

Towards Sustainable Growing Media

Chairman's Report and Roadmap

June 2012

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Introduction

The Task Force has continued to make significant progress since the publication of its Interim Report in March and there is a great deal of consensus amongst Task Force members in many areas. Naturally, there remain some areas where consensus was harder to find. This report is the chairman's summary of what he believes is a sensible, commercial and practical way forward.

Unlike the Interim Report, this report does not provide a project by project update of progress. Instead the focus is on highlighting observations that have arisen across the piece. Part 1 of the report is a personal take by the Chairman on the current state of the debate. Part 2 focuses on setting out emerging messages and observations building on the work of the Task Force focussed around the long list of areas where consensus was reached. Finally, Part 3 sets out a draft roadmap building on an exercise undertaken by the Task Force at its meeting on 11 May.

Four Point Summary

1. The horticulture industry over relies on peat. The more it argues the economic case for peat, the more it exposes the inherent risk in having an industry that is too reliant on peat to compete. It is in the economic interests of the industry to develop more choices and alternatives in the raw materials for growing media.
2. All growing media regardless of origin must be competitive, perform to agreed standards and have proven sustainability credentials. Consensus is needed amongst the key stakeholders on what those credentials are and the degree of third party auditing required to show compliance.
3. The environmental movement needs to restate its rationale for zero peat use in horticulture and be consistent in the delivery of that message, not just across the UK but also across the EU and beyond. It also needs to balance its narrative on peat in horticulture with other uses of peat.
4. Government should continue to show bold leadership on this issue, but should seek ways to, and be seen to, support a prosperous UK horticulture industry that not only

uses sustainable growing media but creates a sector that supports Government's wider sustainability and economic ambitions.

Next steps

The Chairman is inviting feedback from all interested parties, whether Task Force members or not, by the end of September. He would like your views on any part or all of the report and would particularly welcome details of specific actions that individuals or organisations would be willing to undertake that can be added to the roadmap. There are no specific questions to be answered and this is not a Government consultation.

Feedback should be sent to the Secretariat by email to growingmedia@defra.gsi.gov.uk

The Sustainable Growing Media Task Force

The Sustainable Growing Media Task Force was established in June 2011 following the publication of the Natural Environment White Paper, the Natural Choice, to explore how to overcome barriers to further reducing peat use in horticulture. Since then the Task Force has adjusted its remit to that of putting the horticultural sector on a long-term sustainable footing by ensuring that all choices of growing media (or substrate) used for amateur gardening and horticulture is sustainable.

The Task Force is made up of representatives from 35 organisations from across the growing media supply chain, including retailers, growing media manufacturers, growers and environmental organisations (see Annex 1).

Further details about the Task Force can be found on its website at:

<http://www.defra.gov.uk/peat-taskforce/>

Part 1: Personal observations from the Chairman

As chairman of the Sustainable Growing Media Task Force it is my role to offer observations on the contribution sustainable growing media can make to the future of the UK Horticultural industry and the way to achieve this. These observations build on the work of the Task Force, the wider discussions I have had with individual Task Force members and other stakeholders and my own experience in advising companies on how to transform to meet environmental challenges. It has been a privilege working with such a diverse, knowledgeable and passionate group of stakeholders and I look forward to hearing their feedback.

Dr Alan Knight

Sustainability: an opportunity and a challenge

A world, and a UK, economy that values and nurtures nature, working with natural systems, reconnecting people with nature, providing passive access and helping people to relax, will be a more prosperous economy than one that drives the opposite trends. If gardening had not already been invented the sustainability movement would have had to invent it. With its benefits to the rural economy, the environment and human wellbeing horticulture is a natural champion of sustainability. However, limited action or the lack of a comprehensive narrative from the sector means that the contribution of gardening and horticulture to the sustainability agenda, though very important, remains understated and underexploited. I believe that if promotion of the benefits of the sector is pursued with enhanced creativity there will be opportunities to grow the sector.

In light of the Government's ambitions for a greener economy and to increase food production in ways that improve the environment I am left with a clear sense that collaboration between the public sector and UK horticulture could result in significant win-wins. More needs to be done to better understand, quantify and realise the economic and sustainability benefits of gardening and UK horticulture and Government needs to support UK horticulture to deliver these benefits as a means of achieving its own agenda. Rather than a focus on just peat and growing media the wider trends in sustainability should be used to roadmap collaboration that links the growth of the industry with the wider green ambitions of the UK Government (whilst not forgetting the focus on growing media).

A focus on sustainability brings both opportunities and challenges and some of the changes required make most commercial sectors and companies uncomfortable. This is because sustainability is not easy. The science is often ambiguous and solutions challenge not only the way we currently do things but sometimes the very business models that we use. In a lecture to the Marketing Society on April 30th 2012, Paul Polman (CEO of Unilever) identified dealing with ambiguity as a key skill requirement for today's business leaders in a volatile, uncertain, complex and ambiguous world. He stated that "*we need to look at business models differently than before*" and has changed the business model of Unilever. He went on: "*we have a duty to make sustainable living a reality*" and he believes that businesses, shareholders and investors need to think longer term, that short termism is both bad for business and people, and that whilst profits matter the final judgement of a business is its legacy. Bold words indeed, and only a few years ago words that would have come from an environmental campaigner or a business narrator, not the CEO of one of the largest fast moving consumer goods businesses. These comments have helped crystallise my observations on the Task Force. The Task Force was shaped around one aspect of the industry – growing media and the reliance of peat as the main input.

Government peat targets: right or wrong?

An aeroplane cannot fly without fuel whilst a plant cannot grow without growing media. Britain like many, but not all, markets was blessed with a gift from nature – peat. Consistent in quality, cheap to harvest and close to market it makes a perfect growing media and one which has helped the UK industry grow. Whilst other horticulture markets have flourished without access to peat, it is fair to say the UK sector currently sees peat as essential. But the preference for peat is based on performance and price and not ideology. Many, however, argue that the cost to nature and the natural environment of peat harvesting is too high. Whilst there is a clear consensus that no peat should be sourced from pristine or high quality peat habitats, there is a spectrum of opinion over the extent to which the protection of bogs extends to a complete phase out of all peat use including peat from agricultural land or bogs that are degraded.

Government, through the Natural Environment White Paper and its peat targets, has placed itself at the ‘complete phase out’ end of the spectrum. Whilst some might argue that peat is renewable and can be harvested like a forest the vast majority accept the principle that peat is effectively non-renewable and that as the industry grows, the reliance on peat will need to be reduced and alternatives developed. There is now an emerging viewpoint that rather than focusing on peat use being phased out because every fragment of sphagnum should be left untouched the industry should move towards alternatives in order to avoid commercial risk created by an over reliance on peat as the sole raw material for growing media.

The aviation industry is now facing pressure to reduce its use of fossil fuels to limit greenhouse gas emissions and individual companies are setting targets to reduce fossil fuel use. Many companies in that sector see this pressure on fossil fuel use as a challenge to create resilience within their business and they are testing and developing alternatives. That is an appropriate reaction and the horticulture sector should likewise be looking at alternatives to peat and here is the rub – it is. The HDC Growing Media Review published in June of this year highlights just how the horticulture sector is testing, using and embedding alternatives. So why is there so much tension?

The tension is because too many in the horticulture sector feel targets have been imposed upon them, the target is not based on evidence, that the trajectory of change feels too arbitrary and the end game of absolute zero is out of proportion to the problem being solved. The aviation sector is driving fundamental change in fuel types but at its own pace and on its own terms; the phase out of peat use in English horticulture is not seen as being at its own pace or on its own terms. Some argue that this is an overreaction since the targets are an expression of Government ambition and are voluntary, so the industry does remain free to dictate its own pace of change.

The Government’s intervention, however, has made a huge contribution, because their White Paper expressed a clear direction and sense of urgency. The peat targets have united the industry into what I believe has been a well informed conversation on the issues associated with the future of growing media. Important initiatives have emerged which will result in long term commercially important outcomes. I believe that the Government has a huge opportunity to generate further momentum and goodwill for targets by reflecting on the details that have emerged from this Task Force. The spirit of the UK Government’s ambition is well intended and demonstrated a positive example of environmental

leadership. I welcome this and hope the NGOs, the sector and the Government find this report a useful focus point to build on the progress and goodwill that has been generated.

Learning lessons from the past

Attention to the link between peat use and peat bog damage was first raised as far back as the 1970s by David Bellamy and in the 1980s by other environmental groups. Peat bogs were being harvested for growing media, and this was felt to be an unacceptable use of such a precious example of nature, although extraction of peat for horticulture was only one of the pressures facing peatlands. At that stage planning permission had already been given, even to sites that were so important that they were designated as Sites of Special Scientific Interest (SSSI). Changing planning permission would have been a hard and costly battle to win, so instead campaigners took the move to open the conversation with customers. Is it right, they asked, that your appetite for plants should come at this cost to nature? The anti-peat in horticulture campaign was born and twenty years later significant progress has been made but closure has not been achieved and views remain divided. For example the focus on just the horticultural use of peat and the apparent lack of focus on other peat use has not served the anti-peat campaign well.

The first pro-active stance came from the retailers in the 1990s. In 1991 B&Q was the first retailer to specify against peat from SSSIs and later introduced a dilution strategy which was adopted by the industry as a whole. Dilution provided an alternative approach to that advocated by campaign groups which were demanding peat free products. At that stage the quality and performance of alternatives was just not good enough and the campaign resulted in peat-free products on the market that at best were not as good as peat and at worst did not work. Therefore, whilst intellectually the ask of the anti-peat campaign was well intentioned, in hindsight the rapid drive to 100% peat-free products was a tactical error whose legacy impedes consumer confidence to this day. If the campaign groups had been more sensitive to the economic and quality challenges of creating an alternative to peat at the launch of their campaign I believe more would have been achieved.

The approach taken by B&Q, in the jargon that is used in 'sustainability' today, would be called disruptive innovation and choice editing. This is important because if it was disruptive innovation that created transformation in the past, it is likely that disruptive innovation might drive change in the future. Examples of this are already occurring within the horticultural marketplace, based on novel materials and alternative marketing approaches.

Within the current policy landscape, transformation of the sector is reliant on a voluntary approach. For a whole sector to volunteer to make such a dramatic change it needs a belief in the rationale for change. What is apparent is that the situation in the "bog" today is very different to the situation in the 1980s and 90s when the anti-peat movement first spoke up. First more peat is imported, our most precious English peat bogs are now protected and being restored and dilution is working to reduce the proportion of the market that is peat whilst the use of peat in mulches and soil conditioners has all but stopped. In the meantime, the emerging carbon sink debate and the recognition of the importance of natural capital have, as Friends of Earth explained to the Task Force, switched consideration from a conservation of specific sites narrative to one of a UK response to protecting global natural capital. The environmental drivers for taking peat out of horticulture are more diverse than in the past but are just as compelling, and to some even more compelling.

On the other hand, many horticultural stakeholders feel that the case against peat is ambiguous. Whilst not an unreasonable observation, the conversation they might want to have is “how should the sector face up to ambiguity?” rather than seeking a level of clarity that in my opinion may never be forthcoming. However, this history does also serve to remind us that there are two fundamental principles that need to be adhered to as we move forward. Firstly, all growing media must be fit for purpose, and secondly, the transition to sustainable growing media needs to be economically viable.

Can peat be responsibly sourced?

There are some sources of peat that a pragmatist would say are not caught up in the initial problem (of depleting biodiversity) and deserve bespoke attention and narrative. In this Task Force I nicknamed this the “Somerset question” (in reference to the system used in the extraction of Somerset fen peat). By this I mean: should extraction of peat that converts farmland into biodiverse wetlands and other habitats be exempt from the pressure to avoid all peat? The answer depends on what balance you give to the different drivers against peat use, i.e. between the protection of habitat and the protection of carbon sinks and stores. This is a personal judgment and it should be accepted by the industry that whilst it is reasonable for NGOs to provide the ideological framework, the industry itself needs to identify the unique and exceptional circumstances that exist and to make and win the case for exemptions.

The work being undertaken by the European Peat and Growing Media Association in creating standards for harvesting peat demonstrating high levels of environmental and social stewardship suggests that they believe that peat can be responsibly sourced and raises a challenge to environmental groups. Will they concede that this peat is indeed acceptable or will they maintain their stance against the use of such peat on the grounds of carbon? In our discussions with the NGOs within the Task Force, it was clear that whilst the narrative against peat is shifting towards a more global view of natural capital, in practice this does not fundamentally change their views on the need to dramatically reduce, if not phase out, the use of peat in this sector.

However, peat bog protection could also be seen more as a planning issue. If some sites are so special for nature and the environment, then planning restrictions and interventions are surely a more effective way of protecting those specific sites than a broad brush market intervention.

Europe surfaces another paradox in this debate; the pressure to phase out peat use is very UK-centric. It is fair to say that the debate in mainland Europe is significantly different. As companies choose to expand into Europe and beyond and begin to rely on European sources for key raw materials, it is not unreasonable for the sector to hesitate in reacting whilst the arguments pushed forwards by the NGOs vary so much in intensity. If an NGO believes it is unreasonable for Eastern European peat to be used in potted plants sold in the UK, then surely the same pressure should be applied on a potted plant sold in Holland or France.

Fundamentally, environmental groups exist to help us all protect the environment. It is unreasonable to expect any environmental NGO to support the harvesting of either a carbon store or a natural habitat, although a more consistent approach across Europe would help. The question, however, is not one for NGOs to change their stance, but for the industry on how much the underlying issues highlighted by environmental campaigns will ultimately lead to severe commercial risk. The more the industry argues the case for

peat, the more I realise they need alternatives to choose from. To stretch an Oscar Wilde quote, “there is only one thing worse than not using peat in our sector and that is over-relying on peat in our sector”.

Preparing for the future – a more resilient industry

Ian Cheshire, the CEO of Kingfisher (who own B&Q), now chairs a think tank that is helping Government understand how policy and business can value and nurture natural capital. Ian, in his own business, goes one stage further. In the same month as Paul Polman delivered his first annual review of Unilever’s Sustainable Living Plan, Ian launched Kingfisher’s Net Positive campaign. The ambition here is simple, that Kingfisher will give more back to nature than it harms through the way it manages its supply chain. Success with such an ambition will not happen within the existing business model but through its transformation.

Both Unilever and Kingfisher have targets and ambitions for 2020 and beyond. I wonder just how different their business will be in 2020? I say this because there are Defra targets for 2015, 2020 and 2030. As more companies follow the lead of Unilever and Kingfisher together other businesses will follow. The business world will be very different – so whilst 2030 feels like a long way off, and a peat free future a commercial impossibility, the world and the horticultural sector will be very different in 2030. The horticultural and gardening sectors have a lot to win from the sustainability movement but are they prepared for it?

It is not uncommon for individual companies or sectors to have a clear vision of the trends, threats and opportunities that will shape their sector over the next 20 to 40 year horizon. They use this information to test and shape their business model. UK horticulture appears to have no such narrative or thoughts and I think that is a fundamental weakness.

If you look at biochar, for example, in today’s paradigm, you will see a growing media ingredient that is too expensive, too limited in supply and not proven to work. However, if you look at the potential of biochar in a future where carbon negative products generate money (e.g. through carbon credits), nothing goes to landfill and there is adequate feedstock, then biochar might be more attractive. I do not know. But what I have observed is that the industry think about their sector in the light of today’s challenges not tomorrow’s opportunities. This means that sustainability, if ignored, creates the space for new companies to emerge. Their success makes the existing companies uncompetitive and the market does the rest. In other words, the changes that sustainability requires are delivered outside the existing portfolio of businesses in the sector.

Innovations are happening within the sector. Hydroponics is continuing to change how some commercial crops are grown, and new peat-free products are being launched and advertised, some of which are being promoted for other innovations and benefits without mentioning their peat-free nature. These are not comprehensive solutions in every scenario but they demonstrate how the tipping point might be created; not by incremental change but by disruptive innovation of an existing product or a whole new model. But voluntary agreements and disruptive innovations are not natural bedfellows, and that begs the question: what is the scope for taskforces and think tanks to create them? One thing that could help is an exploration of what political space can be created to help them thrive, for example through incentives, grants, prizes or tax holidays – all in the gift of governments to offer. This author does, however, recognise that such a request is not necessarily appropriate at this time of austerity.

Certainty is required for this sector and when it comes to the gardening and food market the approach taken by retailers will be the show changer. There needs to be a new level of collaboration between retailers taking the lead in setting the direction and pace of change in the market, with growing media producers and growers actively supporting that ambition through innovation and collaboration. I hope there is enough in this report to encourage them to come up with the next step in their own peat reduction plans. Rather than just restating Government peat-free targets that reinforce the anxiety many in the industry have, my ambition for retailers would be new and creative initiatives that reassure the consumer and the supply base that responsibly sourced growing media, profitability, and a good result in the garden or pot are not only possible but a key part of the sector's future.

Part 2: Distillation of Task Force discussions and programme of work

Whilst Part 1 of this report sets out my personal take on the current state of the debate and the challenges ahead, this second part focuses on the emerging messages and observations arising from the work of the Task Force. These are presented as a series of 'consensus points'. However, within these broad points of consensus, I highlight both areas where there is strong agreement within the Task Force and areas where it has not been possible to reach complete agreement on the detail. Some of the messages and observations in Part 2 covers the same ground as Part 1, but in more depth. The messages and observations that did not make it into my high level narrative (Part 1) are still very important and contribute to taking the debate forward and identifying where further work is required.

1: All growing media must be fit for purpose

All growing media (and soil improvers) must be fit for purpose, i.e. must be capable of delivering the required performance within the horticultural systems in which it is to be used (amateur and commercial). This can best be demonstrated by use of performance standards.

Poor experience with, and bad performance of, some non-peat based growing media is a major concern expressed by some gardeners. This has created a resistance to giving different peat-reduced or peat-free growing media a chance and allows the poorer performing materials on the market (sometimes solely formulated to meet a pricing point irrespective of performance) to sour the market for everyone. If consumers continue to express a preference for peat due to bad experiences with some alternative products, retailers will not be as willing to continue to drive the transformation of the market through choice editing.

Poor performing growing media is even more costly to the commercial grower; it can result in losses of part or the whole of a crop with a value of £100,000s, or cause them to miss delivery dates on contracts due to slow plant growth. Quality of performance here needs to be judged within individual growing systems (i.e. machinery, methods of watering and feeding, greenhouse set up and production deadlines) as requirements will vary from crop to crop and between growers.

No-one buys a product without an expectation that it is fit for purpose. The same is true of growing media. What is required is a way of assessing the fitness for purpose of growing media so that the customer can purchase in confidence and the retailer can be certain that their customers will have a good experience with the products they stock. The consensus view of the Task Force was that fitness for purpose could best be demonstrated by the use of performance standards. The market should then favour products which meet the performance standard and exclude poor performers.

The Growing Media Association has taken the lead in developing a performance standard and monitoring mechanism for retail bags of multi-purpose compost. This initial focus makes sense as amateur gardeners use over 70% of the growing media sold in the UK and this is mainly purchased as multi-purpose compost or in grow-bags. Performance requirements for the professional sector will be more specialised and there may not be a generic means of assessing performance.

There has been strong support, across the industry, for the development of a performance standard and progress has been made to date in identifying the tests of performance and a range of options for implementing and policing the standard. Further details are set out in Annex 2.

There is a need to maintain momentum and build on this work to take this to an auditable standard that can be used with confidence; for credibility this must include some element of third party auditing and should probably include tests on a wider range of plant types. Within the next 3-5 years the majority of multi-purpose compost sold within England should demonstrably meet the performance standard. Some of the steps that are required to achieve this are set out in the roadmap in Part 3 of this report. Success will be dependent on retailers demanding products that meet the standard.

2: Preference for peat is based on performance and price and not ideology

It is clear that no one in the Task Force is ideologically committed to the use of peat in the future. Indeed it is clear that the industry as a whole has already recognised that in the long term peat will remain controversial and many freely admit that its availability must be considered finite. The key barriers to further change are based on performance and price and not ideology. If cheaper and better quality growing media were available this would be used. However, evidence from research in other countries indicates that growers and gardeners tend to favour the types of growing media that they are accustomed to and know how to manage, hence inertia is also a barrier to change. We should not forget the change from John Innes formulations to peat in the 1960s did not occur overnight.

In theory peat is not required to grow plants but many feel it is required to grow plants profitably. Peat only became the dominant material for horticulture and gardening in the 1960s and 1970s as a replacement for loam (soil) based growing media formulations. Good quality loam was becoming very difficult to source in sufficient quantities to respond to a burgeoning interest in amateur gardening, and heavy loam mixes meant that transport and handling were expensive. Replacing John Innes with pure peat solved both of these problems.

In countries around the world remote from peat sources, good quality growing media has been developed based on locally available resources because peat is too expensive to use. In these countries even crops that are known to be more challenging to grow without peat, such as ericaceous plants, are successfully produced in non-peat media. Economics has played a key part; in countries where peat is more expensive there has been investment in alternative growing media ingredients. Where peat is cheap there has been less incentive to use other materials.

3: The transition to sustainable growing media needs to be economically viable

The move towards sustainable growing media is about doing things that are good for business, not bad for business – so the economics of change must stack up. This is true for all parts of the supply chain, and for consumers.

Growing media manufacturers and commercial growers have made significant progress to date in reducing the peat content of growing media mixes and growing plants in peat-reduced media. However, given the difficulty in passing costs up the chain they have generally done so at their own expense, and so have only implemented changes where it is within their commercial interests to do so.

One key issue is that many alternatives to peat are more expensive, and this cost is compounded by the need for research to inform their formulation and use. The price differential is due in part to competing demands for alternatives (for example from the renewable energy sector with respect to wood fibre), and the cost of the infrastructure required to change.

This sector operates in a trading climate where many of the growing media products are heavily promoted, with deals (for example “3 for £10”) used to drive footfall. Commercial success in this sector relies on very tight margins. Therefore, any change in cost structure, even one that mathematically feels small, will have a disproportionate and high risk impact on margin leaving little room for manoeuvre. For this reason, changes must be driven through collaboration between supplier and retailer where the risks are understood and shared.

4: All growing media should be made from raw materials that are environmentally and socially responsibly sourced and manufactured

Given the diverse environmental drivers for the need to move away from peat and the associated costs of achieving this, the last thing the industry wants to do in moving to alternatives-based growing media is to face similar challenges on these materials in future. Therefore the Task Force agrees that the industry needs to ensure that its use of raw materials is ‘sustainable’.

However, ‘sustainability’ is a complex and ambiguous term and can mean different things to different groups. There is a clear understanding that the three pillars of sustainability are economic, social and environmental, but how they are balanced and assessed is more complicated. In judging whether growing media is sustainable, a range of criteria relating to each of the three pillars needs to be assessed. However, unless all components of each pillar are judged it is not possible to state definitively that something is sustainable, just that there is no evidence that it is unsustainable based on the criteria assessed.

The strength of support within the Task Force for this has led to Task Force members already developing an initial set of criteria for assessing whether all raw materials are environmentally and socially responsibly sourced and manufactured. This should be applied to the products at the end of the production belt (including additives like fertilisers and water retaining gels) and not include an assessment of packaging or any onward transport, use or disposal. The details are set out in Annex 3. No criteria were proposed for assessing the economics of the materials and products as this was judged to be something for each company to assess for themselves; uneconomic products would not be produced irrespective of the performance against the other criteria.

Greenhouse gas emissions and the role of habitats as carbon sources and sinks have an obvious place within this set of criteria, but it has been difficult to agree how these should be assessed. Further generic assessments of the carbon footprint of growing media were not judged to be the way forward, since any assessments were only as good as the quality of the data available and the assumptions used within each assessment and, therefore, were open to challenge. This view has been generally endorsed by the Task Force, with a conclusion that a high-level assessment of the climate change impacts of growing media (e.g. impact on carbon sinks) would be preferred.

There is a need to maintain momentum and build on the work so far to take this to an auditable stewardship scheme that can be used with confidence. Consideration needs to be given to how this relates to the performance standard in terms of its ownership and management and opportunities for bringing together both schemes need to be explored. For credibility there must be some element of third party auditing.

Within the next 3-5 years audited products (growing media and soil improvers) meeting the threshold for responsible sourcing and manufacturing should be available on the market. Some of the steps that are required to achieve this are set out in the roadmap in Part 3 of this report. Success will be dependent on retailers demanding products that perform well against these criteria.

5: The horticultural sector in 2030 will have undergone other transformations, as will society

The horticultural sector in 2030 will have undergone other transformations, as will society. The transition to sustainable growing media will not be occurring in isolation and needs to be considered against a backdrop of other, larger, transformations within the sector and society as a whole. Some of the meta-trends that will drive this change are already having an influence; other meta-trends are on the horizon.

Climate change and its impact on water availability is probably the largest challenge that the sector will be facing between now and 2030. With two years of unseasonably low rainfall and the subsequent drought warnings and hosepipe bans the impact of water shortages are already being felt by the industry, despite the recent rain. The sector needs to improve its water use efficiency and consider different systems of watering plants. One of the barriers to changing growing media within commercial horticulture is based on compatibility with current irrigation systems. However, with changes in how plants are irrigated to meet reduced water availability, different growing media properties may better suit the new systems.

Future labour availability and technology (such as robotics) are also likely to transform the sector and the systems designed to deal with this should be built around the use of sustainable growing media.

6: Removal of all peat from commercial horticulture will be very challenging, and targeted action is required

Removal of all peat from commercial horticulture will be very challenging, and targeted action is required to achieve a transition to the use of sustainable growing media. The professional horticulture sector is not homogenous in terms of its use of, and requirements of, growing media. Substantial elements of the sector have largely moved away from peat some time ago, such as growers of tomatoes and soft fruits. Those parts of the sector currently using peat do so for different reasons; some simply use it as a relatively cheap and reliable medium in which to grow young plants to the point at which they can be sold, whereas others (for example propagators) are heavily reliant on peat – often a particular type of peat – for its unique physical and chemical properties.

Beyond the purely technical challenges in finding alternatives that perform as well as peat within established growing systems, within a voluntary approach growers will only move away from peat if it is in their commercial interests to do so. As well as the higher cost of developing and using alternatives, growers also need to factor in the commercial risk of

crop failure which could occur if they do not adapt production methods sufficiently, or if the growing medium delivers unexpected results.

All of this means that the scale of the challenge in moving towards sustainable growing media is very different for different parts of the sector. Building on ideas around commercial viability of peat replacement, work led by the Horticultural Development Company and National Farmers' Union has sought to place different parts of the professional horticulture sector on a sustainable growing media 'continuum' in order to assess what action might be needed to make peat replacement more commercially viable in that part of the sector. Details of the continuum and the potential means of overcoming barriers to each category are set out in Annex 4.

This structure will allow targeting of actions across the commercial horticultural sector and is a positive step forward. Momentum needs to be maintained and further work is required to establish where other crop sectors sit within the four categories given, in order to identify further opportunities for professional growers to increase their use of sustainable growing media and reduce their reliance on peat.

Within the next two years commercial scale demonstrations of sustainable growing media need to be set up alongside a system for knowledge transfer within the industry. However, these are only two of the steps required to achieve the goal of commercial horticulture using only responsibly sourced and manufactured growing media. Some of the other steps are set out in the roadmap in Part 3 of this report. Success will be dependent on retailers demanding crops and plants grown in sustainable growing media and a partnership between growing media manufacturers and growers to identify the most appropriate growing media to suit growers' needs.

7: Transformation should be encouraged through choice editing

Transformation should be encouraged through choice editing rather than consumer education or campaigns. Most consumers do not even know that there is peat in the growing media they buy or what it contains at all. In a 2011 survey conducted by OnePoll for the Royal Horticultural Society, 67% of respondents said they did not know what was in a bag of retail "compost". When asked what they thought growing media were manufactured from, responses included 'mud', 'animal manures', 'bones and nutrients' and 'all sorts'. Without this basic knowledge consumers are unlikely to demand peat-free products.

The majority of consumers make their purchasing choices of growing media based on price (61% in the OnePoll survey for the RHS), with the expectation that all products are fit for purpose. Only 8% of respondents to the same survey said they bought according to peat content, despite 20 years of campaigns to educate the consumer to move away from peat in growing media. It is unlikely that any new and 'better' campaign to educate the consumer will have a significant effect. The 10% market share of peat free products is similar to the overall demand for environmental products more generally.

As a result, some retailers and growing media manufacturers are starting to believe that labelling products as peat-free is unnecessary and a barrier to their sale. Given the primary concerns are for performance and price, then as long as performance requirements are met by the growing media on sale there is not necessarily a need to apply a label stating the product has no peat in it.

Significant transformation of the market has already occurred through choice editing in the form of dilution strategies. Where previously multi-purpose composts were 100% peat, dilution strategies have brought them down to around 70% peat with, in most cases, very little difference noticed by the consumer. More alternatives to peat (by volume) are now sold within mainstream products rather than as peat-free products.

If, as the majority of Task Force members believe, consumers cannot be expected to drive change, then the role of retailers becomes crucial. They are the ones who decide which products are available to consumers and it is to them we must look to 'choice edit' away from peat and towards sustainable growing media that meets performance requirements.

8: The public sector needs to demonstrate leadership through its procurement activities, but must work in partnership with growers to deliver change

There is an overwhelming view amongst the Task Force that the Government needs to show leadership through its procurement activities. Although the public sector represents a very small proportion of growing media use, it is responsible for a substantial level of demand for plants. Plants may be procured either directly from commercial growers, or, more likely, through one or more intermediaries in the supply chain such as landscaping contractors.

Given these complexities, seeking to drive change in a way which is inconsistent with the way that those supply chains work could ultimately be counterproductive. This is particularly the case in the context of the voluntary phase-out target for peat use in the commercial horticulture sector, which is not until 2030. For example, a particular grower may find that it is not currently commercially viable to develop a separate peat-free offer across their whole range. It might, however, be possible for that grower to work with a group of customers who supply the public sector in order to develop a peat-free offer for a sub-set of the overall range to suit their needs, if this could be shown to be commercially viable in the long run.

To increase the chances of public sector procurement having a significant impact on the debate, Government therefore needs to focus on specific projects where the public sector can work in partnership with the whole procurement chain to identify opportunities and overcome barriers to a transition to sustainable growing media. These projects could be at a range of scales, from a specific Government building or Department through to an entire Local Authority or landscape contractor. There are already positive examples of where this is happening in the market place, and Defra should build on these to make progress in this area.

9: No peat should be sourced from pristine or high quality peat habitats

No peat used in horticulture should be sourced from pristine or high quality peat habitats. This is a strong area of consensus within the Task Force and is the direction the growing media industry within the UK has already mostly gone with sourcing policies protecting peat habitats which are designated as Sites of Special Scientific Interest. With the imminent end to peat extraction at Bolton Fell Moss no peat extraction on SSSIs or Special Areas of Conservation will take place within England. However, extraction is still occurring where the offsite impacts of drainage are damaging the surrounding habitats.

10: Peat is an important carbon store and active bogs sequester carbon (providing a carbon sink)

Lowland peatlands are concentrated stores of carbon, with particularly deep peat deposits of up to 10 metres that have accumulated over thousands of years. Under UK conditions peat bogs (in good condition and actively peat-forming) grow at the rate of 0.5-1mm per year. Although upland peat (from which no extraction occurs for horticultural use) has been the focus of most recent attention due to their significant storage of carbon and the potential to improve their management to mitigate climate change, lowland peatlands in England actually contain more carbon (due to their greater depth and area).

The carbon being lost to the atmosphere from the extraction of peat (and as a result of other pressures) creates a net increase in the quantity of carbon dioxide in the atmosphere since the carbon within it has been trapped and taken out of the active carbon cycle for many thousands of years. But beyond this loss of a significant carbon store is the lost potential of peatlands to act as carbon sinks removing carbon dioxide from the atmosphere. Despite their slow growth active peat bogs are one of the most significant carbon sinks available to aid in mitigating greenhouse gas emissions (the other significant carbon sink being forests).

It has been suggested that future living peat bogs might enjoy revenue streams based on the premise of keeping them intact. Maybe, for example, high carbon emitting companies such as airlines could buy bogs to keep them intact to offset carbon emissions elsewhere in their business. Countries that are currently sitting on large reserves of peat may in future find them more valuable for carbon trading than other uses.

There is a consensus within the Task Force that active peat bogs have an important role to play as carbon sinks. Where there is less agreement is on why the industry should act when the emissions resulting from their use of peat are so small compared to overall UK emissions of greenhouse gases. My personal view is that, if the case against peat was solely and purely about the reduction of greenhouse gas emissions, there is an argument that the required emissions reductions should match that of the economy more widely, i.e. 80% less by 2050. However, we know that there are other reasons why peat extraction should be avoided and all of this adds up to the fact that peat use will continue to be controversial.

11: There will never be a consensus on the case against peat, but extraction of peat will remain controversial

The environmental drivers for taking peat out of horticulture are more diverse than when conservation groups began their campaign in the 1980s and 1990s. The main driver then was biodiversity (with a curatorial attitude to the preservation of species) and that driver still exists today (with a focus on habitats and ecosystem services). However, our understanding of the value of peat to society in the delivery of ecosystem services (such as climate regulation) and as a fundamental part of our natural capital has grown and these have added to the environmental drivers for change.

This is not a ploy on the part of Government and environmental groups to keep the debate live now that the biodiversity issues have been mainly 'solved' by the industry. It reflects a fundamental shift in our appreciation of the role of peatland habitats in providing other services to society and our growing requirement for peatlands to deliver one particular ecosystem service, i.e. climate regulation, to mitigate climate change.

There was no disagreement within the Task Force that these are global environmental issues that need to be addressed. For some Task Force members that is enough to set the context for the need for peat replacement. But from others there is a demand for more explicit detail of why English horticulture needs to change, what damage its use of peat causes to the environment, what the priorities for protection are and where in the country peatlands need to be protected.

There is also a genuine (and legitimate) concern within the industry that it may change to an alternative growing media only for environmental groups to start campaigning against that material too. Therefore, the choice of alternatives must also be considered within the framework of biodiversity, ecosystem services and natural capital, and the environmental NGOs will need to engage with the industry in the development of the responsible sourcing and manufacturing standard – hence the importance of the work this Task Force has helped to initiate.

12: Extraction of peat for horticulture is only one of the pressures facing peatlands in England

Extraction of peat for horticulture is only one of the pressures facing peatlands in England and is only one of the pressures that have led to the historic decline in active lowland peat habitats. Both upland peat (from which no extraction occurs for horticultural use) and lowland peat habitats need protecting and restoring in the face of the same environmental drivers as identified for reducing the horticultural use of peat.

The Task Force has identified the need to decouple the reduction in peat use in horticulture from the protection and restoration of English peat bogs. Whilst on active extraction sites cessation of extraction is a necessary first step to restoration, stopping extraction will not protect/restore either these sites or the many others not being used for peat extraction. Likewise ending the sales of peat in the UK does not automatically restore peat bogs. Therefore, the onus is on the Government, land owners and land managers to protect and restore peatlands.

In decoupling the expectation of a market mechanism of peat reduction from successfully protecting peat habitats it is necessary to identify what has allowed peat extraction to occur to the detriment of peat habitats in the last few decades. The answer is the planning system and, therefore, the mechanism by which peat habitats should be protected from extraction must also be the planning system. The approach taken in the recently published National Planning Policy Framework (of not granting new applications for peat extraction) was welcomed by some members of the Task Force and criticised by others. One particular criticism relates to concerns over the consistency of this approach with the direction of travel implied by some Task Force discussions, given that it effectively prevents any further peat extraction regardless of where and how it is sourced. This is an area that should be revisited in the 2015 policy review.

Much of the work to date on protecting and restoring peatlands has focused on upland habitats and some members of the Task Force have raised the question about what is being done to protect the same lowland peat habitats which they are being accused of damaging. Some of the other commitments within the Natural Environment White Paper may provide opportunities to do more in this area.

13: Labelling should help the consumer make a choice and not confuse them

Labelling should help the consumer make a choice and not confuse them. It should also help consumers get the best possible performance from the growing media products they buy. Even in a choice edited world, with regard to performance and responsible sourcing and manufacture, consumers will need to choose which product to purchase. At present, when a consumer visits a retailer to buy growing media, they are confronted by a plethora of complex messages relating to the products on the shelf. There is a huge diversity in the words that are used to describe very similar products, whilst there is also an inconsistency in the presentation of a product's key characteristics.

For example, the word 'organic' is often used on packaging in an attempt to differentiate one growing media product from another, even though almost all growing media substrate is, by its very nature, derived from organic matter. Similarly, whilst the peat content of multipurpose compost is often displayed on the product, the way in which this is portrayed varies enormously.

As a result, it is difficult to directly compare the properties of the products on display. Consumers therefore find it difficult to make a choice, whilst retail staff find it difficult to advise their customers on the most appropriate growing media for their use, and how to get the best performance out of different growing media. In many ways then, the resources put into the marketing of these products are going to waste, since customers are not able to identify the product which is best for them and are therefore less likely to make a successful purchasing decision.

A consensus has not yet developed within the Task Force on how to take this forward. However, my personal view is that whilst marketing should be left to individual companies and retailers, there must be scope for a more consistent approach to labelling to ensure that consumers are not distracted by choices they do not need or want to make (*"all I want is a grow-bag, if the price and quality is right I do not care what it is made from"*) and the choice is laid out in a clear and consistent way across all brands. I believe the industry should agree a set of common standards to which its labelling will conform. This debate might need to start at a more generic level. For example just what is "multipurpose compost" and how does it differ from "all purpose"? Is it fair for a product that never contained peat to then be labelled peat-free?

14: Improving confidence in the use of green waste requires improved collection, segregation and sourcing of green waste

Green compost will not be the sole solution to peat replacement or the transition to sustainable growing media either in terms of complete replacement or its suitability for certain uses. However, it does have an important role to play. Despite some very successful products on the market, some users of growing media have never had confidence in the use of green compost and others have had their confidence in its use dented through past use of poor quality compost that was unsuitable for growing media inclusion.

The key to improving confidence in the use of green compost in growing media is improving its quality and further minimising the presence of contaminants (physical, chemical and biological). Contamination in compost originates at the collection stage of source segregated green and food wastes for composting. Everyone has a role to play in preventing contaminants entering the feedstock, from individual householders in terms of their recycling practices, to Local Authorities in terms of how they collect green waste and

educate residents, to compost producers in terms of their quality control. It might be worth looking at for example the Swiss system where consumers take 'organic' residues – garden and arboreal wastes – to the tip and they are segregated specifically for composting to be returned for garden use. This has to be policed but does yield a useful product. It is separate from the composting for energy production of, for example, food and general organic waste.

Whilst the long-run goal must be to maximise the potential of green waste in supporting the transition to more responsible sourcing of raw materials, in the short term this means identifying the specific further research needs to improve our understanding of the impacts of green waste production and contaminants on its performance in growing media.

15: The waste regime is currently a barrier to the sourcing of materials

The waste regime is currently a barrier to the sourcing of materials for use in growing media and horticultural soil improvers. In 2009 the UK market for growing media and soil improvers was 7 million cubic metres, of which 3 million cubic metres was peat. Assuming the transition to sustainable growing media includes the ending of peat use then at least an additional 3 million cubic metres of sustainable growing media will need to be sourced to meet current demand.

With the twin drivers of resource use efficiency to reduce the use of virgin raw materials and waste utilisation to prevent the loss of valuable materials to landfill, looking to waste derived materials to fill this gap makes good sense. However, under the Waste Framework Directive many of these potential waste derived peat alternatives are classified as waste and it is this classification that is the cause of significant difficulties for manufacturers. Manufacturers must have an environmental permit to use these materials and mixing these materials with virgin materials makes a final product that is also classified as a waste, with associated issues for its transport and sale.

Working with the Environment Agency (EA), Task Force members want to achieve a position by which the manufacture of a 'quality' growing media can be viewed as an approved recovery operation for specific waste materials. The EA will need to refine its view of what is or is not a waste. The desired outcome is that the end product of composting is not regarded as a waste and would, therefore, be free of all waste regulatory controls. However, the manufacturer would still require an environmental permit to store and handle the waste input materials.

16: A voluntary approach will only work if people choose to take part

From the outset there has been a lack of consensus within the Task Force on whether a voluntary approach should be maintained going forward or whether an alternative regulatory approach should be adopted by Government. This remains a polarised issue. Whilst the horticulture industry tends to be in favour of a voluntary approach (whether or not they agree with the overall target), NGOs and retailers do not appear to have much faith in the success of a further voluntary approach. However, there are key members of each group with the opposite view.

Those who do not believe a voluntary approach will work are also split between those who distrust another voluntary approach as the previous round failed to deliver the desired reduction in peat use, and those who believe that volunteers will be at a disadvantage to their competitors. The previous voluntary approach led to action only being taken by a small group of engaged manufacturers, growers and retailers, which, because of the costs

associated with alternative materials, had the effect of ‘taxing’ the good behaviour rather than rewarding it.

A voluntary approach is reliant on the goodwill of all participants to change and some Task Force members believe that many in the industry favour the voluntary approach so that they do not have to make a change. Other Task Force members believe that a voluntary approach is essential to ensure that any future progress does not undermine the commercial viability of the UK horticultural industry.

The shift of focus of the Task Force from purely peat reduction to a transition to sustainable growing media, the collaborative work which has been undertaken and the nature of some of the issues that still need to be resolved favour a continued voluntary approach. However, the challenge to growing media manufacturers, growers, retailers and regulators is to make a voluntary approach work. The acid test will be what progress has been made by the policy review to deliver the roadmap set out in Part 3 of this report.

With or without regulation, one message emerged – the pace and direction of change will be determined by the pace and direction of the major retailers in this sector.

17: Monitoring of progress needs to consider more than only changes in volumes of materials used, and this should be reflected in the 2015 policy review

As we move forward, it is important that progress is monitored so that it is possible to assess whether the approach set out in this report, and the voluntary approach more widely, is delivering the desired result. Historically, progress in reducing peat use has been assessed by directly monitoring the sales of peat by the growing media industry. This has shown a decline in the overall market share of peat, but more limited reductions in the actual volume of peat used.

However, data on peat extraction and use (or on the use of sustainable growing media) can only ever show part of the story. Many of the actions set out in this report will take time to implement using the steps laid out in the roadmap, and so will not immediately lead to substantial changes in demand for peat or a transition to sustainable growing media. Moreover, as this report sets out a much wider narrative on the changes needed in the horticulture and growing media sectors, the monitoring of progress needs to reflect that by not just focussing narrowly on peat use, or even just on volumes of different substrates being sold in England or the UK.

Progress should therefore be assessed using a combination of data on the raw materials used and information on the achievement of the proposed actions set out in the roadmap. This is particularly important for the policy review (which must be undertaken before the end of 2015), by which time many of the transformational changes proposed in this report will not have fed through to the statistics on raw material use.

Part 3: Roadmap

Below is a draft roadmap that has been created through individual conversations and a Task Force meeting in May. It illustrates that the proposals I make in this report can be converted into a roadmap and builds on Parts 1 and 2 of this report. I invite feedback on these milestones and the best form of governance/oversight and co-ordination to facilitate their achievement. I would also welcome additional commitments and actions from individuals and organisations to add to the roadmap.

Performance standard

Goal: All growing media is fit for purpose.

Year 1	<ul style="list-style-type: none">• Testing protocol and audit protocol developed by the Growing Media Association for multi-purpose compost• First product testing against protocols completed
Year 2	<ul style="list-style-type: none">• Retailer and stakeholder buy-in obtained• Implementation of scheme by growing media manufacturers
Years 3-5	<ul style="list-style-type: none">• Products appear on market that have been audited as meeting the standard• Choice editing by retailers to ensure that the default choice is products meeting the performance standard• Review performance of scheme• Integrate with the responsible sourcing and manufacturing standard• Identify other types of growing media for which a performance standard is required
Years 6-10	<ul style="list-style-type: none">• Other performance standards developed and implemented

Success criteria (medium-term): In the next 3-5 years the majority of multi-purpose compost sold in England should demonstrably meet the performance standard.

Responsible sourcing and manufacturing standard

Goal: All growing media and soil improvers should be made from raw materials that are environmentally and socially responsibly sourced and manufactured.

Year 1	<ul style="list-style-type: none">• Task Force sub-group completes its development of the initial criteria set• Methodology for assessing mixtures rather than individual ingredients developed• Engagement with NGO community• Launch scheme (concept)
Year 2	<ul style="list-style-type: none">• Ownership of the criteria set taken over by Growing Media Association and Growing Media Initiative• Scheme developed and tested by GMA and GMI• Consultation and buy-in from NGOs, retailers and other stakeholders• Agreement of the 'promise'• Benchmark of current products against the criteria
Years 3-5	<ul style="list-style-type: none">• Threshold for responsible sourcing and manufacturing established• Audit arrangements developed and agreed

	• First products in market
	• Integrate with the performance standard
	• Audited products available on the market
Years 6-10	• Introduction of standard into customer standards
	• Choice editing by retailers to ensure that the default choice is products meeting the responsible sourcing and manufacturing standard
	• Review performance of scheme
	• Extend scheme, promise and criteria from beyond the end of the mixing belt to its use in commercial horticultural systems

Success criteria (medium-term): Within the next 3-5 years audited products (growing media and soil improvers) meeting the threshold for responsible sourcing and manufacturing should be available on the market.

Commercial horticulture

Goal: Commercial horticulture uses only responsibly sourced and manufactured growing media.

Year 1	• Establish current data on the use of peat within different sectors of the industry
	• Promote success stories
	• Review the pros and cons of different alternatives
Year 2	• Principle component analysis of current growing media to identify and describe the properties that are vital to commercial growers and that need to be replicated by sustainable growing media for each sector.
	• Commencement of commercial scale demonstrations of sustainable growing media (with funding sourced).
	• Knowledge transfer of existing and developing knowledge
	• Changing customer and retailer expectations
Years 3-5	• Pull through (demand) from retailers
	• Overcome risks to commercial growers
	• Continuation of commercial scale demonstrations and research
Years 6-10	• Commercial horticulture increases its use of responsibly sourced and manufactured growing media

Success criteria (medium-term): The establishment of a two to five year programme supported by both Defra and the industry to create commercial scale demonstrations together with knowledge transfer within the industry.

Choice editing

Goal: Retailers only stock products which meet the performance standard and responsible sourcing and manufacturing standard.

Year 1	• Retailers make public commitment to only sell sustainable growing media (by 2020 or earlier)
Year 2	• Retailers begin working with growers to identify how to bring through plants and food products which are grown in sustainable growing media
Years	• Choice editing by retailers to ensure that the default choice is products

3-5	meeting the performance standard
Years 6-10	<ul style="list-style-type: none"> Choice editing by retailers to ensure that the default choice is growing products meeting the responsible sourcing and manufacturing standard Choice editing by retailers to ensure that the default choice (where feasible) is plants and food products which have been grown in sustainable growing media

Success criteria (medium-term): In the next two years, the majority of growing media retailers have made a public commitment to only sell products which meet the responsible sourcing and manufacturing standard.

Public sector procurement

Goal: All public sector procurement includes a requirement to source plants and products that have been grown in sustainable growing media.

Year 1	<ul style="list-style-type: none"> Defra works with central and local government and growers to identify opportunities for promoting the use of peat alternatives in public procurement
Year 2	<ul style="list-style-type: none"> Case studies identified or set up to promote positive examples of a move towards sustainable growing media in the public sector
Years 3-5	<ul style="list-style-type: none"> Central Government becomes an early adopter of the responsible sourcing and manufacturing standard in relation to its procurement

Success criteria (medium-term): Within two years, positive examples of leadership by the public sector in moving towards sustainable growing media have been developed through a partnership approach.

Consumer education on use of growing media

Goal: Consumers can make informed choices in their purchase of growing media (and soil improvers) and are confident in how to get the best performance out of them.

Year 1	<ul style="list-style-type: none"> Manufacturers and retailers work together to ensure consumers have the information at the point of sale on how to use different growing media to meet their needs
Year 2	<ul style="list-style-type: none"> Labelling protocol agreed between retailers and manufacturers

Success criteria (medium-term): Within two years, the majority of customers feel they understand how to use the growing media they have purchased effectively.

Improving confidence in the use of green waste

Goal: Improved confidence in the use of green waste such that it is able to fulfil its maximum potential in the growing media market (estimated to be around 20% of the market).

Year 1	<ul style="list-style-type: none"> Association for Organics Recycling (AfOR) 'Feedstock Contamination' Special Interest Group continues to work with composters, Local Authorities and other important stakeholders to improve understanding of issues affecting the quality of feedstocks and how these impact upon green compost Investigative research on the impact of herbicide residues in compost
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	<p>completed and recommendations set out</p> <ul style="list-style-type: none"> • Completion of an investigation project looking at the main technical issues identified by the Task Force
Year 2	<ul style="list-style-type: none"> • Updates of WRAP's Guidelines for the Specification of Quality Compost for use in Growing Media, 2011 and accompanying Compost Production for use in Growing Media – a Good Practice Guide, 2011 • Further research needs on specific issues associated with green compost identified • Signposting of existing evidence and education of the horticulture industry about perceived issues and further planned work on any remaining issues in place

Success criteria (medium-term): Within 3-5 years, the number of growing media producers successfully incorporating green compost into their products has significantly increased.

Sourcing of materials

Goal: The waste regime is no longer a barrier to the sourcing of high quality waste derived materials for use in growing media and horticultural soil improvers.

Year 1	<ul style="list-style-type: none"> • The Environment Agency and growing media manufacturers work together to develop a way forward
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Success criteria (medium-term): In the next year, the Environment Agency and growing media manufacturers agree a specific action plan for overcoming this barrier.

A voluntary approach

Goal: A voluntary approach successfully delivers a transition to sustainable growing media within the horticultural sector.

Year 1	<ul style="list-style-type: none"> • Retailers, manufacturers and growers commit to taking specific actions • Defra produces a Government response to the Task Force report
Year 1 onwards	<ul style="list-style-type: none"> • Actions in this roadmap are achieved successfully

Success criteria (medium-term): Within a year, the majority of the growing media supply chain has volunteered for one or more actions within this roadmap.

Part 4: Annexes

Annex 1: Members of the Sustainable Growing Media Task Force

Steering Group (individuals)

Dr Alan Knight (Task Force chair)
Catherine Pazderka, Sustainability Policy Adviser, British Retail Consortium
Craig Bennett, Director of Policy and Campaigns, Friends of the Earth
James Hayes, Chairman, Growing Media Association
Neil Bragg, Chairman, Horticultural Development Company
Tim Briercliffe, Director of Business Development, Horticultural Trades Association
Dr Chris Hartfield, Horticultural Adviser, National Farmers' Union
Dr Roger Williams, Head of Science, Royal Horticultural Society (until early May 2012)

Members (organisations)

Growing media manufacturers

Growing Media Association
Bord na Mona
Horticultural Coir
Melcourt
The Scotts Miracle-Gro Co.
Somerset Peat Producers Association
Vital Earth
Westland Horticulture
William Sinclair

Retailers

British Retail Consortium
Horticultural Trades Association
B&Q
The Garden Centre Group
Homebase
Scotsdales

Professional growers – industry groups

Horticulture Development Company
Horticultural Trades Association
National Farmers' Union
West Sussex Growers Association

Professional growers – Food

Delfland Nurseries
Lincolnshire Herbs
Monaghan Mushrooms
Madestein
Produce World
The Shropshire Group
Vitacress Ltd Group

Professional growers – Ornamentals

Fleurie Nursery
Hillier Nurseries
Johnsons of Whixley
Lovania Nursery
Lowaters Nursery
Millais Nurseries

Other Non -Government Experts

Friends of the Earth
National Trust
Royal Horticultural Society
WRAP

Annex 2: Performance standard for multi-purpose compost

A number of tests will be identified to make the appropriate assessments:

- Plant performance – It is proposed that performance testing initially be based around growing tomato plants from plug stage to first truss. These would be grown within a controlled environment with set temperature, lighting and growing conditions. Performance would be compared to a control grown in 100% peat (specified mix) and assessed for:
 - Foliar fresh and dry weights
 - Height/width/width (volume)
 - Visual score – based on photos from a ranging trial.

The group will run tests on a broader range of species (not just tomato) in order to decide which other plants can be accommodated within the framework to demonstrate reliability of the results across plant types.

- Seed germination – Chinese cabbage would be used to test seed germination using the existing European Committee for Standardisation (CEN) method.
- Weeds – A test will be developed by the Growing Media Association based on monitoring weed growth in 1 litre / half seed tray growing media.
- Contaminants – Tests for glass, metal and stones will be included and in accordance with BSI PAS 100 (Publically Available Standard 100: Producing quality compost).
- Physical and chemical properties – It was agreed by the group that this information is of lesser importance than performance and that it would be difficult to set thresholds for pH, electrical conductivity, nutrients (nitrogen, phosphorus and potassium), etc. Nonetheless this information should be recorded because as evidence grows it may become possible to do that in the future.
- Stability – To test to see whether nitrogen has been lost from bagged product testing should take place on product from the point of retail sale.

In terms of how the standard will be implemented and policed there are a couple of options under discussion:

- a) Manufacturers could have responsibility for carrying out the tests themselves with random third party inspection and research station testing.
- b) All testing could be conducted by an independent third party approved contractor.

Clearly there will be a significant cost difference between these two options but cost is an important element to address in the development of this project. It will be no good if a system is developed which is then too expensive for the industry to use.

Annex 3: Environmental and social criteria for responsibly sourced growing media

Proposed criteria

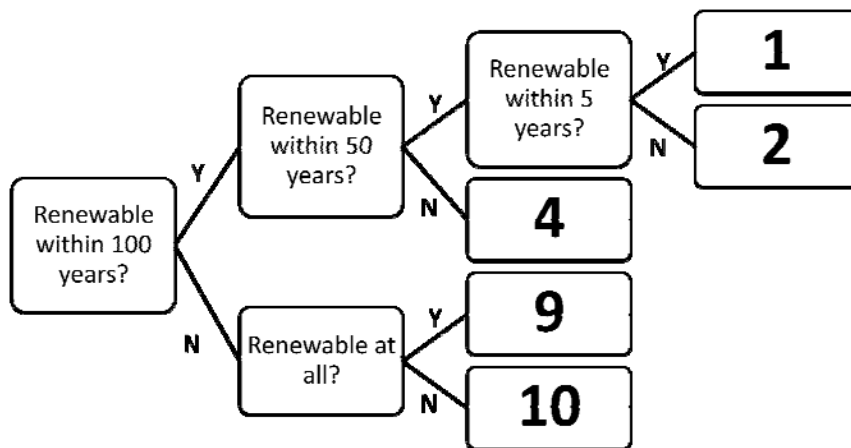
Category	Criteria	Description
Social	Ethical issues	Consideration of the employment and ethical standards being met.
Environmental	Renewability	Replacement time of the material within living cycles. Renewable materials are considered to be those with a replacement time within 100 years.
	Reduce, reuse, recycle	This is a combination of resource use and waste generation. Reused and recycled materials score better than virgin co-products which score better than virgin materials. Systems which do not generate waste in production score better than those that do. Assessment is also made of whether the waste generated is recyclable and how much unrecyclable waste is generated.
	Availability	This is a material level consideration (rather than at a company or product level) of the availability of the material within the next 5 years and considers both the proportion of the market that the material can fill as well as the maximum market share that the material could achieve if it was used to its full potential.
	Resource security	This is a consideration of the distance of the source of the material (the closer the better) and the potential for supply disruption under different scenarios.
	Water use in production	This is a combination of the volume of water required and the security of its supply.
	Production energy	This is a combination of the amount of non-renewable energy required and the security of its supply.
	Ecosystem services and habitat	This is a complex criterion that needs to be broken down into a number of separate criteria. It currently covers habitat losses and gains, land use change, soil conservation and pollution (to water, air and soil).
	Climate change impact	This needs to assess the impact on carbon sinks and stores.

Scoring

A scoring system has been developed in the form of decision trees for each of the criteria, with values ranging from 1 to 10. Low scores represent better performance and higher scores represent poorer performance. Draft decision trees are available for all criteria except ecosystem services and habitat and climate change impact.

An example of the decision trees is given in Figure 1.

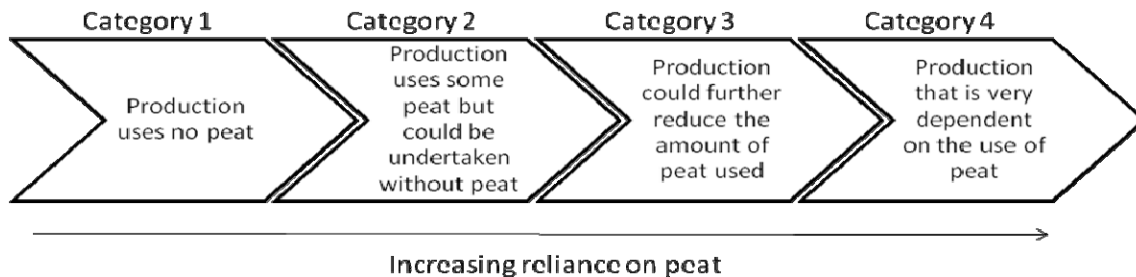
Figure 1: Renewability scoring decision tree



Annex 4: Sustainable growing media continuum in the professional sector

Within professional growing the relationship with peat is a continuum that can be broken down into four broad categories as set out in Figure 2.

Figure 2: Sustainable growing media continuum



Category 1

- Changes to more sustainable growing media mixes containing no peat are not prevented by technical barriers and would have low cost implications.
- For production in this category, there are opportunities to use knowledge transfer and sharing of best practice to encourage growers using peat to change their growing media to mixes that are more sustainable and deliver cost benefits for their businesses.
- Examples of crops in this category include orchid, some containerised rose and large tree production.

Category 2

- Changes to more sustainable growing media mixes containing no peat are not prevented by significant technical barriers but there is a moderate cost implication, which could be overcome by price intervention
- Shifting to more sustainable growing media mixes may require price intervention at retail level to enable associated additional costs to be passed down the supply chain.
- With some crops a moderate level of Research, Development, Demonstration and Deployment (RDD&D) input may also be required to enable the adoption of more sustainable growing media mixes.
- Examples of crops in this category include pack bedding plant production.

Category 3

- Changes to more sustainable growing media mixes containing reduced peat would not be prevented by significant cost barriers; however the changes are technically much more challenging and will be reliant on a higher level of RDD&D input.
- Examples of crops in this category include ericaceous plants and some hardy nursery stock production.

Category 4

- Cost of change and difficulty of the technical barriers involved is high and unlikely to be cost effective given the total volume of peat used by growers in this category is

likely to be a relatively small proportion of the total peat use by professional growers.

- Shifting to more sustainable growing media mixes would require significant innovation involving both basic and applied RDD&D.
 - Examples of crops in this category include some hardy nursery stock, plant propagation (edible and ornamental), and mushroom production.
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