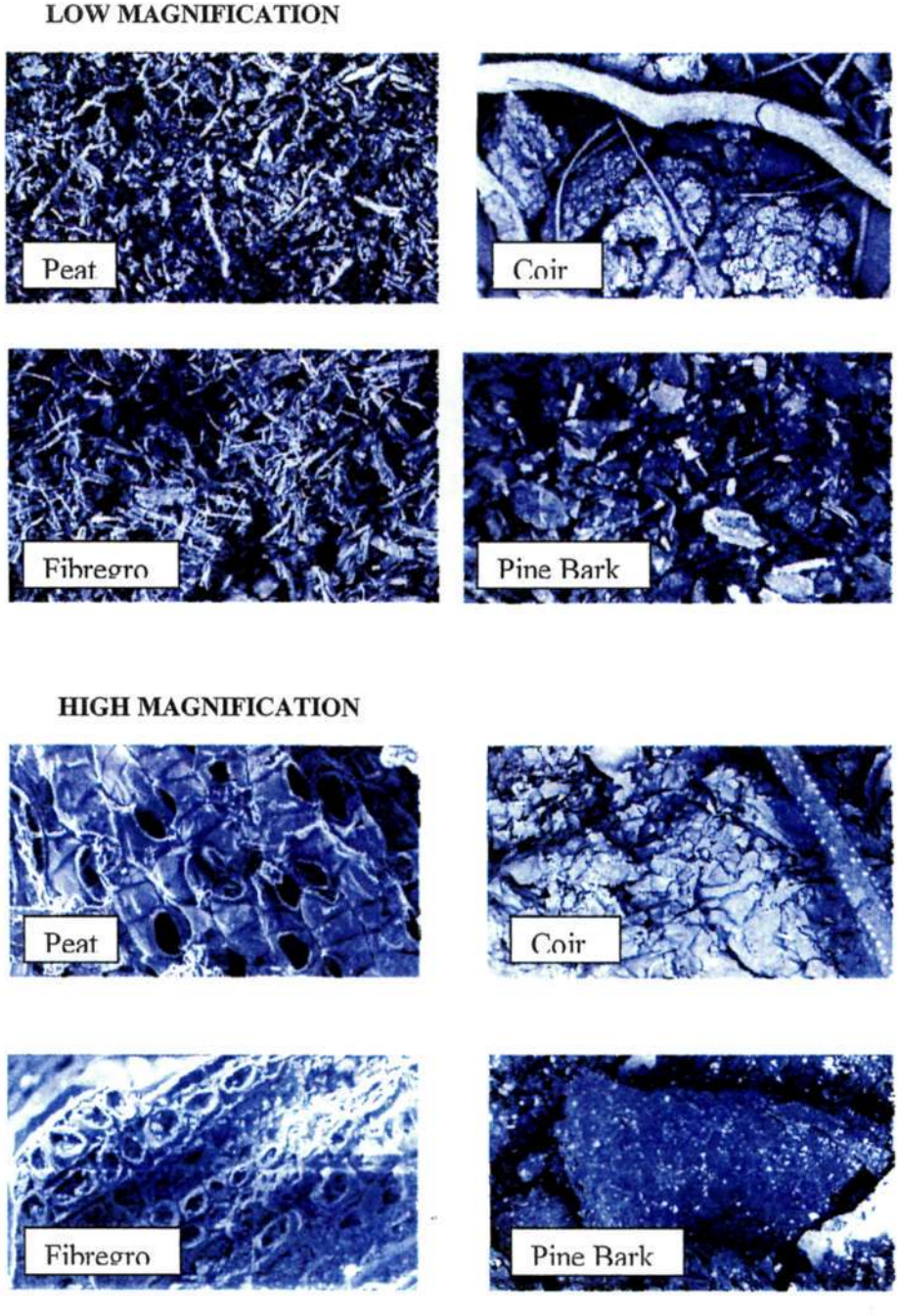
2.9.1 Scanning Electron Microscope Studies

Scanning electron microscope studies undertaken by the Council for Geo-Sciences in Pretoria illustrate the similarities of Fibregro and Canadian peat on both low and high magnification, in comparison with coir and composted pine bark (see figure 1).

Note the excellent fibrous structure on low magnification and the open tubes on high magnification, which produce the excellent water-holding capacity in both peat and Fibregro. Of interest is the platy structure of pine bark that improves air-filled porosity but lowers water holding capacity.

A x-ray diffraction analysis of the coir taken at the same time revealed that salts, though not visible, were impregnated into the coir fibres and released under solution. This confirms the problems encountered with coir where users complained of variability in the quality of this product (DETR, 2000, p.44).

Figure 1. Electron microscope picture of Fibregro, Canadian peat, composted pine bark and coir.



2.10 Fibregro Usage in South Africa

Fibregro usage in South Africa is growing rapidly with the current production facility unable to meet demand. Arrangements are being made to increase capacity with the new facility expected to come on line by the end of February 2004. There are currently three distinct markets that are using Fibregro. These are; mushroom farms, nurseries and hydro-seeding. The product has been tested for commercial rose growing with success.

On mushroom farms as has been mentioned Fibregro is being used in conjunction with local peat as a "peat extender" in casing material. Mixtures of 30% and 50% Fibregro are being used with success. In some instances 100% Fibregro casing is being used.

Fibregro is proving to be an ideal growing medium. The product is a bulky physical medium to which nutrients are added to sustain plant growth. Milled composted pine bark and vermiculite are also added to improve drainage and to allow for good air porosity. Due to the nature of the production process, the product is both physically and biologically stable with low variability between batches.

Fibregro is also being use in hydro-seeding operations, where grass seed is sprayed onto road cuttings to help stabilise the soil. The Fibregro acts as a mulch and helps to keep the seed in position long enough to germinate and send down roots.

2.11 Peat Usage in the United Kingdom

Peat mining and use in the U.K. is under pressure from the environmental lobby. Using similar tactics to the FSC cause, pressure groups have targeted major retailers to obtain a commitment to phase out peat-based products. B&Q was the first retailer to embrace this cause and in April 2001 issued a detailed policy to go peat-free (B&Q, 2001). At the time of the announcement some 27% of B&Q's growing media and soil conditioners were peat-free. By 2006 this is to rise to 85%. Similarly nurseries supplying B&Q are also expected to meet these targets (Baker, 2003; Friends of the Earth, 2001). In

meeting these objectives, B&Q will be looking to working with other interested parties to develop guidelines and establish third party auditing and chain-of-custody certification, to ensure that the peat they do use has been extracted with a minimal environmental impact (Friends of the Earth, 2001). B&Q's ability to meet their targets will depend on the availability of suitable alternatives of sufficient quality and in the necessary volumes (Baker, 2003).

Progress is to be reviewed at the end of 2003 with a major review in 2006 (Friends of the Earth, 2001). Friends of the Earth have recently focussed on other retail outlets with the result that Homebase, Focus and Wyevale Country Gardens have also now agreed to follow B&Q's example (Bennett, 2002). Bennett (2002) also reports that the U.K. government has agreed to pay the U.S. corporation Scotts £317 million in compensation to curtail peat-mining operations in South Yorkshire and Cumbria.

Peat mining in the UK is regarded as a sunset industry (Adlam and Rainbow, 2001; Natal Witness, 2002). This is reflected in the decision by the Peat Producers Association to change their name (to the Growing Media Producers Association) and to expand their activities to include peat alternatives in their growing media products (Shaw, 2002; Growing Media Association, 2003). Growing media manufacturing sites in the UK are located in Northern Ireland, North West England, North East England and Somerset, these being the sites at which peat was and is currently being mined.

Peat usage in the U.K. falls into three major categories - low cost, bulk soil improvers; amateur gardeners and professional growers of horticultural crops, and thirdly, mushroom farmers (DETR, 2000, p.10; Holmes *et al*, 2000). Environmental pressure to reduce the use of peat is resulting in its substitution with composts, the two most important ones being composted pine bark, and green compost derived from grass and hedge clippings. By 2001, replacement in the soil improver market (where requirements are lower) had been rapid, with only 6% remaining unconverted. In the growing media market, where performance criteria are far more demanding, 90% of the product remains peat (3.3 million m^3) (Waller and Temple-Heald, 2003). Waller and Temple-

Heald (2003) explain this by pointing to the German experience of diluting peat with green compost in their growing media. Dilutions of greater than 35% resulted in problems with the structure of the growing media, high nutrient levels and high bulk density (which impacts on handling and transport costs). Holmes *et al* (2000) report that mushroom farmers have tried various alternatives as a casing material but nothing appeared good enough to replace peat. Oxley (2003) however reports that although not available, mushroom buyers often express interest in acquiring mushrooms grown with peat-free or peat-reduced casing material.

Green compost is produced at 55 sites in the UK. Current production is of the order of 740 000 m^3 per annum of which some 300 000 m^3 is suitable for use in growing media products. However, only 68 000 m^3 was actually sold to Growing Media Producers during 2002 (Waller and Temple-Heald, 2003), There are two reasons for this phenomenon. The first is the location of the green compost production sites. On account of the nature of the raw material used (primarily grass clippings and hedge clippings) the material is generated around centres with high population densities. These areas are found in South East England and the Midlands, which are away from the growing media production sites (Waller and Temple-Heald, 2003). The second has to do with the level of dilution of peat with green compost, the implications on the quality of the growing media and the economics of the operation. While Growing Media Producers in England should be able to buy in green compost of an acceptable quality from neighbouring areas, Northern Ireland would appear to be faced with some problems.

The volume of growing media used in the UK in 2001 was estimated at 3.6 million m^3 of which 2.3 million m^3 went to the retail market and 1.3 million m^3 to professional gardeners (ODPM, 2003). It is thus understandable why the large DIY retailers and garden centre chains should have a strong influence on the market (DETR, 2000, p.36; Waller and Temple-Heald, 2003). While there is currently pressure from the major retailers to produce peat-reduced formulations, pricing is reported to remain tight with prices of growing media at both retail and wholesale level now less than they were 15 years ago (Waller and Temple-Heald, 2003).

In Great Britain (England, Scotland and Wales), at least two thirds of the indigenous peat supply is expected to become unavailable in the short term due to European nature conservation designations. Imports from Eire and the Baltic States can as a result, be expected to increase. However, pressure on these producers to apply "wise-use" principles to their peatlands is likely to place a restriction on sales and ultimately increase prices (Waller and Temple-Heald, 2003). This in turn will increase the opportunities for the use of peat-free products.

70% of growing media sales in the UK occur during spring. Demand is such that just-in-time production is not possible. Products need to be packaged and stored for up to 6 months prior to spring in order to meet the demand. Slower moving lines such as sowing media, may be kept up to 12 months by the retailers. This raises the importance of ensuring that growing media remains stable in storage, i.e. they should not deteriorate, change physically or in nutritional status as a result of biological activity (Waller and Temple-Heald, 2003). A further point of importance is that growing media in the UK is sold by volume but it is compressible, thus rendering bulk density important. Examples of the comparative bulk densities given by Waller and Temple-Heald (2003) are:

Imported peat : Eire	180 - 260 gm/l
Baltic States	150 - 220 gm/l
Green compost	500 - 600 gm/l
Pine bark	375 gm/l
Coir	300 gm/l

As has been mentioned, higher bulk densities impact on handling and transport, and as a result, on the competitiveness of the product.

2.12 Sustainable Competitive Advantage in the UK Market

Can Fibregro exports be rewarding enough to justify the cost and risks associated with setting up such an export initiative? In addition, if the venture proves successful how

long will it take for competitors to begin to copy the product and of what importance is the imposition of switching costs on customers in order to ensure sustainability?

Entry barriers to the peat-free growing media market in the UK are relatively low. Green compost and composted pine bark are cheap to produce and readily available. There appear, however, to be limits to the amount of this material that can be readily incorporated in peat-reduced growing media before it begins to impact on product quality. Fibregro is beginning to make significant advances in the South African market on account of a number of its product characteristics, notably:

(a) Its compatibility with existing peat. The product has physical and nutrient characteristics similar to imported peat.
(b) Lack of complexity. Since Fibregro looks and behaves like peat, management regimes do not need to be changed to any great extent in order to use the product.
(c) Communicability. Properties similar to imported peat coupled with environmental acceptability make it easy to attract customer attention and will enhance the adoption process.
(d) Fibregro has a bulk density of 257 gm/l, which is comparable with Irish peat imported into the UK. This assists with handling and transportation costs.

The characteristics which make Fibregro acceptable in the South African market should also assist with its adoption in the UK, possibly even to a greater extent since the environmental lobby is actively encouraging peat-free alternatives in this country.

On the question of how long it would take for competitors to copy the product, there are a number of points that count in Fibregro's favour. Firstly, Fibregro is manufactured from detannalised or "spent' wattle bark. This is a very specific process that ensures that tannins and sugars are removed from the bark before composting. This factory driven process speeds up what would normally take time in a bog or natural environment. To subject different bark to a similar process simply to detannalise the material would be prohibitively expensive. It is estimated that only about 320 000 tonnes of spent wattle bark are generated annually worldwide in the production of tanning extract and adhesives. South Africa accounts for 56% of this annual tonnage. The next two largest

generators of raw material (spent wattle bark) are two Brazilian extract manufacturers generating between 15% and 17% of the total world supply each (Dobson, 2001). There is thus a finite supply of raw material from which this product can be manufactured and South Africa can easily dominate this niche.

A brief assessment of the supply chains of the Growing Media Association appears to indicate that the point of concentration, where resources are finite and where participants are few, is the point where further inclusion of green compost as a peat substitute begins to affect growing media quality. The German experience sets this level at above 35% green compost inclusion (Waller and Temple-Heald, 2003). Fibregro needs to exploit this weakness and attempt to convince Growing Media Producers that it is capable of completely replacing peat in growing media or at least pushing the substitution levels beyond 35%. If this can be achieved, a sustainable competitive advantage can become a reality in the UK growing media market.

Mushroom farmers in the UK provide a further potential market. Research is being undertaken to find alternatives to peat as a mushroom casing, with some success (BBC News and Features, 2003). The acceptance of these alternatives at this stage appears limited, even though interest exists at retail level in the acquisition of mushrooms grown with peat-free or peat-reduced casing (Oxley, 2003). In addition, organic mushroom farmers are reported to feel that while there are no practical alternatives to peat, they are reluctant to have peat-free standards imposed on them which are impractical and too-costly (BBC News and Features, 2003). Fibregro has the potential to become an ideal mushroom casing material in South Africa (Labuschagne, 2003) and in fact there are numerous mushroom farmers who are using the product on a regular basis, either in its pure form or in a mix with local peat, and achieving outstanding results. Experience gained from Fibregro usage on South African mushroom farms will be of immense benefit when the product is introduced to mushroom farmers in the UK.

2.13 Summary

Information arising from the literature review indicates the existence of a marketing opportunity in the UK for a good peat alternative. The existence of an established market for certified forest products provides the intriguing prospect of combining these attributes to develop a unique niche for Fibregro in this market.

A survey was consequently undertaken amongst members of the Growing Media Association to test the applicability of the literature review findings in relation to these two Fibregro characteristics. In addition, the survey also enabled the researcher to generate interest amongst Growing Media Producers in importing Fibregro, thus providing Fibregro (Pty) Ltd. with potential distribution channels in the UK growing media market.

The methodology used for this primary research follows in the next chapter.

CHAPTER 3.

Research Methodology.

3.0 Introduction

The literature review reported on in chapter 2 is intended to inform and underpin each stage of the research process.

There is evidence in the literature supporting the existence of a "green" or environmental market segment. However, the manner in which certified forest products have been introduced to the market has resulted in a variable consumer response to these products. There are two views regarding retailer response to the actions of pressure groups. The first suggests that retailers have been compelled to protect their market interests by acceding to demands from "green activists" to align themselves with forest certification. In this respect, although the system is described as a voluntary market-based approach to protect the world's forests, there would appear to be a measure of coercion involved. The second view is that forest certification provided an opportunity for innovative companies to attempt to influence demand and create a new, unique competitive space that they could occupy.

Important questions arise from these developments. Since consumer support for this initiative is unreliable, retailers adopting certified forest product schemes need to manage the situation very carefully. Barriers to entry have been introduced which place more power in the hands of those suppliers who are able to meet these requirements. Suppliers in turn need to conduct their affairs in a manner that will result in a sustainable competitive advantage in this market.

Buoyed by their success with the forest products certification scheme, the "green pressure groups" have used similar tactics to protect peat deposits in the U.K. Again,

barriers to entry have been introduced which can be exploited by producers of peat-free alternatives. In similar vein an opportunity has also arisen for suppliers of such alternatives to achieve a sustainable competitive advantage in the market.

STATEMENT OF THE PROBLEM

The questions arising out of this literature review that were of direct importance to Fibregro were:

(a) **Can Fibregro's peat free status be exploited to provide the company with a sustainable competitive advantage in the U.K. growing medium and mushroom casing markets?**

(b) Fibregro produced at both NTE co-operative's factories could qualify for an FSC label. There are costs involved in introducing the necessary chain-of-custody arrangements to qualify for this label. **Are there enough advantages associated with this label to justify the effort and cost of implementing chain-of-custody procedures?**

3.1 Research Objectives

The objectives of the research are twofold and aimed at establishing the needs of the UK based Growing Media Association members in relation to Fibregro's two unique attributes, i.e.

(a) The importance of the product's peat-free status as a growing medium and mushroom casing product.

(b) Whether FSC labelling is justifiable in terms of competitive advantage in this market.

The needs thus established will assist the Fibregro Board in assessing whether these unique attributes can be exploited to achieve a sustainable competitive advantage in the UK market for growing medium and mushroom casing.

3.2.0 Research Design

Discerning customer needs in terms of peat-free status and FSC labelling can best be accomplished through well-designed and implemented market research. Thus, the

survey development and implementation for this study was based on methods recommended by a number of authors (Linsky, 1975; Fowler, 1993; Salant and Dillman, 1994; and Allison *et al*, 1996).
The market research undertaken in this instance was of an exploratory nature and comprised both qualitative and quantitative methods.

3.2.1 Choice of Survey Method

Salant and Dillman (1994) pp.36 - 37 identify four choices of survey method:

(a) Mail surveys
(b) Telephone surveys
(c) Face to face surveys
(d) Drop-off surveys (face to face and mail).

The mail survey option was preferred since a reliable address list of survey respondents was available. In addition distance also had to be taken into account and immediate turnaround was not necessary. It was also felt that as mainly clerical skills were required to complete the survey, this would simplify the procedure and enhance the response rate.

3.2.2 Study Population

The study population in this survey was restricted to members of the Growing Media Association, which is based in the U.K. This decision was taken following advice from two independent sources in the country, Alan Shaw, Chief Executive of the Growing Media Association and Susie Holmes, Soil Science and Growing Media Consultant, ADAS, U.K. A complete address list is attached as Addendum 1.

The growing media industry in the U.K. typically works through manufacturers who acquire the ingredients to formulate growing media products for the professional and retail sectors. Distribution is then undertaken by various independent wholesalers to the professional growers and retail outlets. On account of the high volume and range of

growing media / soil improvers required and the fact that the major retailers purchase nationally, it is likely to be extremely difficult to get product into the market without going via one of the major manufacturers (Holmes, 2003: Shaw, 2003).

3.2.3 Sampling

The survey was restricted to members of the Growing Media Association as there are good grounds to believe that this association is representative of peat based growing media manufacturers in the UK. Verification of this assumption is dealt with in more detail in the paragraphs on sampling (3.2.4.1) and coverage (3.2.4.2) errors. The Growing Media Association is newly formed and replaces the old Peat Producers Association. A complete address list of members was obtained from their website (Peat Producers Association, 2003). As total membership consists of 23 organisations it was decided to include all of them in the survey. This provided an efficient one-stop-shop for the accumulation of data from which generalisations could be made. It also ensured a good probability of selection within the study population, thus fulfilling two of the criteria identified by Fowler (1993, p.12) for a good sample frame.

3.2.4.0 Survey Sampling Error

Salant and Dillman (1994) pp.16 - 21 identify and discuss four types of error associated with surveys:

- Sampling error
- Coverage error
- Non-response error
- Measurement error

3.2.4.1 Sampling Error

Sampling error occurs when the survey only covers a subset of the population. The newly constituted Growing Media Association (old Peat Producers Association)

although small in number covers the range of producers of growing media in this country (UK). This was verified independently by comparing the names of some of the major producers of growing media obtained from Holmes (2000). All those mentioned appeared on the Growing Media Association's membership list. Similarly, the survey used by Waller and Temple-Heald (2003) was also consulted. Their survey was split into manufacturers of growing media for the professional market (plant producers and professional horticulturists) and the retail market (DIY supermarkets and garden centres). In the case of the professional market, six out of thirteen surveyed did not appear on the Growing Media Association address list. These six all fell into the <50 000m³ p.a. category. The seven who were surveyed covered the full range of producer size from >150 000m³ p.a. to <50 000m³ p.a. Of the suppliers to the retail market surveyed, only four did not appear on the Growing Media Association's address list. Again, these fell into the "small" category with production varying from 25 000m³ to 50 000m³ p.a. Again, those surveyed covered the full range of producer size from 25 000m³ to 50 000m³ p.a. up to >250 000 m³ p.a.

It can thus be safely concluded that sampling error has been avoided and that the survey was not restricted to a subset of the population.

3.2.4.2 Coverage Error

Coverage error occurs when the study population from which the sample frame is drawn does not represent the population (Salant and Dillman, 1994, pp 16-21). UK growing media manufacturing occurs principally in Northern Ireland, North West England, North East England and in Somerset (Waller and Temple-Heald, 2003). It is from these areas that the Growing Media Association membership is drawn.

The coverage achieved by using the Growing Media Association membership list is sufficient to ensure that the sample frame is representative of the population of the UK based growing media manufacturers.

3.2.4.3 Non-response Error

Non-response error occurs when a significant number in the survey sample fail to respond and in addition differ in a significant way from those who do respond. A non-response of greater than 60% must also be red-flagged! (Fowler, 1993, p.72; Salant and Dillman, 1994, pp.16 - 21). Non-response is potentially one of the most important sources of systematic error of the sample estimates (Fowler, 1993,p.52).

In an attempt to minimise non-response error, care was taken with the design of the questionnaire. In particular, an effort was made to ensure that the questionnaire looked professional and that questions were attractively spaced, uncluttered and easy to read. The tasks were clearly explained and responses easy to record with written comment being left to the discretion of the respondent. Provision was also made for reminders to be posted to slow responders and finally, a further letter with a replacement questionnaire. The CEO of the Growing Media Association was contacted at the outset of the survey to inform him of what was taking place and to enlist his co-operation, which was duly obtained. Finally, self-addressed envelopes were included with all questionnaires to simplify the reply process.

3.2.4.4 Measurement Error

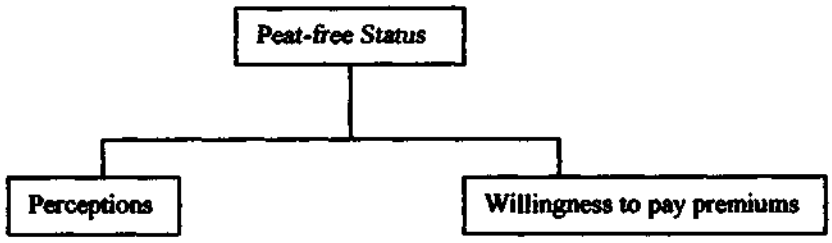
Measurement error occurs when the respondent's answer is incorrect, inaccurate, and imprecise or when it cannot be compared in any meaningful way to answers from other respondents (Salant and Dillman, 1994 pp.16 - 21).

The questionnaires were directed at senior management and kept short and simple to encourage a considered response. The questions were uncomplicated with replies of a structured nature to encourage accuracy and comparison among respondents. It was also possible to assume, given the nature of the sample frame, that respondents would have a good working knowledge of the subject.

3.3.0 Questionnaire Design

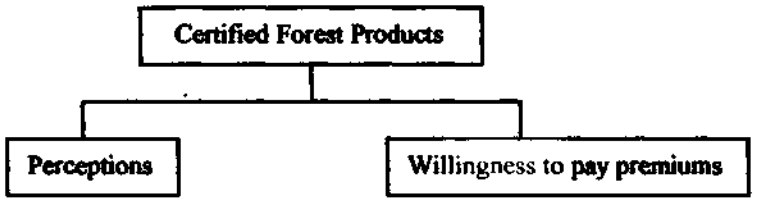
The questionnaire was designed in a manner that would address the Problem Statement. In order to achieve this, questions were arranged in four groupings.

Group 1.



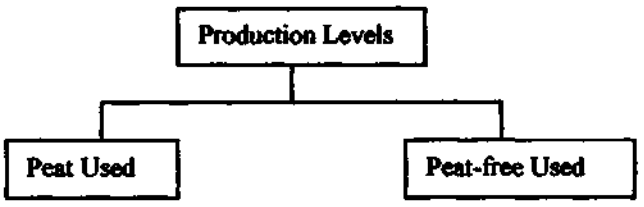
It is important to determine whether Fibregro's peat-free status can be exploited in the UK market for growing media production and mushroom casing. Key to a successful export initiative is the question of pricing and in particular the willingness of downstream customers to pay a premium.

Group 2.



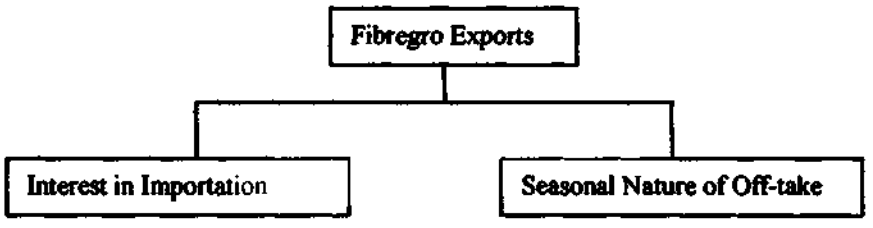
At present, NTE Co-operative Ltd has ready access to certified wattle bark. However, as there is no pressure to produce certified tanning extract or adhesive, chain-of-custody procedures have not been introduced into the factories. If FSC certification is to be considered for waste material (wattle bark spents) then the additional cost involved in the procedure will have to be recovered in the sale of this material to Fibregro. As a consequence, Fibregro's ability to recover these additional costs needs careful consideration.

Group 3.



The amount of peat and peat-free material used in the manufacture of more consequential growing media and mushroom applications is important in that it will provide a useful indication of the extent to which peat reduction targets are being implemented.

Group 4.



Fibregro (Pty) Ltd. is a potential new entrant into the UK growing media market and as a result, needs to establish adequate distribution channels for its product. As the growing media industry in the UK typically works through manufacturers who acquire the ingredients to formulate growing media products (Holmes, 2003; Shaw, 2003), this avenue is being targeted as the most suitable access to the industry. An expressed interest in importing Fibregro will provide ready access to potential distributors. Further information on when demand is likely to be at its highest, is useful in that it will assist with local production scheduling.

Questionnaire design was undertaken with care as this provided an opportunity to reduce non-response and measurement errors. In addition every effort was made to encourage thoughtful answers. This was achieved by asking a series of questions in order to get an accurate answer, rather than asking the question "point blank" (e.g. "Do

you consider FSC certification an asset?"). Questions 8 through to 11 in the questionnaire (Addendum II) exhibit this line of thinking.

3.3.1 Type of Question

To establish the needs of potential customers in the UK in relation to Fibregro's unique attributes, the opinions of these customers were surveyed. Salant and Dillman (1994, pp.87 - 90), and Allison *et al*, (1996, p.83), make the point that opinions are often difficult to measure. This is because they are often imprecise, may change from time to time or may not be well thought out.

The structure of the questions used in this questionnaire fell into two broad categories, close-ended and open-ended. The majority of the questionnaire comprised close-ended questions where provision was made for an ordered choice of answers. However, as the researcher did not assume to have a complete understanding of the subject, provision was made at the end of the questionnaire for respondents to add further comments if they wished to do so. Given also that the issues surrounding forest certification and the peat-free debate were being imposed on the public as a result of environmental pressure, care was taken by the researcher to avoid emotional bias in the questions.

3.3.2 Questionnaire Layout

Visual impact and ease of reading are two powerful tools to encourage response. To achieve this, an informative title and a graphic design were used on the front cover to identify the survey.

Inside the questionnaire was uncluttered. Questions were kept short and were self-explanatory. Skip patterns were avoided. This is demonstrated in the questionnaire in Addendum II.

3.3.3 Pilot Survey

Both Salant and Dillman (1994, pp.140-120) and Allison *et al* (1996, p.52) deal with the importance of conducting a pilot survey to test the clarity and "user friendliness" of the questionnaire. This procedure was carried out with a small sample of Growing Media Manufacturers in South Africa. The pilot survey respondents were observed while they completed the questionnaires in order to pick up any signs of perceived ambiguity or lack of clarity. Small changes were made to the questionnaire as a result of this exercise after which the questionnaire in its final form was prepared for posting.

3.4 Questionnaire

A copy of the questionnaire sent to the sample frame is attached as Addendum II.

3.5 Data Collection

Fowler (1993, p.45), Salant and Dillman (1994, pp.137 – 139) and Allison *et al* (1996, p.95) all recommend a standard procedural approach in order to reduce the incidence of non-response error in mail surveys. While these procedures might vary in detail the general approach is as follows:

(a) Personalised advanced notice letters to all in the sample frame.
(b) Personalised letters carrying slightly more detail in respect of the survey. Include the questionnaire and a stamped addressed return envelope.
(c) Follow up with a further letter to non-responders. Include a replacement questionnaire.
(d) If the response remains poor follow up with a telephone call or a personal visit.
(e) Thank respondents who have returned the questionnaires.

Samples of the various stage letters are enclosed as Addendum III.

The researcher was fortunate to be able to visit the UK during the latter part of November, early December 2003. As the amount of time available was limited an attempt was made to visit the greatest number of Growing Media Producers possible. This resulted in the visits being concentrated in the Somerset and North West England regions. Roughly half hour interviews were conducted which served to provide valuable qualitative and quantitative data on the following:

- Prices of peat, grades and origin.
- Peat quality.
- Peat-free material in use.
- Demand for peat-free growing media.
- The effect of legislation on the growing media industry.

As the timing of the visit was dependent on other work the data collection procedure set out in this section was not strictly adhered to in that these "personal visits" took place prior to the third stage follow up letter to non-respondents. Where non-respondents were interviewed they were also requested to complete replacement questionnaires. Non-responders who were not interviewed did receive follow up letters with replacement questionnaires.

3.6 Conclusion

A mail survey is the most appropriate method to address the questions arising from the literature review relating to the needs of the UK based Growing Media Association members in respect of Fibregro's unique attributes of FSC certification and being a peat-free growing medium.

Restricting the survey to members of the Growing Media Association was possible on the grounds that this association is representative of peat based growing media manufacturers in this country. The fact that membership is small (23 members) and that a comprehensive address list exists for these members contributes to the appropriateness of using a mail survey.

The information gleaned from the questionnaires combined with that obtained during the interviews of the sub set of the study population provided a valuable source of data for the analysis and discussion which follows in the next chapter.

CHAPTER 4

Data Presentation, Analysis and Discussion

4.0 Introduction

This chapter covers the presentation of the data obtained from the mail survey, the analysis of the data and the subsequent discussion of the results.

Data are presented and analysed in the same four groupings used in developing the questionnaire. The discussion, which follows each set of analysis, takes into account the information obtained from the interviews.

4.1 Sample Description

The sample consisted of 23 companies comprising members of the Growing Media Association and a small company in the Somerset area, which was no longer a member. Of the Growing Media Association members in the sample, one is based in the Netherlands, three in Eire and the balance in the UK. The UK growing media producers are centred mainly in four regions, NE England, NW England, SW England (Somerset) and N Ireland. While data was not directly available on which markets (retail and professional) the various producers supplied, a comparison with the sample used by Waller and Temple-Heald (2003) indicated that producers in NE England, NW England and N Ireland supplied both the retail and professional markets, while those in the Somerset area supplied the retail market exclusively. No information is available as to whether the retailers supplied were large or small.

Questionnaires were posted to all 23 members of the Growing Media Association. Growing Media Producers in the Somerset and North Western England areas were visited by the researcher during late November/early December 2003, to obtain further information on the pricing of peat and peat alternatives. This opportunity was also used

to follow up on non-respondents in these areas. During the visit to the Somerset area, a small producer who was no longer a member of the Association completed a questionnaire. The final sample size was thus 24.

16 out of the 24 questionnaires were completed and returned, resulting in a 67% response rate.

4.2 Data Presentation

The questions in the survey can be grouped into four main areas. The first two address the main issues relating to the peat-free status of Fibregro and the question of forest certification of minor forest products (in this case FSC certification in particular). In both instances the questions focus on the perceptions relating to these two Fibregro attributes, willingness to pay premiums for such a product and whether the survey participants supply both the mushroom and growing media markets.

The third group of questions dealt with the production levels of the various Growing Media Producers included in the survey. The quantity of peat-free material used by each Growing Media Producer would also assist in assessing the extent to which the UK government's peat reduction targets were having an effect. The final group of questions dealt with the issue of exports, focusing on interest shown by potential buyers and the likely timing of the purchases.

4.3 Fibregro's Peat-free Status

The responses to the questions dealing with Fibregro's peat-free status have provided some useful insights into the peat-reduction process in the UK. A point that has arisen as a result of the survey, which was not initially evident from the literature, is the importance of the fact that the published peat reduction percentages were targets.

Growing Media Producer responses to Fibregro's peat-free status are summarised in table 2.

Table 2. Growing media producer responses to Fibregro's peat-free status.

QUESTIONS	N = 16		PERCENT	
	Yes	No	Yes	No
Legislative and environmental pressure is resulting in the need to embrace peat-free products in growing media and mushroom casing. Are you able to access peat-free products of the right quality to use in your growing media product range?	13	3	81	19
Retailer ability to meet "green targets" for peat-free products depends on the availability of alternatives. Is your company being encouraged by retailers to produce peat-free growing media?	8	8	50	50
Do you supply mushroom farmers with casing material?	1	15	6	94
Does your company experience pressure from mushroom farmers to produce peat-free casing material?	0	16	0	100
Do you believe that using a good peat substitute will provide you with an advantage in the market for :				
• Growing medium?	12	4	75	25
• Mushroom casing material?	4	12	25	75
In your opinion do you think you would be able to charge a premium for:				
• Growing media manufactured from Fibregro?	1	15	6	94
• Mushroom casing manufactured from Fibregro?	0	16	0	100

The majority of respondents (81%) indicated that they were able to access peat-free products of the right quality to use in their product ranges. In the interviews conducted amongst producers it became apparent that this was related to markets that the different producers were supplying. Peat alternatives currently in use range from green compost (derived from material of botanical origin such as grass, hedge clippings etc) to composted pine bark. B&Q were found to sell a multipurpose compost which "contains a mixture of peat and alternative suitable ingredients." The alternatives in this case were stated to constitute at least 10% of the total mix. Producers interviewed were of the

opinion that these alternatives could be "anything", from green compost to composted pine bark (Power, 2003; Temple-Heald, 2003 and Whyatt, 2003). Temple-Heald (2003) expressed the opinion that a "good peat was capable of masking a lot of evils".
It is apparent from this that the peat-reduced targets of 10% observed in the B&Q outlets can be achieved using cheap, readily available composts. Rowland (2003) and Whyatt (2003) were both of the opinion that this substitution could reach 20% without impacting on the overall efficacy of a good peat. This is somewhat less than the 35% substitution threshold experienced in Germany (Waller and Temple-Heald, 2003), but it does confirm the fact that there is a limit to how much peat may be substituted in growing media with compost.

The finding that only 50% of the respondents were being encouraged by retailers to produce peat-free growing media was unexpected. However, interviews conducted with some of the respondents shed light on this finding. The peat-free campaign, as is evident from the literature, has been aimed at the large retail chains (e.g. B&Q, Homebase, Wyevale Country Gardens). Producers supplying these retailers are being encouraged to produce peat-free and peat-reduced growing media. Producers, on the other hand, who supplied smaller retailers and garden centres were not being pressured to produce peat-free or even peat-reduced products (Garley, 2003; Jones, 2003; King, 2003; Neale, 2003; Whyatt, 2003).

While it was not possible to ascertain directly from the survey which of the producers supplied the large retail chains and which the smaller retailers, stratification of the sample on the basis of the size of the operation produced an interesting response pattern (See table 3). All Growing Media Producers bar one, who consumed in excess of 100 000m³ of peat and peat-free material per annum reported that their companies were being encouraged by retailers to produce peat-free (or peat-reduced) growing media. The single exception, although refusing to divulge their production capacity, is classified by Waller and Temple-Heald (2003) in their survey, as falling into the less than 100 000m³ per annum category. Interestingly, a single individual in this group, who while reporting encouragement from retailers to produce peat-free growing media

indicated zero usage of peat-free material. This could be an indication that this producer, whose operation is based in Eire, is finding it difficult to source green compost of an acceptable quality and price.

All the respondents who indicated that they were not being encouraged by retailers to produce peat-free growing media fell into the less than 100 000m³ per annum production category. Again, a single producer in this group refused to divulge his annual consumption, however, Waller and Temple-Heald (2003) classified this Somerset producer in the less than 100 000m³ per annum category.

Table 3. Responses to the question whether the company was being encouraged by retailers to produce peat-free growing media stratified on the basis of annual peat/peat-free consumption.

Yes	No	Peat consumption (m³)	Peat-free Consumption (m³)	Total peat/peat-free Consumption (m³)
X		120 000	30 000	150 000
X		500 000	80 000	580 000
X		-	-	-
X		100 000	15 000	115 000
X		300 000	50 000	350 000
X		150 000	0	150 000
X		100 000	10 000	110 000
X		300 000	10 000	310 000
	X	50 000	2 000	52 000
	X	2 000	0	2 000
	X	10 000	1 600	11 600
	X	10 000	1 000	11 000
	X	7 500	2 500	10 000
	X	20 000	2 000	22 000
	X	3 000	1 000	4 000
	X	-	-	-

Given that the major retail chains can be expected to source large volumes of growing media coupled to the fact that purchasing is likely to occur nationally, there is a strong

likelihood that the majority of the smaller producers (less than 100 000m³ per annum) are not supplying these retailers. This would then account for this split response.

The end consumer is also reported by King (2003) and Payn (2003), to be brand loyal and reluctant to move away from known peat products. This consequently makes it easier for the smaller retailers and garden centres to ignore moves towards peat-reduced growing media. In addition Rowland (2003) made the point that many peat extraction licences in the UK remained valid to 2042 and that the peat reduction figures of 40% by 2005 and 90% by 2010 were targets, and not legally enforceable! It is thus questionable whether the 90% or even 40% peat reduction targets for growing media countrywide will be achieved.

The low response to the supply of mushroom casing material was unexpected. However, given the fact that the mushroom industry in the UK is a dying industry due to excessive labour costs and cheap imports from Eire and Poland, this is to be expected (Temple-Heald, 2003). The negative response (100%) to the question of whether producers experience pressure to produce peat-free casing material was understandable given that only one respondent was active in this field and the fact that mushroom farmers had tried various alternatives to peat with little success. Oxley (2003) did however comment that mushroom buyer representatives continually express interest in acquiring mushrooms grown with peat-free or peat-reduced casing.

There is strong support (75%) for the idea that a good peat substitute would provide growing media producers with an advantage in the market for growing media products with an overwhelming percentage (94%) of the opinion that premiums could not be expected in the market for such a product. These findings are consistent with the literature. There are limits to the amount of peat-free material currently on offer that can be incorporated in peat-based growing media products. As a result, peat-free products have only managed a marginal penetration of the growing media market. Any peat-free product that is capable of performing well in this market sector, and which can increase the amount of alternative material that can be used with peat beyond the 20% - 35%

ceiling, is bound to provide the producer with a competitive advantage. In addition, it is evident that although the large retailers have been the driving force behind the production of peat-reduced growing medium, there still exists a sizeable market for pure peat products. Customers continue therefore to have the choice of purchasing peat-reduced or pure peat products. As a result, the prospect of charging premiums for peat-reduced or peat-free products appears unlikely.

Given the low number of producers supplying mushroom casing the 75% negative response to the question whether a good peat substitute would provide an advantage in this market must be viewed with circumspection. The majority of respondents could not be expected to have enough experience of the market to provide an objective view in this respect. This contention is supported by the comments from Oxley (2003) that there is interest from buyers for mushrooms grown with peat-free or peat-reduced casing and Holmes *et al* (2000) that a suitable replacement for peat in mushroom casing was not available. The overwhelming negative response (100%) in respect of premium pricing for Fibregro mushroom casing would again appear to be the result of transferring experience gained in the growing media field to that of mushroom casing.

4.4 Forest Stewardship Certification

An assessment of whether FSC labelling of Fibregro would be advantageous in the market will assist the Fibregro Board in decision making in this respect. There are logistical and cost implications associated with this decision. While there is sufficient wattle bark from FSC certified plantations to achieve the 50% minimum requirement for the FSC label, deliveries to the two factories will need to be carefully co-ordinated to ensure that the minimum requirement is met on a consistent basis. In addition, chain-of-custody procedures will impose both an administrative and financial burden on the factories, and as a consequence, the Board needs a solid motivation if this is to be implemented.

Growing media producer responses to the certification of Fibregro are summarised in table 4.

Table 4. Growing Media Producer Responses to the Certification of Fibregro.

QUESTIONS	N = 16			PERCENT		
	Aware	Unaware		Aware	Unaware	
Some retailers in the UK have committed themselves to using Certified Forest Products. Are you aware / unaware of this commitment?	13	3		81	19	
Forest Stewardship Council (FSC) certification is a form of forest certification that has been adopted by some UK retailers. Are you aware / unaware of this certification system?	11	5		69	31	
Fibregro is a peat substitute that could qualify for FSC certification. In your opinion would an FSC label be advantageous to you should you decide to use Fibregro in your growing medium?	Yes	No		Yes	No	
	12	4		75	25	
In your opinion, do you think you would be able to charge a premium for products manufactured from Fibregro carrying an FSC label?	Yes	Poss	No	Yes	Poss	No
	1	9	6	6	56	38

The high percentage (81%) of respondents who were aware of the commitment by retailers to using certified forest products coupled with the awareness of the FSC certification system (69%) is an indication of the dominance of this system in the UK. This confirms reports that the growth in FSC certification has been facilitated by the fact that retailers in the UK market were early adopters of the scheme. As a consequence, it would appear that there is also a widespread appreciation of the system in the UK.
That South African plantation owners have followed the FSC route is thus an advantage when exporting to this country. This is further confirmed by the survey finding that 75% of the respondents were of the opinion that an FSC label would be advantageous should they decide to use Fibregro in their growing medium.
The finding that 6% (one respondent) felt that a premium could be charged for growing medium carrying an FSC label and 56% suggesting that this might be possible, is an

indication that such growing medium would be unique in the market. This uniqueness would assist in differentiating the product, allowing it to fill a specialised niche for which a premium might be justified. Part of this niche attraction would be its ability to fulfil a special role from the retailer perspective of contributing to both FSC and peat-free target commitments. A stratification of the sample on the basis of annual peat/peat-free consumption (table 5) failed to produce any observable trends between the groupings.

Table 5. Respondent opinion on whether it would be possible to charge premiums for products manufactured from Fibregro carrying an FSC label, stratified on the basis of annual peat/peat-free consumption.

Yes	Poss	No	Peat consumption (m^3)	Peat-free consumption (m^3)	Total peat/peat-free consumption (m^3)
	X		120 000	30 000	150 000
		X	500 000	80 000	580 000
	X		100 000	15 000	115 000
	X		300 000	50 000	350 000
		X	150 000	0	150 000
	X		200 000	10 000	210 000
		X	300 000	10 000	310 000
		X	-	-	-
	X		50 000	2 000	52 000
	X		2 000	0	2 000
		X	10 000	1 600	11 600
	X		10 000	1 000	11 000
	X		7 500	2 500	10 000
X			-	-	-
		X	20 000	2 000	22 000
	X		*3 000*	*1 000*	*4 000*

The two respondents who failed to provide details of peat usage are listed in the less than 100 000m^3 per annum category on the basis of them having been classified as such by Waller and Temple-Heald (2003).

Although some suppliers feel that they might be in a better position to negotiate premiums from the retailers, the attitude of the final consumer toward premium pricing will continue to limit its extent. Dunne's comments that price remains a crucial determinant of competitiveness in respect of certified forest products, should not be overlooked (Dunne, 2000).

4.5 Peat and Peat-free Material Usage

The amount of peat and peat-free material used by respondents in the manufacture of growing media and mushroom casing is summarised in table 6 on page 54.

Two of the sixteen respondents to this survey were reluctant to provide information on the quantity of peat and peat- free material, which they used in their production. Sample size in this case was reduced to 14 (n=14). The amount of peat-free material used, as a percentage of total production, ranged from 0% to 25%. Both the producers reporting peat-free percentages of 25% of total production were small. In one case that particular producer's peat supply was running out and the operation was only expected to continue for another year. In this instance, the high peat-free content of production could be ascribed to an attempt to prolong the life of the operation. The balance of the respondents indicated peat-free components as a percentage of total production varying from 0% to 20% with all but two indicating a degree of peat substitution in their growing media products.

Overall the peat-free component of total growing media appears to be 11% which is higher than the 6% reported by DETR (2000) but supports the findings of Waller and Temple-Heald (2003) that 90% of the products sold in the growing media market remains peat. This indicates continued progress over the last three years towards peat reduction in growing media in line with the UK government's MPG13 note which sets a target of 40% of total peat market requirement for soil improvers and growing media to be supplied from non-peat sources by 2005 (DETR, 1995).

Table 6: Total usage of Peat and Peat-free material for Growing Media and Mushroom Casing Production amongst Survey Respondents (m^3). n = 14

Peat used for Growing Media Production (m^3)	Peat-free used for Growing Media Production (m^3)	Peat-free as percentage of total Production (m^3)	Peat used for Mushroom Casing (m^3)	Peat-free used for Mushroom Casing (m^3)	Peat-free as percentage of Mushroom Casing (m^3)
120 000	30 000	20%	0	0	0
100 000	15 000	13%	0	0	0
300 000	50 000	14%	0	0	0
150 000	0	0%	0	0	0
100 000	10 000	9%	100 000	0	0
300 000	10 000	3%	0	0	0
500 000	80 000	14%	0	0	0
Split sample average		**11%**			
50 000	2 000	4%	0	0	0
2 000	0	0%	0	0	0
10 000	1 600	14%	0	0	0
10 000	1 000	9%	0	0	0
7 500	2 500	25%	0	0	0
20 000	2 000	9%	0	0	0
3 000	1 000	25%	0	0	0
Split sample average		**9%**			
Total sample average		**10.9%**			

Stratification of the data into peat and peat-free consumption greater than 100 000m^3 per annum and less than 100 000m^3 per annum failed to indicate any observable differences in the use of peat-free material by large and small growing media producers. The large (> 100 000m^3) producers showed an average peat-free usage as a percentage of total production of 11% while that for the small producers (<100 000m^3) was 9%. It would thus appear that while the large producers are being encouraged to produce peat-free (or

peat-reduced) growing media and the smaller producers not, most producers are, to varying degrees, diluting their growing media with peat-free material. Given the contention by Rowland (2003) and Whyatt (2003) that peat substitution with cheaper compost could reach levels of 20% without impacting on the efficacy of a good peat based growing medium, the small producers are no doubt finding it economically attractive to dilute their growing media with compost.

The large producers appear to be facing an interesting predicament. On the one hand they are able to dilute their peat-based products with suitable compost to levels of 20% without affecting the quality of their product. On the other hand, continued pressure from the retailers to conform to the UK government's MPG13 note target of 40% non-peat usage by 2005 (DETR, 1995) will mean that to achieve the higher target, an alternative to compost must be sought. Fibregro is in the fortunate position of being capable of fulfilling this particular need. A niche appears to be developing which Fibregro could well exploit. A note of caution here though is the question of whether a 20% substitution is in fact the correct threshold. The German experience reported by Waller and Temple-Heald (2003) mentions 35%. Should the threshold be higher, further green compost dilution must be expected.

Only one producer reports supplying mushroom casing material to customers. Garley (2003) and Temple-Heald (2003) indicated two reasons for this finding. Firstly, 30% of UK mushroom growers have closed down over the last two years on account of the strong UK currency which has allowed cheap imports from Poland to replace much of the UK production. Secondly, much of the mushroom casing material is being imported from Holland. No peat-free casing material is being supplied, which confirms reports by Holmes *et al* (2000) and a BBC News and Features (2003), that the use of alternatives to peat for mushroom casing material, is limited. There appears to be interest from buyers though for mushrooms grown under peat-reduced conditions (Oxley, 2003).

4.6 Practical Issues related to Fibregro Exports to the UK.

Information on the nature of the demand for growing media products in the UK will be useful to the Fibregro management as it will assist with local production scheduling. In addition, expressed interest in the importation of Fibregro will assist the Board in decision making in respect of the establishment of a network of suitable Fibregro distributors in the UK. Table 7 presents a summary of the findings in respect of demand periods and producer interest in importation.

Table 7. Practical Issues Related to the Export of Fibregro to the UK

Question	N =16		Percent	
	Yes	No	Yes	No
Fibregro is a peat substitute product manufactured in South Africa. Would you be interested in importing this product?	13	3	81	19
	N = 16		Percent	
	Cyclical	Regular	Cyclical	Regular
What is the nature of the demand for your growing medium products?	11	5	69	31

81% of the respondents expressed an interest in importing Fibregro. Price will naturally play an important role in decision making in this respect. Nevertheless, Fibregro's ability to successfully mimic peat and extend the peat dilution levels beyond 20% to 35% is also an important factor. Above these levels, problems are already being experienced. The National Trust Gardens, for example, are reported to have gone peat-free, but are experiencing severe problems with the quality of their plants (Neale, 2003; Whyatt, 2003).

The cyclical nature of the demand for growing media products, as reported by 69% of the respondents, is to be expected. The peak demand periods for growing media are spring and summer (April to July in the UK). This concurs with the statement by Waller and Temple-Heald (2003) that 70% of growing media sales in the UK occur during

spring. The consequences of this for Fibregro are twofold. Firstly, stocks will need to be accumulated some time prior to the spring / summer season in order to meet the demand. As a result, the ability of Fibregro to remain stable during storage is of the utmost importance. Peak demand for growing media in the South African market, is from August to December, so that by supplying both markets, Fibregro could achieve a regular cash-flow from the growing media market for at least nine months of the year. The remaining three months (January to March) should be viewed as the time to accumulate stocks in preparation for the forthcoming seasons.

4.7 Conclusion

The survey has clearly shown the advantage that can be achieved with a good peat-free product in the UK growing media market. Further, a combination of peat-free and an FSC label would be unique in this market. However, in order to take advantage of this opportunity it is important to differentiate this peat-free product from the cheap composts currently being utilised to dilute peat growing media.

Most growing media producers are diluting their peat growing media. Indications are that cheap, good quality compost is being used for this purpose. While both large and small growing media producers are diluting their peat, the producers supplying the large retail chains are being encouraged to produce peat-free and peat-reduced growing media. This finding is important when considering suitable distributors for Fibregro in this market. In addition the cyclical nature of demand for growing media products in both the UK and South African markets could be balanced to provide a regular cash flow for Fibregro.

CHAPTER 5

Conclusions

5.0 Introduction.

The objectives of this research were to establish the needs and attitudes of Growing Media Producers in the UK towards the potential importation of Fibregro, a peat replacement product being manufactured in South Africa. Two of Fibregro's unique attributes formed the basis of the research, namely:

(a) The importance of the product's peat-free status as a growing medium and mushroom casing.
(b) Whether FSC labelling, which is possible in the case of Fibregro, is in fact justifiable in terms of competitive advantage.

5.1 The Importance of Fibregro's Peat-free Status as a Growing Medium and Mushroom Casing.

The research has clearly indicated that the majority of growing media producers (81% of respondents) are able to access peat-free products of the right quality to use in their growing media product range. This takes the form of cheap green compost manufactured from garden waste material (hedge and grass clippings) and pine bark. However, location of the growing media production sites relative to the composting facilities and level of substitution limit usage. Peat replacement in the UK is taking the form of a "peat-reducing" activity (Temple-Heald, 2003). Where green compost is available locally at relatively cheap prices of between £8.00 to £9.00 per cubic metre (Bone, 2003; Whyatt, 2003) peat substitution of up to 20% is taking place (Rowland, 2003).

There appear to be two factors driving this substitution activity. The first is purely economic. Peat substitution in the UK with cheap good quality composts has been found

to be possible up to levels of 20% without impacting negatively on the efficacy of a good peat (Rowland, 2003; Whyatt, 2003). Producers appear to be diluting their peat with suitable peat-free material (compost) irrespective of whether retailers were encouraging them to do so. This is evident from the fact that although only 50% of the sample reported retailer encouragement to produce peat-free growing media most (12 out of 16 respondents) reported varying levels of peat-free product consumption. Secondly, the larger producers (consuming in excess of 100 000m^3 of peat and peat-free material annually) are being encouraged by their retail customers to increase the amount of peat-free material in their growing media.

If the UK government target that 40% of the requirement for soil conditioners and growing media should be met by peat alternatives by 2005 (DETR,1995; Holmes *et al*, 2000; B&Q, 2001) then a higher level of dilution will be required in growing media than is at present achievable using compost. In order to achieve higher percentages of substitution, the substitute will need to mimic peat i.e. low bulk density, low nutrient levels, no structure problems. Fibregro fulfils these requirements and appears to be an ideal product to extend the substitution levels beyond the 20% to 35% compost ceiling. Developments in respect of increasingly higher levels of peat dilution will need to be carefully monitored since the point was made by Rowland (2003) that the peat reduction levels are targets. Baker (2003) also makes the point that B&Q's ability to meet peat reduction targets will depend on the availability of suitable alternatives, which reinforces the voluntary nature of the process. Allied to this is the finding that the large Growing Media Producers are being encouraged by their retail customers to produce peat-free or even peat-reduced growing media. The smaller retailers and garden centres, encouraged by persistent consumer brand loyalty (Neale, 2003) continue to sell pure peat products.

The consequences of these findings for Fibregro are twofold. Fibregro should be introduced as a peat-diluting agent to not only extend the dilution range, but also to lock into existing customer brand loyalty. In addition, the most suitable Growing Media Producers to target are those who are exposed to retail pressure to manufacture peat-

reduced formulations, in other words, the larger producers (greater than 100 000m³ per annum peat/peat-free consumption). Within this group, Irish producers in particular should be targeted as they do not appear to have ready access to cheap, good quality compost, a point made by Waller and Temple-Heald (2003) and borne out in this survey.

The use of Fibregro as a mushroom casing would appear to have limited application since only one respondent reported supplying peat for casing. However, in order to pursue this avenue, contact would need to be made with the companies making mushroom casing. Contact details were obtained from Oxley (2003) (see Appendix 1V).

The presence of small retailers and garden centres selling pure peat products and pressure on the pricing of growing media exerted by the large retailers and wholesalers, reported by Waller and Temple-Heald (2003), must be expected to inhibit any attempts at premium pricing for peat-reduced products.

5.2 Is FSC Labelling of Fibregro Justifiable in Terms of Competitive Advantage in the UK Market?

The survey indicated that a high percentage of growing media producers were aware of FSC certification (69% of respondents). This illustrates the dominant position of FSC as a forest products certification system in the UK. South African plantation owners who have certified their plantations can benefit from this situation should they wish to export certified forest products to the UK.

In order for Fibregro to qualify for FSC labelling, chain-of-custody procedures will need to be instituted at the factories. This is necessary in order to ensure that a minimum of 50% of the wattle bark that is processed originates from FSC certified plantations. Arrangements of this nature will incur costs, which will need to be recovered from Fibregro. Interestingly, a high percentage of respondents indicated that it might be possible to charge premiums for products manufactured from Fibregro carrying an FSC

logo (6% answered 'yes" and 56% answered "possibly"). There is no discernible differences between the large (greater than 100 000m³ per annum) producers and small (less than 100 000m³ per annum) producers in this respect suggesting that the uniqueness of such a product might be influencing decision-making. It would appear therefore, that Fibregro carrying an FSC label might be capable of filling an important niche in the market by performing dual functions for committed retailers i.e. enabling them to move closer to both FSC and peat-reduced targets with a single product! Should this be indeed the case, then an FSC label would be important in enabling Fibregro to achieve a competitive advantage in this UK market and also to command a premium price.

5.3 To What Degree are the UK Peat-reduction Targets Being Met?

The survey has indicated that most growing media producers are using compost to varying degrees to dilute the peat in their growing media products. While the larger producers (greater than 100 000m³ per annum) report retailer encouragement to follow this route, even those who are not being encouraged by their retail customers appear to be diluting their peat. The reason for this is simply a question of economics. Good quality compost, where it is available locally, is cheaper than pure peat. With dilutions of up to 20% reportedly possible without affecting the quality of peat growing media (Rowland, 2003; Whyatt,2003) it makes sense to use this material as a peat reducing agent.

An encouraging finding of this survey was the continued move towards higher levels of peat dilution in growing media. The DETR (2000) reported the peat-free component of total growing media to be 6%. This has progressed to 10% as reported 4 years later by Waller and Temple-Heald (2003) and confirmed by this survey (10.9%). It would appear that all Growing Media Producers are making efforts, (although possibly for somewhat different reasons) to conform to the targets set by the UK government's MPG13 note. Of interest will be the ability of producers, particularly those supplying the large retail chains, to progressively dilute their growing media beyond the 20% to

35% compost component threshold, which impacts on quality (Rowland, 2003; Waller and Temple-Heald, 2003; Whyatt, 2003). A niche is being created for a suitable peat-free product that can extend peat dilution beyond this threshold. Fibregro has the ability to fulfil this need and should be carefully positioned as a product capable of safely extending peat dilution levels beyond the compost threshold.

Mushroom casing still consists exclusively of peat. Although only a single Growing Media Producer appears to be supplying mushroom casing, it has become clear in discussion with respondents that casing material is also being imported from Holland (Garley, 2003; Temple-Heald, 2003). There are also intermediaries who produce mushroom casing (Oxley, 2003). No peat-free or peat-reduced casing is being used in the UK although interest is being expressed by buyers in acquiring mushrooms grown in such material (Oxley, 2003). Judging from developments taking place in South Africa, Fibregro should be able to penetrate this market as a peat-reducing agent. In order to pursue this option further work will be required to establish contact with mushroom casing producers in both the UK and Holland.

5.4 Potential Distributors of Fibregro in the UK

Thirteen of the sixteen (81%) respondents to this survey expressed an interest in the possible importation of Fibregro. This provides a useful list of potential distributors of Fibregro in the UK. The most promising of those who have expressed an interest in importing Fibregro would appear to be those who are being encouraged by their retail customers to produce peat-reduced growing media.

Although 31% of the respondents reported a regular off take of their growing media products, the cyclical demand reported by the majority (69%), could be readily accommodated by Fibregro on account of the timing of this cyclical demand. The survey has identified spring and summer (April to July in the UK) as being the period of highest demand. This could be combined with peak spring/summer demand in South Africa (August to December) to provide a steady 9 month off take of Fibregro for the

growing media market in an operation combining both markets. The necessity to accumulate stocks prior to the growing season emphasises the need to ensure that Fibregro remains stable during storage.

5.5 Limitations of the Research

Two limitations of this research need to be highlighted. The first relates to the manner in which peat reduction is being implemented particularly in the UK growing media market. The questionnaire is structured on the basis of obtaining information on the production of *peat-free* growing media and mushroom casing. A subtlety, which was not picked up in the literature review, was that peat reduction activities are taking the form of *peat-dilution.* As a result the respondents appear to have interpreted questions relating to the use of peat-free products as products to be used to dilute peat rather than as a pure substitute. This has resulted in the introduction of a measurement error in the survey. Fortunately, this shortcoming was highlighted in the interviews conducted with a sample of respondents, which made it possible to interpret the results of the survey correctly. The second limitation relates to the procedure followed in the mail survey. The recommended procedure suggested in the literature (Fowler, 1993; Salant and Dillman, 1994; Allison *et al*, 1996) was not strictly adhered to in that the personal visits to non-responders took place before the follow up letters bearing the replacement questionnaires were posted. In addition, although all non-responders received follow up letters and questionnaires only a sub set of the sample population was visited. A degree of sampling error was thus introduced at this stage of the survey. Non-the-less, a good response was obtained from the survey, which was also well distributed between large and small Growing Media Producers, and the effect of this sampling error appears to be negligible.

5.6 Summary

In terms of the research objectives this work has provided useful information of interest to the Fibregro Board.

Of primary importance is Fibregro's peat-free status. The peat reducing activity in the growing media industry in the UK takes the form of peat dilution. Dilution at this stage is being achieved using good quality compost. However, there is a limit to the amount of compost that can be used in this dilution exercise. In order to continue diluting peat beyond this limit a product that closely mimics peat is required and Fibregro has the attributes to fulfil this need.

FSC labelling appears to be widely understood in the UK. A peat-reduced growing media product bearing an FSC label would be unique and justifiable in terms of competitive advantage in this market.

Combined, these two unique attributes could be used to enable Fibregro to penetrate the UK growing media market.

CHAPTER 6

Recommendations to the Fibregro Board.

6.0 Introduction

The objective of the Fibregro project is to utilise the wattle bark spents generated at the three South African wattle extract factories to manufacture a peat replacement product. Once in full production, Fibregro (Pty) Ltd should be able to generate between 150 000m³ to 190 000m³ of product per annum. Usage of locally mined peat by South African mushroom farmers and nurseries amounts to between 70 000m³ and 85 000m³ per annum. In order to account for the full Fibregro production, export markets need to be considered.

A large proportion of the wattle bark delivered to the extract factories comes from FSC certified plantations. As a result, provided the necessary chain-of-custody procedures are put in place the Fibregro manufactured from the spent bark could qualify to carry an FSC label. However, the additional cost incurred in introducing chain-of-custody will have to be carried by Fibregro. In order to justify this expense, advantages in terms of premium pricing and competitive advantage in the market need to be forthcoming.

The United Kingdom (UK) was investigated as a potential export destination on account of developments there in respect of FSC certification of forest products and the local campaign to reduce peat usage.

6.1 Fibregro's Peat-free Status

6.1.1 The Growing Media Industry in the UK

The growing media industry in the UK typically works through manufacturers who acquire the base ingredients from which growing media products are manufactured.

Formulated products are produced for both the professional (nursery) and retail sectors, with distribution taking place via various wholesalers.

On account of the high volumes and range of growing media products, coupled to established customer brand loyalty, this market should be accessed via established manufacturers.

6.1.2 Peat-reduction Activities in the UK Market for Growing Media

The UK government has issued a guide to peat usage in the country (MPG 13) setting a target of a 40% reduction in peat usage in soil conditioners and growing media by 2005. Peat reduction in soil conditioners is currently high, having reached 94% by 2001. In the growing media market however, where performance criteria are far more demanding, 90% of the product remains peat (Waller and Temple-Heald, 2003). Peat reduction in the mushroom casing market has to date proved unsuccessful and this market remains purely peat.

While peat reduction in the growing media market has been slow, progress has been made in the last 4 years with the dilution percentage rising from 6% in 2000 (DETR, 2000) to between 10% (Waller and Temple-Heald, 2003) and the 10.9% finding in this survey, by 2003.

6.1.3 Use of Compost as a Peat-reduction Agent.

The survey has highlighted the extensive use by Growing Media Producers in the UK of good quality compost as a peat-reduction agent in growing media products. Compost is cheap (£8.00 to £9.00 per m^3 delivered) and can be incorporated up to dilution levels of 20% to 35% before impacting on the efficacy of a good peat. This compost dilution threshold is important since it is lower than the 2005 MPG13 target of 40% set by the UK government. In order to achieve this target, Growing Media Producers are going to

need to consider the incorporation of products that closely mimic peat in terms of bulk density (150 – 260 gm/l), nutrient values and structure.

6.1.4 A Niche for Fibregro in the UK Growing Media Market

A niche appears to be developing in the UK growing media market for a good peat substitute that will enable Growing Media Producers to extend peat-dilution percentages beyond the 20% - 35% compost threshold.

Fibregro has the attributes to enable it to fill this niche. The product closely resembles peat in that it has a bulk density of 257 gm/l, nutrient levels comparable to imported Canadian peat, a high moisture holding capacity (72%) and a structure similar to peat. To successfully penetrate the growing media market Fibregro needs to be positioned to safely extend peat-dilution percentages beyond the current compost threshold of 20% to 35%.

6.1.5 The Use of Fibregro in the UK Mushroom Industry.

The use of Fibregro as a casing or even in a peat-reduced mushroom casing in the UK appears to have limited application. The mushroom industry in the UK is declining as a result of escalating labour costs and cheap imports from Eire and Poland.

There is nevertheless interest amongst mushroom buyers for mushrooms grown in peat-reduced casing. In this case, the use of Fibregro as a peat reduction agent (as is being experienced in South Africa) may be considered. However, attempts to pursue this option would appear to be best attempted in Eire in conjunction with the single Growing Media Producer in that country who supplies mushroom casing. Details of Growing Media Producers who have expressed interest in importing Fibregro are attached to this report (see Addendum IV).

6.2 Fibregro and FSC Labelling

There is a high awareness amongst members of the Growing Media Association of FSC certification. The NTE extract factories are able to access sufficient FSC certified bark to enable them to produce products (including Fibregro) that qualify to carry the FSC label. However, as this label is not required for extract and adhesive products, the cost of instituting the required chain-of-custody procedures to qualify for FSC labelling would have to be borne by Fibregro.

The survey has indicated that peat-free growing media products carrying an FSC label would be unique in the UK market. This uniqueness lies in the ability of such a product to contribute to both the FSC and peat-reduction targets the major retailers (e.g. B&Q) have set for themselves. The majority of the Growing Media Producer respondents to the survey were of the opinion that premium prices could possibly be charged for such products. However, in order to penetrate this market, two issues will need to be dealt with in collaboration with the appointed distributor(s). These are:

(a) The amount of FSC certified material in the final product necessary to qualify it for an FSC label. The minimum requirements of FSC certified material in the final product was originally set at 30% in 2000 rising to 50% by 2005. High percentages of FSC certified Fibregro would be required in the growing media products in order to meet these percentage requirements.

(b) Brand loyalty in this market requires that distribution of Fibregro should occur under a recognised growing media brand.

Finally, with chain-of-custody procedures necessary at two additional points along the supply chain (Fibregro and Growing Media Producer) the cost implications of introducing FSC labelling and the question of premium pricing will need to be carefully evaluated.

6.3 Recommended Distributors of Fibregro in the UK

The survey has identified 13 Growing Media Producers in the UK and Eire who are interested in importing Fibregro. This group covers the full range of producers from large (greater than 100 000m³ peat and peat-free consumption per annum) to small (less than 100 000m³ peat and peat-free consumption per annum). Within this group, the small producers appear to be diluting their growing media products with compost for purely economic reasons since the compost is much cheaper than imported peat (£8.00 to £9.00 per m³ for compost compared to £15.00 to £16.00 for imported peat). The large producers on the other hand, while having an economic incentive to use compost to dilute their peat growing media are also being encouraged by their retail customers to follow this route. Not all Growing Media Producers have access to cheap good quality compost however, with Irish producers appearing particularly vulnerable in this respect.

From the attached list of Growing Media Producers interested in importing Fibregro, the large producers based in Ireland would appear to be the most suitable to act as Fibregro distributors in the UK (see Addendum IV).

6.4 Nature of Demand for Growing Media

The growing media market in the UK is cyclical with demand peaks in the spring and summer (April to July). This combines well with the seasonal demand for growing media during South Africa's spring and summer (August to December). A combination of these two growing media markets will result in a steady off take of Fibregro over a sustained (9 month) period of the year resulting in a regular cash flow and manageable production demands.

Given the logistics of supplying the UK market and the need to accumulate stocks if the retail sector is to be serviced it will be important to ensure that Fibregro remains stable during storage.

6.5 Recommendations for Future Research

A number of important issues have been highlighted as a result of this work, which requires further research. These are:

- Consumer reaction to higher levels of peat dilution in the UK.
- The impact of the availability and cost of good quality compost on levels of peat dilution in the UK.
- The impact of rising levels of peat dilution with good quality compost on the efficacy of peat based growing media.
- The importance of a combination of FSC labelling and peat-reduced growing media sold by major UK retail chains.

6.6 Conclusion

This research highlights the early development of a niche market in the UK for a good peat substitute with properties that closely mimic peat. It is recommended that the Fibregro Board pursue this opportunity. It is important from the outset to position Fibregro as a product capable of filling this niche. The opportunity exists to differentiate Fibregro by positioning the product as a peat replacement that is capable of extending dilution levels beyond that possible with compost.

Sample material should be shipped to potential distributors for early growing media and mushroom casing trials during the coming UK spring/summer season (April to July 2005). Should these trials prove successful and pricing acceptable, exports can be planned for the 2006 spring/summer season.

REFERENCES

Adlam, J. and Rainbow, A. (2001) *Peatering out. Towards a sustainable U.K. growing medium industry.* English Nature and RSPB Joint Report. http://www.english-nature.org.uk/science/wetland/pdf/Peateringout.PDF

Allison, B. O'Sullivan, T. Owen, A. Rice, J. Rothwell, A. Saunders, C. (1996) *Research Skills for students.* Kogan Page Ltd. London.

Atyi, R.E., Simula, M. (2002) *Forest Certification: Pending challenges for tropical timber.* Background paper to the ITTO International Workshop on Comparability and Equivalence of Forest Certification Schemes, Kuala Lumpur, April, 2002.

BBC News and Features. (2003) *Mushroom growing is one of the biggest users of peat in this country.* Friday 4 April,2003. http://www.bbc.co.uk./food/features/pf-jh-mushrooms.shtml

Baker,R. (2003) *Personal communication.* Director of Social Responsibility, B&Q, Hampshire, UK. Interview October, 2003.

B&Q. (2001*) Peat Policy, April, 2001.* B&Q plc, Hampshire, UK.

Bennet,C. (2002) *Peat deal saves top U.K. wildlife sites.* In International Mire Conservation Group Newsletter Issue 2002/1, April, 2002, p.26.

Bone,G (2003) *Personal Communication.* Group Technical Manager. Joseph Metcalf Ltd. Interview December, 2003.

Buckley, M.I. and Ansell, M.P. (2000) *Sourcing U.S. hardwood material for French furniture manufacture: A "chain-of-custody" case study.* Jnl of the Institute of Wood Science Vol. 15 No. 4 (Issue 88) Winter 2000.

Centre for European Economic Research. (1995) *Impact of certification of tropical timber and tropical timber products for sustainable forest management on demand.* May, 1995.

Clendennan, M. (2003) *Personal communication.* NCT Co-operative Limited, Pietermaritzburg, South Africa. Interview September, 2003.

DETR. (1995) *Guidelines for peat provision in England including the place of alternative materials.* Mineral Planning Guidance Note 13 (MPG 13). Department of Environment, Transport and Regions, London, U.K.

DETR. (2000) *Monitoring and assessment of peat and alternative products for growing media and soil improvers in the U.K. (1996 - 1999)* Department of Environment, Transport and Regions, London, U.K. September, 2000.

Dobson, D (2001) *Marketing policy proposal.* Unpublished document prepared for the South African Wattle Growers Union. Doc 2/01.

Dobson, D. (2003) *Fibregro funding proposal.* Unpublished document presented to the NTE Board. May, 2003.

Dunne, N. (2000) *The Impact of environmental certification on the South African forest products supply chain.* Research Report No 29. Industrial Restructuring Project, School of Development Studies, University of Natal.

Du Toit, J. (2004) *For peat's sake.* South African Country Life. February, 2004. Pp 88-91.

ENDS Report. (1999) *Forest Stewardship Council relaxes labelling rules.* November, 1999. http://www.endsreport.com/issue/print.cfm?ArticleI.D.=5903

Environmental News Service. (2000) *Forest Stewardship Council relaxes certification rules.* envdaily@ends.co.uk.

Feely,J. (2003) *Personal communication.* Database manager, South African Wattle Grower's Union. Pietermaritzburg South Africa. Interview, October, 2003.

FSA. (2002) *First Annual Report for year ended 31 December, 2002.*Johannesburg South Africa.

Fowler, F.J. Jnr. (1993) *Survey Research Methods.* SAGE Publications, Newbury Park. London.

Friends of the Earth. (2001) *B&Q go peat-free.* Press release, 16 April, 2001. www.foe.co.uk.

FSC. (2003) Forests *certified by FSC-accredited certification bodies.* Doc 5.3.3, Apr 29, 2003. http://www.fsc.org.uk

Garley, N. (2003) *Personal communication.* Woodland Compost, Somerset, United Kingdom. Interview November, 2003.

Growing Media Association. (2003) *Principles and Objectives.* http://www.peatproducers.co.uk/peat/actspg.html

Grundling, P-L. (2002) *News from South Africa.* In International Mire Conservation Group Newsletter. Issue 2001/2, April, 2002. Pp. 28 - 32.

Hansen, E. and McAlexander, J. (1997) *Retailer perspectives on third party certification.* In Abstracts of technical sessions and technical forum presentations. Forest Products Society Annual Meeting, June 22 - 26, Vancouver, Canada.

Holmes, S. (2000) *Interim results from peat-free trials. Peat Alternatives.* The National Trust Head Gardeners Conference, September, 2000. http://www.nationaltrust.org.uk/environment/html/gardens/pdf/peat03.pdf

Holmes, S. (2003) *Personal Communication.* Soil Science and Growing Media Consultant. E-mail June, 2003. Susie.holmes@adas.co.uk

Holmes, S., Lightfoot-Brown, S.and Bragg, N. (2000) *Peat alternatives. A review of performance, future availability and sustainability for commercial plant production in the U.K.* ADAS Horticulture, U.K.

Jones,P. (2003) *Personal communication.* Torview Peatworks, Somerset, United Kingdom. Interview November, 2003.

Kassrils, R. (2003) *Opening Address.* Forestry South Africa Annual General Meeting. Lion and Elephant, Pietermaritzburg, 25 April, 2003.

Keyworth,P. (2003) *Personal Communication.* General Manager, NCT Forestry Co-operative Ltd. Pietermaritzburg, South Africa. Interview September, 2003.

King, A. (2003) *Personal Communication.* Oak Tree Peat Products, Somerset, United Kingdom. Interview November, 2003.

Kotler, P. (2000) *Marketing Management. The millennium edition.* Prentice Hall International Inc.

Labuschagne, P. (2003) *Personal Communication.* Plant Pathology Laboratories, Microbiology and Plant Pathology, University of Pretoria. Interview April, 2003

Linsky, A. (1975) *Stimulating response to mailed questionnaires: A review.* Public Opinion Quarterly, 39, pp.82 -101.

Moriamez, Y. (2003) *Casing soil study.* Unpublished report from Sylvan, France.

Morkel, R. (2000) *Millennium forests for life conference and trade fair for certified products. Feedback.* Unpublished report on the World Wide Fund for Nature (WWF) and Forest Stewardship Council (FSC) conference held in London. Mondi Forests, Johannesburg, South Africa.

Natal Witness. (2002) *A big no to peat harvesting.* Natal Witness report, 1 March, 2002.

NCT. (2001) *Major Japanese paper mill requires FSC certified.* The Yardstick, Issue21, August, 2001.

NCT. (2002) *NCT timber in demand.* The Yardstick, Issue 24, September, 2002.

Neale, A. (2003) *Personal communication.* Violet Farm Horticultural Products, Somerset, United Kingdom. Interview November, 2003.

Nixon, K. (2003) *Personal communication.* Institute for Commercial Forestry Research, University of Natal, Pietermaritzburg, South Africa. Interview May, 2003.

ODPM. (2003) *Monitoring of peat alternative products for growing media and soil improvers in the UK, 2001.* Office of the Deputy Prime Minister, London. www.planning.odpm.gov/uk/mpapgmsi/index.htm

Oxley, B. (2003) *Personal communication.* Monaghan Mushrooms, Somerset, United Kingdom. Interview November, 2003.

Ozanne, L.K. and Vlosky, R.P. (1997) *Willingness to pay for environmentally certified wood products. A consumer perspective.* Forest Products Journal. 47(6) pp. 39 - 48.

Ozanne, L.K., Bigsby, H. and Vlosky, R.P. (1999) *Certification of forest management practices: the New Zealand customer perspective.* New Zealand Journal of Forestry, February,1999 pp.17 - 23.

Payn, A. (2003) *Personal communication.* Magnolia Peat Products, Somerset, United Kingdom. Interview November, 2003.

Peat Producers Association. (2003) *List of PPA members.* http://www.peatproducers.co.uk/memb.html

Perez, N. (2000) *FSC Policy on percentage base claims: Draft, 20 March 2000* nperez@fscoax.org

Polson, S. (1999) *"Green" consumerism starts to benefit some forests.* Christian Science Monitor 91 (86) p.5.

Power, A. (2003) *Personal communication.* Richmoor-Seery's Ltd. Somerset, United Kingdom. Interview November, 2003.

Punches, J.W. and Hansen, E. (1997) *Collins Pine Company : Certified wood product marketing experiences.* In Abstracts of Technical Sessions and Technical Forum Presentations. Forest Products Society Annual Meeting. June 22 - 26, Vancouver, Canada.

Qualifier Programme. (2000) *Briefing notes on percentage based claims.* RD08, Issue 02, July, 2000 www.fscoax.org

Rametsteiner, E. (2002) *Markets for certified forest products.* In UNECE/FAO Forest products Annual Market Review, 2001-2002 pp.57-164.

Read, M. (1991) *An assessment of claims of sustainability applied to tropical wood production and timber retail in the United Kingdom, July 1990 - January 1991.* World Wide Fund for Nature, London, U.K.

Rowland, A. (2003) *Personal communication.* E.J. Godwin (Peat Industries) Ltd. Somerset, United Kingdom. Interview November, 2003.

Salaut, P. and Dillman, D.A. (1994) *How to conduct your own survey.* John Wiley and Sons Inc. New York.

Shaw, A. (2003) *Personal communication.* Secretary, Growing Media Association. E-mail June, 2003. growingmedia@aol.com

Shaw, A. (2002) *News from the U.K.: Peat Producers Association R.I.P.* In International Mire Conservation Group Newsletter. Issue 2002/1, April,2002 p.25.

Shaw, A. (2000) *Peat use and conservation.* Peat Producers Association. http://www.peatproducers.co.uk/useandconserve.html.

Stewart, R. (2003) *Personal communication.* Forest Farm, Hillcrest, Durban, South Africa. Fibregro customer, October, 2003.

Temple-Heald, N. (2003) *Personal communication.* Church Farm Horticultural Products, Somerset, United Kingdom. Interview November, 2003.

Tissari, J. (2001) *Certification: Helping markets support the world's forests.* International Trade Forum. Issue 2, pp.26 - 30.

UNCTAD. (2001) *Environmentally preferable products.* Train for Trade, Module 4, December, 2001.

UNECE/FOA. (2002) *Markets for certified forest products.* In Forest Products Annual Review, 2001 - 2002, pp.157 - 164.

UNEP. (1998) *Global product chains: Northern consumers, southern producers, and sustainability.* Environmental and Trade Series No 15, 15 August, 1998.

Upton, C. and Bass, S. (1995) *The Forest Certification Handbook.* Earthscan Publications Ltd. London.

Waller, P. and Temple-Heald, N. (2003) *Compost and Growing media manufacturing in the UK, opportunities for the use of composted materials.* Project STA 0020 - Compost and growing media supply and demand. www.wrap.org.uk

Webb, L. (2000) *Sticking to the requirements of Eco-labels.* P.P.I. October 2000, pp.39 - 42.

Whyatt, P. (2003) *Personal communication.* White Moss Horticulture Ltd. Liverpool, United Kingdom. Interview December, 2003.

Winterhalter, D. and Cassens, D. (1993) *Telling the sustainable forest from the trees.* Furniture Design and Manufacturing, August, pp.101 - 106.

WWF Press Release. (2000) *Growing network to save the world's forests.* 6 June. http://www.panda.org/news/press/news.cfm?id+1968;11/04/01.

ADDENDUM I

Growing Media Producers Address List

LIST OF PPA MEMBERS - FIBREGRO

Company	Address1	Address2	Address3	City	PostalCode	Telephone No.	Fax No.
Westland Horticulture	14 Granville Industrial Estate	Granville Road	Dungannon	Co Tyrone	BT70 1NJ	02887 727500	02887 723800
L & P Peat Ltd	Tollund House	8 Abbey Street	Carlisle	Cumbria	CA3 8TX	01228 522181	01228 541460
Joseph Metcalf Limited	Brookside Lane	Oswaldtwistle	Accrington	Lancs	BBS 3NY	01254 356600	01254 356677
William Sinclair Horticulture Limited	Firth Road			Lincoln	LN6 7AH	01522 537561	01522 513209
White Moss Horticulture Limited	Simonswood Moss	North Perimeter Road	Kirkby	Liverpool	L33 3AN	0151 5472979	0151 5491877
Northen Peat & Moss Co.	Cairnfield	Longside		Peterhead	AB42 4XR	01779 821221	
Church Farm Horticultural Products	Station Road	Ashcott	Nr Bridgwater	Somerset	TA7 9QP	01458 860531/410	01458 860586
Magnolia Peat Products	Magnolia House	Flat 2, 46 Main Road	Westhay, Glastonbury	Somerset	BA6 9TW	01458 860247	
Marsh's Peat Products	Crosswinds	Sharpham, Nr Street		Somerset	BA16 9SG	01458 446009	01458 841441
E J Godwin (Peat Industries) Ltd	Batch Farm	Meare	Glastonbury	Somerset	BA6 9SP	01458 860644	01458 860587
Richmoor-Seery's Ltd	Lewis Drove	Godney	Nr Wells	Somerset	BAS 1PT	01934 713460	01934 712601
Oak Tree Peat Products	Oak Tree Farm	Sharpham	Nr Street	Somerset	BA16 9SQ	'01458 860671	01458 860008
Michael King's Ltd	"Autumn Leaves"	Whitley Lane	Walton Street	Somerset	BA16 9RW	01458 443066	01458 448336
Durston Garden Products	Avalon Farm	Sharpham Street		Somerset	BA16 9SE	01458 442688	01458 448327
Violet Farm Horticultural Products	Violet Farm	Church Lane	Meare, Glastonbury	Somerset	BA6 9SL	01458 860314	01458 8660476
Torview Peatworks	Sharpham Street			Somerset	BA16 9SG	01458 831044	
Alan Shaw	Chief Executive	Growing Media Association	P O Box 15	Stowmarket	IP14 3RD		
The Scotts Company (UK) Limited	Professional Products	Paper Mill Lane	Bramford, Ipswich	Suffolk	IP8 4BX	01473 830492	01473 830386
The Scotts Company (UK) Limited	Consumer Products, Salisbury House	Weyside Business Park	Catteshall Lane, Godalming	Surrey	GU7 1XE	01483 410210	01483 410220
John Sheville	21 Fawcett Street	SW10	Chelsea	London			
Midland Irish Peat Moss Ltd	Rathowen	Co West Meath		Ireland		00353 437086	00353 4376100
Erin Horticulture Ltd	Birr	Co Offaly		Ireland		00 353 509 20161	00353 509 33007
Mr Tommy O'Harte	Harte Peat	Leonards Island	Clones, Co. Monoghan	Ireland			
Bulrush Peat Company	16 Newferry Road	Bellaghy, Magherafelt	Co Derry	Northern Ireland	BT4S 8ND	02879 386555	02879 386741
Sphagnum Products B	P O Box 99	8000 AB Zwolle		The Netherlands		+31 38 4231021	+31 38 4231022

ADDENDUM II

Sample Questionnaire

QUESTIONS	m^3
13. How much peat does your company use per annum to produce growing media?	
14. How much peat-free material does your company use per annum to produce growing media?	
15. If your company supplies mushroom casing how much: • Peat do you sell per annum for this application? • Peat-free material do you sell per annum for this application?	

Any comments regarding Fibregro will be appreciated, either here or in a separate envelope.

Thank you for your assistance. Please return the completed questionnaire in the self-addressed envelope.

FIBREgro

BALED PEAT SUBSTITUTE NEEDS SURVEY

Please return the completed questionnaire in the enclosed envelope to:

Fibregro (Pty) Ltd
P O Box 11176
Dorpspruit, 3206
Pietermaritzburg
Republic of South Africa

QUESTIONS	Please indicate your answer with a **X**
1. Legislative and environmental pressure is resulting in a need to embrace peat-free products in growing media and mushroom casing. Are you able to access peat-free products of the right quality to use in your growing media product range?	Yes / No
2. Do you supply mushroom farmers with casing material?	Yes / No
3. Fibregro is a peat substitute product manufactured in South Africa. Would you be interested in importing this product?	Yes / No
4. Retailer ability to meet "green targets" for peat-free products depends on the availability of alternatives. Is your company being encouraged by retailers to produce peat-free growing media?	Yes / No
5. Does your company experience pressure from mushroom farmers to produce peat-free casing material?	Yes / No
6. Do you believe that using a good peat substitute would provide you with an advantage in the market for: • Growing media? • Mushroom casing material?	 Yes / No Yes / No

QUESTIONS	Please indicate your answer with an **X**
7. In your opinion, do you think you would be able to charge a premium for: • Growing medium manufactured from Fibregro? • Mushroom casing manufactured from Fibregro?	 Yes / No Yes / No
8. Some retailers in the United Kingdom have committed themselves to using Certified Forests Products. Are you aware / unaware of this commitment?	Aware / Unaware
9. Forest Stewardship Council (FSC) certification is a form of forest certification that has been adopted by some UK retailers. Are you aware / unaware of this certification system?	Aware / Unaware
10. Fibregro is a peat substitute that could qualify for FSC certification. In your opinion would an FSC label be advantageous to you should you decide to use Fibregro in your growing medium?	Yes / No
11. In your opinion, do you think you would be able to charge a premium for products manufactured from Fibregro carrying an FSC label?	Yes Possibly No
12a. What is the nature of the demand for your growing medium products? 12b. If cyclical what is the period of highest demand? J F M A M J J A S O N D	Cyclical / Regular

ADDENDUM III

Survey Contact Letters

Fibregro (Pty) Ltd
Safire House, Redlands Estate
George McFarlane Lane
Pietermaritzburg
P O Box 11176, Dorpspruit, 3206
Tel: (033) 392 4800
Fax: (033) 342 2310

5 September 2003

The Manager
Church Farm Horticultural Products
Station Road
Ashcott
Nr Bridgwater
Somerset
TA7 9QP

Dear Sir

FIBREGRO PEAT REPLACEMENT PRODUCT

Fibregro (Pty) Ltd is a South African company producing a peat replacement product for use in the mushroom and horticulture industries. Once in full production this company will be able to produce more product than is required by local businesses and the United Kingdom has been identified as a potential export market.

Within the next few days you will receive a request to complete a brief questionnaire. This is being mailed to you in an effort to learn of your needs in respect of peat replacement products.

The survey is being conducted to better inform the manufacturers of Fibregro who need to take decisions related to the Forest Certification / Peat Free attributes of this peat replacement product.

We would appreciate your taking a few minutes to complete and return the questionnaire. Thanking you in advance for your assistance.

Yours faithfully

Dave Dobson
Project Manager

A Joint Venture between NTE (Pty) Ltd and Elro J Braak (Pty) Ltd
Reg No: 2002/012163/07

Directors:
B A Bekker, J J Christensen, D A G Dobson
E Mason, A M Smith, J L Wray

Fibregro (Pty) Ltd
Safire House, Redlands Estate
George McFarlane Lane
Pietermaritzburg
P O Box 11176, Dorpspruit, 3206
Tel: (033) 392 4800
Fax: (033) 342 2310

6 October 2003

The Manager
Magnolia Peat Products
Magnolia House
Flat 2, 46 Main Road
Westhay, Glastonbury
Somerset
BA6 9TW

Dear Sir

FIBREGRO PEAT REPLACEMENT QUESTIONNAIRE

The South African manufacturers of Fibregro, a peat replacement product derived from detannilised bark, are keen to export this product to the United Kingdom. We have been advised by Mr Alan Shaw, Chief Executive of the Growing Media Association that the growing media industry in the United Kingdom typically works through manufacturers such as yourselves, who purchase ingredients and manufacture the products for the professional retail sectors.

Our product, Fibregro, is being used in the South African mushroom and nursery industries as a replacement for both local and imported peat. The company is aware of developments in the United Kingdom in respect of peat-free products. In addition, as Fibregro is manufactured from bark it is classified as a minor forest product. In this instance, developments in the South African forest industry are such that Fibregro could qualify as a certified forest product under the Forest Stewardship Council (FSC) label. Your opinions on our questions relating to Forest Certification and the peat-free status of Fibregro would be valued.

It is our intention to circulate this questionnaire to all members of the Growing Media Association in order to get a representative view on these issues.

In addition, we wish to assure you of complete confidentiality in respect of the questionnaire. The questionnaires all bear identity numbers, which are for mailing purposes only. This is so we can check your company off the mailing list when the questionnaire is returned. Your company's name will never be placed on the questionnaire itself.

If there are any queries about this survey, please contact our local representative, Mr John Sheville, telephone 0944 207 486 6511 or the writer, Mr Dave Dobson, via e-mail at ddobson@mweb.co.za.

Thank you for your assistance.

Yours sincerely

Dave Dobson
Project Manager

A Joint Venture between NTE (Pty) Ltd and Elro J Braak (Pty) Ltd
Reg No: 2002/012163/07

Directors:
B A Bekker, J J Christensen, D A G Dobson
E Mason, A M Smith, J L Wray

Fibregro (Pty) Ltd
Safire House, Redlands Estate
George McFarlane Lane
Pietermaritzburg
P O Box 11176, Dorpspruit, 3206
Tel: (033) 392 4800
Fax: (033) 342 2310

14 November 2003

The Manager
Church Farm Horticultural Products
Station Road
Ashcott
Nr Bridgwater
Somerset
TA7 9QP

Dear Sir

FIBREGRO PEAT REPLACEMENT QUESTIONNAIRE

On 6 October 2003 we posted a Fibregro peat replacement product questionnaire to your company. If you have already returned this questionnaire, please accept our sincere thanks. If not, would you please do so today?

We would be especially grateful for your assistance and believe your response will be helpful to decision-makers.

If you did not receive a questionnaire or if you misplaced it please e-mail me at ddobson@mweb.co.za and I will arrange to post a new one to you.

I will be spending some time in the U.K. on Fibregro business from 24 November to 3 December 2003 and would like to meet you if possible. At this stage I intend spending the week of 24 November at Taunton and then from 29 November to 3 December at Bakewell. I do have your 'phone numbers and will contact you in due course to try to set up an appointment.

Yours sincerely

Dave Dobson
Project Manager

Fibregro Products (Pty) Ltd
Safire House, Redlands Estate
George McFarlane Lane
Pietermaritzburg
P O Box 11176, Dorpspruit, 3206
Tel: (033) 392 4800
Fax: (033) 342 2310

12 December 2003

The Manager
The Scotts Company (UK) Limited
Consumer Products, Salisbury House
Weyside Business Park
Catteshall Lane, Godalming
Surrey
GU7 1XE

Dear Sir

FIBREGRO PEAT REPLACEMENT QUESTIONNAIRE

On 6 October 2003 we posted Fibregro peat replacement product questionnaires to all members of the Growing Media Association. To date the response has been good. However, we have not yet received a completed questionnaire from your company.

We would be particularly grateful for your assistance and believe your response will be helpful to decision makers. As you might not have received this questionnaire a new one is enclosed with this letter. Your questionnaire bears an identity number which is for mailing purposes only. Please rest assured that this questionnaire will be treated as confidential.

Should you have any queries please don't hesitate to e-mail me on ddobson@mweb.co.za.

Thank you for your assistance

Yours sincerely

Dave Dobson
Project Manager

Encl/.

ADDENDUM 1V

List of Growing Media Producers Interested in Importing Fibregro

List of Growing Media Producers Interested in Importing Fibregro

Large Producers (> 100 000m³ p.a.)

- Joseph Metcalfe Ltd
  Brookside Lane
  Oswaldtwistle
  Accrington
  Lancashire BBS 3 NY
  (Contact: Geoff Bone, Group Technical Manager)

- William Sinclair Horticulture Ltd
  Firth Road
  Lincoln, LN6 7AH

- E.J. Godwin (Peat Industries) Ltd
  Batch Farm
  Meare
  Glastonbury
  Somerset BA6 9SP
  (Contact: Andrew Godwin, Managing Director)

- The Scotts Company (UK) Ltd
  Professional Products
  Paper Mill Lane
  Bramford
  Ipswich
  Suffolk IP8 4BX

- Harte Peat
  Leonards Island
  Clones
  Co. Monaghan
  Ireland
  (Contact: Tommy O'Harte)

- Bulrush Peat Company
  16 Newferry Rd
  Bellaghy
  Magherafelt
  Co. Derry
  N Ireland BT45 8ND

- Sphagnum Products B
  P.O. Box 99
  8000 AB Zwolle
  Netherlands

Small Producers (< 100 000m³ p.a.)

- Marsh's Peat Products
  Crosswinds
  Sharpham
  Nr. Street
  Somerset BA16 9SG
  (Contact: Jim Marsh)

- Richmoor-Seery's Ltd
  Lewis Drove
  Godney
  Nr Wells
  Somerset BA5 1PT
  (Contact: Tony Power)

- Oak Tree Peat Products
  Oak Tree Farm
  Sharpham
  Nr Street
  Somerset BA16 9SQ
  (Contact: Alan King)

- Michael King's Ltd
  "Autumn Leaves"
  Whitley Lane
  Walton
  Street
  Somerset BA16 9RW
  (Contact: Michael King)

- Violet Farm Horticultural Products
  Violet Farm
  Church Lane
  Meare
  Glastonbury
  Somerset BA6 9SL
  (Contact: Alvin Neale)

- Woodland Compost
  Windscomb
  Cheddar
  Somerset
  (Contact: Neil Garley)

Mushroom Casing Producers

- Tunnel Tech
  New Andover
  Telephone: 01264 810032
  (Contact: Tim Harker)

- Agricultural Supplies: Cotswolds
  Telephone: 01285 850292
  (Contact: John Maclay)

- Supplier for Monaghan Mushrooms, Somerset
  Telephone: 08316 54758
  (Contact: Martin Dewherst)