

Introduction

Northway Mushrooms is a producer organisation representing 19 mushroom growers, 10 based in Northern Ireland and 9 based in Southern Ireland generating 70% of our turnover. Our annual turnover of £60m with our members collectively employ 1,000 staff producing 35,000 tonnes of mushrooms annually. It is also estimated that the mushroom sector has a multiplier effect 1.5 which means Northway growers creates a further 1500 jobs in other sectors.

Northway is a nationally recognised model of collaborative best practice, enabling our members to achieve and maintain a competitive edge and delivering benefits at every stage of the supply chain.

Reinventing the value chain is at the core of Northway Mushrooms' strategic and operational activity an elected Board of Directors and internal management team deliver the company's strategic plans.

Our members have collaboratively undertaken a £25m investment in a 1000 tonne phase 3 mushroom substrate facility which has been in operation since February 2019 and is now at full production. The compost is the highest quality on the market, allowing our growers to maximise yield and quality.

Mushroom growing is a competitive sector and we face tough competition from Dutch and Polish growers; as a result, our growers are exposed to international currency fluctuations. It is of note that in the months following the Brexit vote, while 10% of Ireland's growers went out of business, Northway members remained stable, competitive and resilient in the face of market fluctuations.

The fresh mushroom market has shown steady growth of 2-3% per annum and this is likely to accelerate with the ongoing trend particularly amongst the younger generation towards adopting vegan/non-meat diets.

Fundamental to maximise the yield and quality for growers has been the access to Irish Peat which is added on top of the phase 3 compost as it is filled. Peat used for mushroom casing currently represents 14.3% of the total volume of growing media substrate that is used for mushroom cultivation across Ireland today which we estimate to be 254,200 tonnes per annum based on Northway's market research.

So, if this total of 254,200 tonnes of growing media substrate used to cultivate mushrooms across Ireland today 36,401 tonnes is peat based with the being derived from non-peat sources including what straw, Poultry litter, gypsum and sugar beet lime. The typical mushroom cultivation cropping cycle lasts approximately 6 weeks and at the end of this 6 weeks cycle the Mushroom substrate no longer has the capability to support further mushroom cultivation so that mushroom substrate is classified as spent. This spent mushrooms compost is then sterilised in the mushrooms houses using steam before being made available for supply into the horticulture market or the agriculture sector as a valuable source of organic matter as a part displacement for peat or for Ammonia, Nitrate and Phosphate rich fertilising agents and hence has the potential to have a very positive impact on the environment as part of the circular economy.

So, the mushrooms industry in Ireland has the potential to provide 254,200 tonnes of spent substrate suitable to displace peat annually as a net positive impact against the 36,401 tonnes of peat that is used for mushroom cultivation across Ireland annually.

It is estimated that the total peat used for mushroom cultivation in Ireland represents less than 5% of the total peat harvested for horticultural uses in Ireland annually and represents 1% of the total peat harvested in Ireland each year including for energy use.

Northway is committed to sustainability in all areas of mushroom production and are currently reviewing their peat usage understanding the importance of this valuable resource. Northway is currently drafting a peat reduction programme which will be implemented over the next 5 years.

Northway aim to operate their business in a responsible and environmentally sound manner including growing media substrate production and use and continually assess the impacts of our operations on energy use, water use, social compliance, habitat and biodiversity, pollution, renewability and resource use efficiency.

Northway are currently exploring alternatives substrates that are suitable to replace and provide the same performance as peat for use in mushrooms casing but this is not a straight forward process as all potential alternatives substrates have their own issues with availability, chain logistics, costs and other environmental impacts including increased , water use or waste generation.

Peat is still the growing media of choice for producing the mushroom casing element of the mushroom growing substrate as it delivers safe, consistent and reliable performance continuously. You could not for example substitute peat used for mushroom casing with green waste compost produced from general municipal waste collections with poor segregation practises and thus that have potential risks with physical (glass, plastic, metal), chemical (herbicides/ pesticides) and biological contamination (E Coli, Salmonella, Legionella).

There are other materials like Woodfibre, and bark have some potential to be used but the availability of these materials is very much compromised by competing industries like energy production from biomass. This use of wood based products for biomass energy production is actually incentivised by renewable heat incentives and other incentives from government organisations even though we would argue that this is a less sustainable use of these materials as they are ultimately being incinerated to produce energy but in doing so they rapidly produce significant quantities of greenhouse gas emissions and potentially other air pollutants as opposed to use for crop cultivation.

Another potential alternative to peat that is currently used in horticulture is Coir that is derived as a by-product from Coconut husks originating primarily in India and Sri Lanka. Coir although renewable in a relatively short timeframe required significant quantities of fresh water to flush salts from this material which is generally produced in saline coastal regions. The use of this fresh water is a challenge in already water stressed regions of the world where there is a lack of fresh clean and safe drinking water supplies however this is an essential process requirement in order to remove the salts to make Coir suitable for use as a peat alternative. This washed and dried material is then shipped from India and Sri Lanka by sea and by road for use in the Horticulture Sector locally within the Ireland and the UK, but its availability is often compromised by climatic conditions in this region particularly monsoons. There are also major concerns about the ethical nature of the production of this material, particularly with dust risks from, processing this material in these ethically challenged labour markets within these developing nations.

Other materials that could potentially be used in horticulture include mineral based substrates like Rock Wool widely used in Hydroponic growing that requires a significant energy demand to produce and Perlite and Pumice that are mined in specific areas of the world like Turkey and South Africa where these deposits have formed as a result of historical volcanic

activity. Perlite and Pumice are classified as non-renewable minerals and additionally need to be transported significant distances for supply into the Horticulture sector in Ireland, the UK and across Europe. Peat is slowly renewable as demonstrated in Paludiculture and Sphagnum farming trials in Germany and by Natural England at Bolton fell in Cumbria and has officially been classified by the EU parliament in October 2017 as a non-fossilised and slowly renewable resource.

So in summary you can see that there are various reasons why peat has not been removed 100% within horticulture in Ireland or across Europe.



Rialtas na hÉireann
Government of Ireland

10. Public Consultation Questions

A. **What are your views on what more could be done to support and enable the switch to peat free horticulture at professional crop production level and consumer level?**

To answer this question comprehensively we firstly need to understand why Peat has been so commonly used as the material in choice in the Horticulture sector across Ireland, the UK and Europe for over 20 years.

Peat has traditionally been the growing medium of choice within the Horticulture sector in Ireland and the UK and across the whole of Europe for over 200 hundred years for numerous reasons. Peat by its nature is a very homogenous and consistent material, its low pH ensures that it is inherently sterile which has made it the safest growing media material for producing growing crops intended for human consumption, peat is devoid of weeds and weed seeds and has a very low nutrient level and salt index, peat has excellent water holding capacity and high air filled porosity properties which have made it a fantastic growing media substrate for use by both professional and amateur growers. There is also little or no risk of microbiological, chemical or physical contaminants with peat use and these are often risk and issues with various alternative growing media substrates. The particle size of peat, particularly finer peats also make it very suitable for successively propagating very fine or difficult to germinate seedlings.

It is no coincidence that the use of peat in horticulture has been common practise across Ireland, the UK and Europe as peat was widely available in various regions areas across Northern Europe where the wet temperate climatic conditions promoted the establishment of peat deposition over time. Peat has been tried, tested and trusted and historically acknowledged as an essential component of successful horticultural production by either by professional or amateur growers because it works and works consistently well for these applications.

There are a number of key barriers and challenges that need to be overcome to phase out peat use within horticulture particularly at a time when the global demand for increased food production is rising every year and will continue to increase as the global population continues to expand with the global population predicted to reach 10 Billion by 2050. Horticulture will have a critical role to play in supporting the increase in demand for food globally that will be required to support this global population expansion.

There are a wide range of peat alternative substrates in use within the horticulture sector in Ireland, the UK and Wider Europe today including, coir, wood fibre, bark, green waste compost, perlite, vermiculite, rockwool, and aggregates. The availability, logistical accessibility and costs

associated with acquiring each of these alternative materials poses significant challenges and barriers for the Horticulture sector and limits the ability to utilise and supply these materials more widely into the Horticulture sector for use by amateur and professional growers.

There are a 6 key areas where we believe that government could support the horticulture sector to help overcome some of the challenges and barriers to enable access to sufficient quantities of alternative materials of acceptable consistency, quality and characteristics to be suitable as a replacement for peat for use within horticulture.

These areas of support include;

1. Innovative changes to Policy to overcome some of the current barriers to access to suitable peat substitutes.

- a. For example, positively incentivising the use of Timber residues like Bark & Wood for horticultural use rather than for use in locally or post export for Energy production which is a less sustainable use of these materials.
- b. Policy changes to promote the increased availability of locally produced wood-based materials like Bark and Wood for horticulture by incentivising the use of these renewable materials for supply into the horticulture sector. Increased spruce planting programs for horticulture use.
- c. Overcoming some of the barriers to the import of suitable peat substitutes for example Coir which has heavy VAT duty applied at port of entry that could be looked at to make Coir Pricing more accessible for horticulture use.
- d. Assisting Growing Media producers with the sourcing and acquisition of suitable alternatives to peat from other regions of the world with government interaction and assistance at regional and local levels to overcome some of the trade tariff's and export / import barriers which make these materials harder to attain and more expensive to procure.

2. Changes in Administrative / Bureaucracy requirements to help make potential alternatives to peat more accessible:

- a. For example relaxing some of the barriers at port of entry for suitable alternatives to peat for example Coir which undergoes a rigorous regime of test and analysis before being released for use in Horticulture which adds time delay but also adds additional administrative costs that are currently passed on to the Growing media producers.
- b. Ease of waste regulations and deregulation systems that allow an efficient pathway for any materials that have been identified as suitable replacement for peat to be used in horticulture if they meet desired quality, environmental and health standards. This process can be cumbersome and at times makes it difficult to get access to materials that are generated as wastes from other industries that may be suitable as peat substitutes.

3. Government Led Public Relations Support to Assist the Horticulture Industry:

- a. For example, the horticulture sector has often been portrayed negatively and even demonised with an imbalance in reporting with regards the continued use of peat within the industry. As a result, the multiple proactive steps that the industry has taken to reduce peat use particularly within the amateur Horticulture sector over the last 20 years is under reported in general media outlets and print press and as a result is not well known or understood. The government could help readdress this imbalance in reporting and at the same time promote the alternatives to peat to help public awareness as well as amongst less well informed professional and amateur growers.

4. Support for Capital & Infrastructure Investments:

- a. Some of the most suitable alternatives to peat including Coir, Wood Fibre and Bark require significant capital equipment and infrastructure investment to process them into a format that renders them as suitable substitutes for peat including buildings, processing equipment and water treatment facilities. These investments are currently financed by the growing media producers individually and at a rate that is affordable but with government support the rate of expansion of these peat free processing facilities could be accelerated to process more peat substitute materials as they become more available.

5. Research & Development Support:

- a. There has been a significant amount of research and development carried out by individual growing media producers over the last 20 years. This work has been extensively funded from company finances and on an individual company basis given the competitive nature of the industry in terms of Intellectual property and supply chain integrity. It would be excellent if Growing media producers could gain affordable access to research facilities and expertise to help them develop the knowledge and understanding on the characteristics and suitability of current and potential future peat alternatives.

6. Education Development Support:

- a. Promote educational programs in schools and colleges that promote the importance of horticulture in Ireland as well as promoting the work that is being done on peat replacement and also provide some background on the historical as well as the socio-economic and environmental importance of Peat as a valuable natural resource in Ireland.
- b. Promote horticultural courses in Universities and colleges across Ireland and encourage graduates to consider these courses as a vital scientific vocation required to deliver food production for future generations.

B. What are your views on alternatives to the use of peat in the Horticultural Industry (from, for example, the perspective of the professional grower or consumer/amateur gardener)?

I have explained some of the key barriers and challenges to the use of peat in horticulture in my introduction and in my response to question A. of this submission which have various financial implications and supply chain availability issues which invariably results in quality peat alternatives being more expensive to purchase than Peat based growing media. When amateur and professional growers are faced with the choice of deciding to choose between using a peat based growing media which is tried and tested and has been the growing media of choice for hundreds of years and non-peat equivalents they are still overwhelmingly more likely to select peat based media as their decision is primarily price driven, even if they are consciously aware of the Environmental aspects of their purchase decision.

Peat is renowned in horticulture for continually delivering consistency with its unique water holding and air-filled porosity characteristics as well as low risk of microbiological, physical and chemical contamination that assures growers of quality, performance and delivers excellent results. This is important for growers who are trying to successfully grow plants that are often very expensive to purchase and as a result the use of peat can eliminate some risk of failure on the final growing result and risk of wastage of time effort, money and poor yielding or failed crops. There is a degree of scepticism with growers both amateur and professional with the use of peat alternatives as some of the peat free or peat reduced formulations that have been supplied

into the horticulture sector over the last 20 years have not always provided the grower with the best experience and desired results that they would have liked.

This has led to a negative perception with peat free and peat reduced products that the industry has found difficult to change. Over the last 10 years in particular there has been significant improvements in the research and development and knowledge and understanding of peat alternative substrates and how to optimise the adjusted watering and fertilising regimes required to achieve equivalent performance to peat-based media. As a result, non-peat-based formulations are increasingly used in both amateur and professional growing today and are repeatedly demonstrating that they can deliver equivalent performance to peat-based media. Additional training, awareness and technical support programs are required to overcome the knowledge and experience deficit with gaining the optimum results from peat free growing media.

Amateur growers are typically less skilled and knowledgeable than professionals and require more on pack information and guidance as well as technical assistance on how to deliver the best performance from peat alternatives but professional growers although more skilled and capable are typically more resistant to change and less risk averse with their decision making as their livelihoods depend on producing safe high yielding crops of good quality. Amateur growers are more likely to purchase and try a non-peat-based formulation particularly on a one-off purchase basis.

There are changing trends towards and increase in peat free substrates in some sectors within horticulture for example the Soft fruit sector and particularly strawberry production is now extensively grown in Poly tunnels in growing modules that primarily consist of Coir or Coir/perlite-based formulations rather than peat. This has been achieved by offering a growing system that optimises the performance of the peat free growing modules as a critical component of this growing system including the Poly tunnels, the irrigation and fertigation systems as well as disease and pest control solutions in an holistic growing approach to deliver optimum results. This is a similar approach that has been adopted by the Mushroom industry were peat although constitutes 14.2% of our total growing media formulation today.

The mushroom industry as a commercial horticultural enterprise is non risk averse as we are producing a food crop that are supplying for human consumption so we can not afford to take risks with any unknown variables that might impact and compromise the quality, consistency and safety of the products that we produce. Peat has been a tried and trusted substrate for use in mushroom casing within the Mushroom not only in Ireland but across the world for decades due to its sterility its deficit of any chemical, physical and microbiological contaminants and risks and because of its unique water holding capabilities which is an essential requirement of successful mushroom cultivation. Any alternatives to peat must be capable of being used in the same way to deliver the same characteristics, quality and performance without introducing any risks to human health.

What are your views on whether Ireland should cut back or cease the export of peat for use outside of Ireland even if this would result in job losses in Ireland?

It is estimated that there are 6,600 people employed full time within the Horticulture sector in Ireland in primary production with a further 1,000 employees in value added downstream business. (Bord Bia “Labour review of Horticulture in Ireland 216” prepared by Agenda Consulting Ltd).

The mushrooms industry in Ireland supports the employment of 3,300 people nationally, directly and indirectly in primary production, processing, marketing, transport, distribution, and in other downstream activities. The Total annual turnover for horticulture in Ireland has been estimated at €437m, with exports estimated as accounting for 55% of that turnover. The mushroom industry generates €117m (26.7%) of the total turnover associated with Horticulture in Ireland annually.

We would advise that any plans to cut back or cease the export of peat for use outside Ireland would need to be properly assessed and the implications fully understood and quantified before any decisions are made. We are entering a time of huge uncertainty with Brexit looming on the Horizon so any decisions that could further negatively impact Irelands exports markets should not be taken lightly.

It would be both unjust and damaging to introduce drastic measures that would have significant ramifications in rural areas of Ireland were peat production has traditionally been a very valuable industry in areas and in deed a way of life as part of the social fabric of these area that are typically devoid of any major industry or infrastructure or employment opportunities. These areas already suffer from excessive emigration issues either nationally to overseas locations or to larger urban population centres in ireland. This results in the de-ruralisation of Irish society demographically and a centralisation of population in major conurbation centres placing additional strain on the resources and infrastructure like housing and water to support the increasing population growth in these areas which are the key political and economic challenges facing Ireland today.

In our opinion what is required is time and the development of a real action plan to come up with appropriate long-term solutions and measures on a pathway towards peat reduction and replacement over a practical timeframe whilst ensuring that there is a just transition whilst these solutions are realised and come to fruition.

The reality is that there are insufficient quantities of alternative growing media substrates available in the world today to meet the demand for soil less growing media which has proven to provide more productive yields (10 times higher) when produced indoors in controlled environments than when cultivated in conventional field grown soils. Horticulture will have a significant role to play in supplying the food that will be required to feed the ever-expanding global population expected to reach 10 billion by 2050 (World Hunger Organisation). The demand for growing media is expected to rise exponentially to satisfy the need to feed the world as the population expands. Figures produced by the University of Wageningen, Netherlands 2019 state that the current demand for growing media globally is 59 million M³ per year of which peat currently constitutes 40 million M³ of this total as there is a lack of availability of quality, consistent alternatives to peat for all of the reasons that I outlined in my introduction to this submission. It is further predicted that the global demand for growing media will increase to 244 Million M³ per year by 2050 to meet the demands of the rapidly expanding world population. Where are these materials going to be come from??? That is the real challenge.

The reality is that if an unjust decision was made to cease the export of products produced from peat extracted in Ireland in the morning then the horticulture industry in Ireland would suffer significant repercussions as a result that the industry may never recover from. If this type of decision was made, then the likelihood is that in the short term the Irish horticulture would try to continue to retain its market share by offsetting any shortage of peat available in Ireland by sourcing alternative peat sources from other countries across the world were peat is produced including Scotland, Latvia, Lithuania, Estonia, Germany, Russia, Sweden, Finland, Denmark and Canada. This will result in a more detrimental environmental impact and carbon footprint given the increased transportation distances involved and will also result in the Irish horticulture being significantly less competitive within the wider European horticulture market due to the increased costs that will have to be absorbed.

As a starting point in this process there possibly needs to be a proper evaluation of Irelands current peat deposits and an assessment of the state of each of these sites in terms of ecological value. This process needs to identify all sites that have already been degraded through historical practises that have compromised their status through drainage and lowering of the water table and the clearing of vegetation in preparation for peat extraction.

The next key consideration should be what is the best course of action to implement for the ongoing management of sites that are identified as degraded and to ultimately set them on a pathway towards restoration and aftercare to peat forming habitats. There are undoubtedly numerous degraded sites located across Ireland today that are emitting CO₂ and these sites will continue to be degraded and have a negative environmental impact even if peat extraction were to cease immediately.

There should be some consideration that managed extraction should be facilitated on these degraded sites under an appropriately regularised licensing regime administered by the EPA like the IPC licensing system. This would enable approved operators to extract peat to appropriate peat depth in line with the hydro geological conditions off the site to ensure a more successful restoration process to establish peat forming conditions. As part of this same process the approved operators would have to provide financial provision with a commitment to restoration and aftercare of these degraded sites on a phased basis. This would effectively facilitate the managed extraction of peat from sites that are classified as degraded whilst ensuring that restoration is completed on a phased basis by operators with an intrinsic knowledge of the peat bogs and the hydro geomorphology of the site to ensure the successful restoration to peat forming and carbon sequestering conditions.

This process could deliver a balanced approach that allows the continued extraction and use of peat for local use and for export whilst peat alternatives are being developed and sourced in sufficient quantities to effectively displace peat in horticulture over time. At the same time this process would safeguard jobs and vital export markets and continue to generate revenue streams for Ireland and allow the horticulture companies to re-invest some of the profits into restoration and aftercare and thus ensuring the safeguarding and restoration of our peat bogs and habitats to optimum ecological value to be preserved for future generations.

C. Do you consider that a working group should be established to advise on how best to overcome the barriers to reducing peat use in professional horticultural crop production and in the amateur horticultural market?

Northway mushrooms would support the support the establishment of a working group to overcome some of the barriers with reducing peat use in the horticulture sector as long as this working group has clearly defined key objectives and deliverables and that the working group is balanced and ensures a sensible and just transition and does not be used a vehicle to penalise the Horticulture industry.

E. If you are in favour of the establishment of a working group, which stakeholder groups do you think should be represented on it?

Stakeholders should include representatives from;

- The mushrooms industry
- The growing media producers
- The horticulture retail sector
- Professional growers
 - Government departments with influence in decision making on Policy, Finance and Enterprise matters.

F. How do you think that those involved in harvesting peat for horticulture could be compensated for any loss arising from a cessation of this activity (for example, on the basis of the profit loss arising or related to the value in ecosystem services retained/provided)?

Northway believe that it is only fair that all companies who suffer consequential commercial losses as the result of any immediate cessation of peat harvesting should be appropriately compensated for any losses to turnover, market share and profitability as a result. We include companies like Northway mushrooms and other mushroom growers within this category of companies who are not directly involved in harvesting or extracting peat but are still reliant on using a quantity of peat currently in the course of successfully cultivating mushrooms for supply into the food chain for human consumption today.

G. How do you think that those involved in harvesting peat for horticulture could be guided towards alternative activities, for example, developing an environmentally suitable alternative material that could replace peat in professional horticultural crop production?

Northway are of the firm belief that most horticultural companies including mushroom substrate producers are 100% committed to the goals of developing and sourcing suitable alternatives to Peat. This aim has been backed up by significant ongoing investment from individual company finances which has delivered significant Peat reduction already in the UK and Irish retail horticulture sector to which the mushroom industry has contributed with Spent Mushroom substrate availability. There are however still significant barriers to overcome to deliver these solutions on a commercial scale and on consistent basis throughout the year to completely replace peat for various reasons that we have tried to explain throughout this submission. It will require continued significant investment and support from Government to help breakdown and overcome some of the barriers to peat replacement over the next 10- 30 years. We are also of the belief that the solution will be found by striking a balance between the targeted use of peat in a responsible manner with the ongoing commitment to peat bog restoration and aftercare to peat forming wetland habitats on rehabilitated sites that have been classified as degraded to create carbon sequestering conditions as the desired result.

H. What do you consider the value of peatlands to be to (please score out of 100)?

carbon storage	20
nature conservation	20
the provision of ecosystem services	20
the economy	20
social and cultural needs	20
	100

I. In your opinion should the use of peat within (i) the amateur horticultural market and (ii) the professional horticultural industry be phased out over the next 3, 5, 10, 15 or 20 years and if so, how should this be done bearing in mind the potential job losses and the difficulties with alternative growing media?

We feel that what is required is time to ensure a just transition and to put in place effective measures to overcome a lot of the barriers to responsibly sourcing and developing suitable alternatives to peat whilst ensuring an ongoing commitment to restoration and aftercare of degraded cutaway peat sites. The restoration and rehabilitation of degraded sites is a critical aspect of this process and could be rewarded with a carbon credit scheme to promote and accelerate this process. Northway do not believe that putting a time limit on this process will be helpful in this context given the significant barriers that need to be. If you look at the example of the UK Growing media Initiative, it has taken over 20 years to achieve an almost 50% reduction in peat use within the in-retail horticulture sector. This time scale to deliver peat replacement is not due in anyway to any any lack of commitment by

the growing media producers and retailers but because of the barriers and challenges that the industry has faced with sourcing and developing suitable quality alternatives to peat as well as barriers with consumer resistance to change and communication, training and awareness issues. If an appropriate action plan is put in place, then there is the real potential to make this transition to peat free horticulture sector in a just and environmentally sound manner without having any negative impact on jobs, the rural economy and export markets.

I. Does more need to be done to educate and build consumer awareness of peat free products which are available at retail level?

Growing Media manufacturers already produce and distribute a lot of information through their marketing and merchandising teams to make general consumers and growers aware of the choices available when selecting growing media. Generally consumers and growers are very aware of the concerns with continued peat usage and the alternative choices available but the reality is that the biggest deciding factor for consumers and growers when selecting between peat based and peat free growing media is that the non-peat based composts are generally more expensive to purchase. When consumers and growers are faced the choice of deciding to choose to use a peat based growing media which is tried and tested and has been the growing media of choice for hundreds of years and non-peat equivalents they are still overwhelmingly more likely to select peat based media as their decision is primarily price driven, even if they are consciously aware of the Environmental aspects of their purchase decision.

We believe that more could be done to educate consumers starting in schools and colleges to capture the attention and awareness of the amateur and professional grower of the future as part of general education within the curriculum.

We also strongly believe that more could be done to educate consumers and the general public about the proactive approach that has been adopted by the Horticulture sector over the last 20 years to strive towards peat replacement in the industry and on doing so promote the awareness and education on some of the peat replacement materials and products available on the market today.

Ultimately, we do not believe that education and awareness alone is going to achieve peat replacement and until some of the barriers to acquiring significant quantities of quality peat alternatives have been overcome as detailed in my response to section A. It will only be when alternative substrates become available in sufficient quantities and with a consistency of quality and performance to completely replace Peat and are available at lower purchase costs that this goal will be fully realised.