



Greening UK Gardens

A levy proposal for peat use in
horticulture



Foreword

The UK doesn't have rainforests. But we do have peatlands.

Peatlands are one of the UK's most valuable habitats. These damp, colourful wetlands have their own natural history, of bog mosses and carnivorous plants, rare darter dragonflies and many other unusual insects, which all depend on the special conditions of a wet bog. Birds too – from snipe and curlews, to merlins and skylarks. Peatlands are also huge carbon stores. In the UK, peat is estimated to store at least 3 billion tonnes of carbon almost 4 times as much as in UK forests. This incredible resource has developed slowly, over many thousands of years - peat 'grows' by only a millimetre a year. Yet we have plundered our peatlands, allowing the peat to erode away as a result of drainage, burning and agricultural use, and by digging it out and bagging it up for our gardens and pot plants.

People are often not aware that peat used in the garden is causing damage to peatlands. Yet our garden peat comes from one of the rarest peatland types, lowland raised bog, which gives industry deep peat stores that are easy to mine. Currently, less than 6% of the UK's raised bog habitat remains undamaged.

We've made huge progress in halting extraction on designated bogs but continued demand simply pushes the problem elsewhere. And all raised bog habitat is precious, in fact, it is so badly damaged across Europe, that it is the only habitat for which European law requires member states to identify and restore damaged sites, as well protecting those in better condition.

We have known about the environmental devastation caused by stripping peatlands of their soils for decades, and we know that to look after our lowland bogs, we need to use alternatives to peat in our gardens and in the horticultural industry. A few of us have been doing this for years, both domestically and professionally. Now, Government has recognised that we need everyone to bring a halt to using peat.

However, the voluntary approach to resolving the problem has failed. Indeed, in recent years the transition towards alternatives has virtually stalled and peat use in the UK fell only 1.63% (around 50,000 m³) between 2007 and 2009. At this rate of decline, the horticulture industry will not be peat free for another 120 years.

This report puts forward the case for introducing a levy on the retail sale of horticultural peat to 'nudge' consumers and the industry towards using alternatives. The levy could increase over time, facilitating the complete phase out of peat in line with the UK Government's objectives. The timeline for this phase out should be by 2016 for gardeners and 2020 for professional growers.

We believe this is perfectly achievable. There are plenty of alternatives to peat composts, including some high profile brand names, already widely available in garden centres across the UK. Today, many peat-free composts work as effectively as peat ones. Much of the materials used for peat replacement also contribute to

recycling in the UK, such as commercial green compost, or uses by-products, such as wood brash and other forestry waste.

These materials help our gardens grow sustainably, using renewable resources, helping reduce waste and providing better long term jobs. Yet alternative composts are still dominated in the marketplace by their peat-based counterparts, in terms of volume, and price. A levy would provide a more level playing field for alternatives to come into their own, supporting sustainable industry, and making gardening greener.

Bringing together concerns around climate change, wildlife habitat and the services our natural environment delivers to society, this is a problem that can no longer be ignored. The UK Government, which has pledged to be the greenest ever, cannot on the one hand negotiate a global treaty on climate change and ask developing countries to protect their forests, whilst allowing our own high-carbon specialist habitats - the UK's rain forest, if you like - to be squandered.

Martin Harper
Head of Sustainable Development

Key Messages and Recommendations

Peat extraction damages one of Europe's rarest and most threatened habitats. Less than 6% of the UK's original lowland bog habitat now remains. UK consumption of peat also leads to annual carbon dioxide emissions of over 630,000 tonnes at a cost to society of £32.5million.

These environmental externalities constitute market failure in the horticultural industry, where damages to public goods and services delivered by peatlands are not incorporated into decisions made by consumers and producers. The case for government intervention has been acknowledged for 15 years, with targets being set for 90% of materials supplied to horticulture markets to be peat alternatives by 2010.

These targets were missed by a significant margin, with peat alternatives supplying only 58% of the markets illustrating the failure of a voluntary policy approach. The current DEFRA consultation proposes another voluntary approach spanning a further 10-20 years. Experience shows that this intervention alone will not be enough to ensure the transition to a more sustainable industry.

A levy has a number of advantages over both a regulatory or voluntary approach in terms of effectively driving behavioural change in line with government objectives, and has the potential to raise significant amounts of money.

A levy of 4 pence per litre on peat composts would only increase the average bag of compost by just £1, and yet could raise a significant £88million.

These funds could be reinvested in restoring degraded peatlands across the UK, to further internalise the environmental externalities that have characterised the industry for decades. This money would also be invaluable for supplementing the funding deficit for conservation in the UK, calculated to be £273million before the cuts detailed in the comprehensive spending review.

Specifically, a *sales levy on retail bags of peat-based growing media* is the most viable policy option for raising revenue, and would give the correct market signals to facilitate a move away from peat consumption and towards the use of alternatives.

Much of the materials used for peat replacement also contribute to recycling in the UK, such as commercial green compost, or uses by-products, such as wood brash and other forestry waste. A levy would provide a more level playing field for alternatives to come into their own.

The RSPB proposes that in the 2011 budget, the UK Government, in cooperation with the devolved administrations, introduces a sales levy on peat-based growing media, offering incentives for gardeners and the horticulture industry to switch to peat alternatives. A levy should be used to facilitate peat phase out targets of 2016 for gardeners and 2020 for professional growers. This policy has the potential to alleviate damages done by peat extraction, stimulate economic growth in green alternatives markets, reduce waste and raise much needed revenue for nature conservation.

Contents

Foreword.....	1
Key Messages and Recommendations.....	3
Contents.....	4
1. Introduction.....	5
2. The case for Market Based Instruments.....	7
3. Proposal.....	10
References.....	18
Annex I.....	19
Annex II.....	21

1. Introduction

Gardening has long been a part of UK culture, and plays a big part in many people's lives. One in five of us, around 12 million people, are gardeners, operating in some of the 20 million gardens across the UK. Gardening is also big business; the growing media (compost) industry has an estimated turnover of almost £150 million¹, supporting a horticulture industry worth over £2 billion.² UK gardeners consume some 4.2 billion litres of compost every year in the UK. Unfortunately, 3 billion litres of this amount is made up by peat, the use of which incurs considerable external costs to our environment and society as a whole.

Environmental Damages

- *Carbon emissions*: Over 630,000 tonnes of CO₂ is emitted per year from horticultural peat use in the UK, at a cost to society of £32.5million.³
- *Damage to biodiversity*: DEFRA note that "Intact raised bogs are one of Europe's rarest and most threatened habitats and are home to important and rare species, including carnivorous plants, the bog bush cricket, sundew, butterwort and colourful bog mosses...Nevertheless, in England, less than 6% of the original lowland bog habitat is now left – approximately 3,727 hectares".⁴
- *Damage to other ecosystem services* delivered by peatlands that provide benefits such as regulation of the water cycle, and recreational enjoyment of the landscape. These services are expected to be detailed more fully in the National Ecosystem Assessment, which reports in March 2011.
- *Length of ecosystem recovery*: Peat forms at a rate of one millimetre per year. These damages are therefore compounded over time, perpetuated by the non-renewability of the resource and the services it delivers to society.

These and other damages, which have been well documented for some time, illustrate the market failures in the industry, where private actions have negative impacts on the rest of society. Private activity in horticulture has thus failed to take a sustainable approach to the use of a vulnerable resource, and is working against the UK Government's environmental objectives.

Pre 2010 policy

Almost all of the peat consumed in the UK is done so through growing media (compost). Acknowledging this, the UK Government in 1999 set a target for 90% of the materials used

¹ DEFRA, 2010, *Reducing and phasing out the horticultural use of peat in England: Impact Assessment*.

² DEFRA, 2009, *Costs to the horticultural sector of meeting the UKBAP target on peat use in horticulture*.

³ Comerford et. al., 2010, *Financing Nature in an Age of Austerity*.

⁴ DEFRA, 2010, *Reducing and phasing out the horticultural use of peat in England*.

in growing media and soil improver markets to be peat alternatives by 2010. However, this voluntary initiative failed to ensure that the social damages were properly included in firms' decision making processes, and the target was missed by a significant margin. The most recent monitoring showed that alternatives supplied only 58% of the markets. In addition, the rate of peat replacement is slowing, and from 2007 to 2009 total UK peat use fell by only 1.63% (50,000 m³). At current rates of decline in peat usage, the UK will not be peat free for another 120 years.⁵

Post 2010 policy

DEFRA has recently launched a consultation on phasing out peat in the horticulture industry, which discusses the setting of a new voluntary initiative to phase out peat use by amateur gardeners by 2020 and for commercial growers by 2030. The Impact Assessment that accompanies this proposal estimates that the annual costs to the professional horticultural and growing media manufacturing industries would be just 1% of their combined annual revenue.⁶

Such a policy, due to the voluntary nature of the intervention, is not giving great enough weight to the extent of the environmental damages associated with peat use, or the economic opportunities from investing in alternatives. The timeframe of the voluntary policy escalates these concerns. We believe it is wrong to wait another 20 years to end the use of peat.

There is a role for the private sector to play in protecting our natural environment and making efficient use of UK resources. However the two key motivations for the private sector will always be financial incentives and regulatory risk. A voluntary initiative following on from the unpunished failure to meet UKBAP targets, and in the face of slowing decline in peat use, does not constitute a significant enough level of regulatory threat for firms or consumers to make the necessary changes.

It is also worth noting that the voluntary initiative detailed by DEFRA is targeted only at England (as stated in the title of the consultation document), presumably relying on devolved countries to adopt a similar peat policy. For this approach to be effective, it will need the administrations across the UK to follow the DEFRA line. A fiscal intervention undertaken in cooperation with the devolved administrations across the UK would be a more efficient policy intervention.

⁵ DEFRA, 2010, *Monitoring the horticultural use of peat and progress towards the UK Biodiversity Action Plan target*.

⁶ DEFRA, 2010, *Reducing and phasing out the horticultural use of peat in England: Impact Assessment*.

2. The case for Market Based Instruments – a comparison of policy tools in the peat context

Policy Tools

Government interventions can be grouped into the following broad categories:

- Direct delivery or financing of goods and services
- Improving information
- Regulation
- Suasive (voluntary initiatives)
- Market based instruments

Given the current fiscal constraints, and the nature of peatlands ecosystem services, the role of **direct intervention** is going to be more limited, which means that the other instruments will be of growing importance. DEFRA have made good steps to **improving information**, through research and advice on going peat free published on their website, however this action serves more of a supportive function than. This section will focus on the final three policy tools in the context of peat.

Regulation

A ban on peat extraction would be the most direct way of alleviating the damages associated with the practice. Given the failure of voluntary initiatives, regulation, or at least the threat of future regulation, in the form of a ban on either extraction, or use of peat, would be a far more effective policy intervention. Ideally, this type of intervention would perhaps be the most preferable course of action, to put a stop to the damages being done to our environment. The UK Government should certainly consider regulation as a possible option. However, this may not currently be the ideal policy tool for tackling peat use for a number of practical reasons.

The immediacy of this type of intervention means that it may have significant implications for firms, who would be given a short timeframe to make the transition away from UK peat. Planning, the location of manufacturing infrastructure and the type of capital employed at production facilities would all pose barriers to a smooth, swift transition. In the absence of any compensation for firms, this approach could potentially impact negatively on UK industry and employment that could be avoided by a more gradual intervention.

Rather than firms bearing the brunt of the costs of a transition, the UK Government may be required to compensate firms for any planning permissions that were over-ridden with an outright ban, as has occurred in a number of cases this decade. To implement the EU Habitats Directive, the UK Government has enforced bans on peat extraction at 4 sites across the UK. In these cases, firms who held planning permissions to extract were

compensated. Sites at Thorne Moors, Wedholme Flow, and Hatfield Moor were designated as Special Areas of Conservation (SACs), at a cost to the UK Government of £17million. A new SAC is being designated at Bolton Fell Moss where a £9million down payment has already been made. The costs associated with over-riding property rights through outright bans on extraction indicate that this approach may be unattractive at present, when public funds are under strain across the board.

An important limitation of this policy tool is that banning extraction at UK peatland sites simply exports the damages being done by UK consumption. Banning extraction at UK sites in the past has resulted in more peat being imported from Ireland and Northern Europe, and consequently the environment damages to be shifted abroad. The issue requires an effective means of tackling peat consumption, which is the real driver of the damages. Imposing bans on the trading of peat to address the problem of displaced production may violate World Trade Organisation agreements.

Voluntary Initiatives

The main benefit of a voluntary policy approach, where government encourages a certain course of action from businesses or consumers without introducing any regulatory threat or market incentives, is that it costs far less public money than the other types of intervention. Another key motivation for the use of a voluntary approach in DEFRA's current consultation on peat policy is to be sensitive to the costs facing industry in making the transition, which were estimated in an industry survey.⁷ However, adopting a softer policy for this reason will only serve to legitimise continued inaction on behalf of businesses.

The crucial flaw in this approach is that there is no guarantee that the policy objective of phasing out peat will be achieved. Voluntary targets regarding peat have failed in the recent past, and with increasing marginal costs of abatement for the peat industry, further voluntary schemes will not give adequate financial incentives for firms to transition to alternatives. Such a policy places insufficient pressure upon firms and consumers who are responsible for the damages to change their behaviour, consequently environmental objectives are compromised, and damages will continue to occur at great cost to society.

In addition, businesses will be sluggish in their innovation and investment, and may consequently lose out on significant future revenues from having an international competitive advantage in the technology associated with processing alternative materials.

To achieve its objective of phasing out peat, and encouraging a more sustainable, dynamic and competitive horticultural industry in the UK, stronger government action is needed to persuade consumers and businesses to make the transition.

⁷ ADAS UK, 2009, *Costs to the horticultural sector of meeting the UKBAP target on peat use in horticulture*, for DEFRA.

Market Based Instruments

There are a number of advantages to using a fiscal policy approach to the problem of peat use in the UK. A levy would have dynamic efficiency benefits over a voluntary approach, ensuring investment and research into peat alternatives. A retail levy on peat products would reduce demand for peat products, giving firms concrete incentives to transition to alternatives. This would involve short term sunk costs, for example on research for new technologies to process alternative materials, or transporting infrastructure and capital to a new site closer to alternative supply chains, but would deliver long term benefits through new revenue streams from alternative markets, a comparative advantage internationally in the means of processing peat-free composts, and a boost to recycling activity.

In terms of the costs to the public purse of introducing a policy, a levy is likely to be less costly than the previous regulatory approaches to ban peat extraction, due to the absence of any compensation requirements, which could be substantial if applied across the UK. However, it would require some research (into appropriate levels and timelines) and monitoring and enforcement (collecting revenues and auditing the relevant bodies), meaning that it would incur some costs. A voluntary initiative would be the cheapest and easiest policy tool to administer, however, lower administration costs will count for nothing if the policy fails to succeed.

A levy also has the potential to raise revenue. The amount of revenue would depend on the level of behavioural change that occurred, which in turn would depend on the level of a levy and the elasticities of the products. In the case of peat, it is possible to ensure behavioural change in line with government objectives, whilst raising significant amounts of money, as is discussed further below.

Overall, we feel a levy on the sale of peat products stands out as the most effective and efficient policy option. It could strike a balance between the two main flaws of the other policy approaches, giving firms profit-based incentives to make the transition away from peat and towards alternatives, without directly restricting their activities, whilst also raising funds.

Possible options for a levy

We have examined the opportunities for policy based around inclusion of peat into the aggregates levy, to target peat extraction, and a levy on peat grown potted plants, to target the downstream consumption of peat. However, difficulties of addressing international trade and competition with the domestic industry, as well as the costs associated with monitoring were among the reasons that these options did not ultimately seem as viable as a levy on retail bags.

A sales levy on retail bags of peat-based growing media has therefore emerged as the most viable policy option for raising revenue, and giving the correct market signals to facilitate a move away from peat consumption and towards the use of alternatives.

3. Proposal – A sales levy on peat based growing media

What?

The levy would be directed at retail sales of any peat-based growing media in the UK, aimed at high-street sales of bags up to 125 litres in volume. Manufacturers would be required to report any product that contained peat, and label the product accordingly so that retailers and consumers were aware of the peat content. Retailers would charge the levy onto the price of the peat products, and submit total sales and levy revenues annually to the appropriate government. For illustrative purposes, this proposal will focus on a uniform levy of 4 pence per litre charged at any compost products containing peat. This uniform approach would lower administration and monitoring costs, and supports the ultimate zero peat policy objective. However, a banded system focused on different rates for products with different peat contents is also a possible option, and is covered briefly below.

Who?

This levy would target recreational use of peat by amateur gardeners, who it is assumed, (based on transport costs, administrative barriers to trade, and habit) will continue to rely on UK retailers for all or almost all supply of domestic use (i.e. 125 litre bags and under) composts. This levy would not target commercial growers, who it is assumed purchase growing media directly from the manufacturers or through trade distribution networks (bypassing retailers). This levy targets the 69% of peat consumption that is leisure or recreation related, adding sensitivity to UK business by omitting professional growers from the levy. There is a risk with this approach that reduced peat consumption by amateur gardeners may be absorbed by professional growers further up the supply chain with manufacturers supplying more bulk peat-based compost to industry at a lower price to make up for a decline in the demand from retail bags. However, it is uncertain to what extent this would be more profitable for either the manufacturer or the professional grower than shifting production and use to alternatives. Professional growers may need to be encouraged (or regulated) not to increase their peat consumption, and continue working towards the UK Government's timeline for peat phase out. This illustrates the need for a levy to work in tandem within DEFRA's broader peat phase out policy.

This option also overcomes a criticism of previous initiatives where industry could not pass increased costs of transitioning away from peat on to the consumer.⁸ Firms in the industry would be impacted via decreased demand for peat that would result from the levy, rather than having the cost of operations impacted directly. If the policy was appropriately

⁸ DEFRA, 2009, *Costs to the horticultural sector of meeting the UKBAP target on peat use in horticulture - SP0577*.

designed, for example using an escalator, it could work towards any timeline the UK Government decides upon.

Administration, Monitoring & Enforcement?

To minimise administration costs for the UK Government, legislation could be introduced requiring manufacturers to label any peat composts that contained peat, and requiring retailers to report volumes of peat-based compost sold per year to Her Majesty's Treasury (HMT) and submit the relevant levy funds. The latter process could be integrated with retailers' VAT collection and reporting systems. Retailers would claim the funds from consumers by increasing the price of peat products by the value of the levy.

The former should not come at a significant cost to manufacturers. Firms will know when peat is used as an ingredient for a product, and peat-free composts are generally already labelled as such, meaning a slight change in labels on packaging of peat products would be required, for example a label on the front of the bag saying "contains peat". For the collection of revenues, retailers could be required to self-report how many litres of peat compost were sold in the year, and submit the relevant levy amount to HMT. This would require some additional administration costs for retailers; however it seems reasonable to assume that audits of sales are already common practice, so grouping composts into those containing peat and calculating the total litres sold and total levy due to HMT should not incur too large a cost.

Case study: The Irish Plastic Bag Levy – A low-cost and effective fiscal intervention

In 2002 Ireland introduced a 15 Euro cent 'product' tax on plastic shopping bags, previously provided free of charge to customers at points of sale, resulting in 90% reductions in annual use, and raising €12-14 million per year which is hypothecated to fund a variety of environmental programs.

For most retail firms, the revenue collection and reporting was readily and easily integrated with their Value Added Tax (VAT) collection systems, so net additional costs were modest.

The collection and associated administration costs of this scheme are very low, amounting to about 3% of revenues (roughly €350,000). Other costs to the Irish Government included one-off set up costs of €1.2 million on the capital and infrastructure to administer the levy, and advertising costs of 350,000 from the public launch of the campaign. This information campaign, on the damages done by plastic bags, was essential in guaranteeing the levy's acceptance.

The most significant costs to the UK Government are likely to be from researching the most appropriate level for a levy, implementing the legislative changes, and monitoring the actions

of manufacturers and retailers. Spot checks on products at regular intervals would be required to ensure that any peat-composts were being labelled and recognised as such. Audits of retailers' compost sales with an accompanying threat of fines for misreporting would be required to ensure retailers acted in line with the policy. Although there are a large number of small retailers in the industry, if the threat of penalty for failing to report or misreporting was high enough, the actual monitoring levels needed could be reduced.

More research is needed on the exact mechanisms for labelling and self-reporting that would be required, as well as the levy rate that would best achieve the phase out in the set time period.

Possible banding options?

Different retail peat-based composts have different levels of peat content, and there are a large variety of products in the market. Ideally a levy policy would always set a rate that was based upon damages done, or in this case the peat content of the product. However, there will be a trade off here between the costs of administration and the effectiveness of a levy. The administration costs associated with enforcing different charges based upon exact peat content in each different product would diminish the practicality of a levy. In addition, manufacturing firms would be required to measure and report the peat % of each product, and retailers to calculate the appropriate price changes and levy submissions for each individual product, meaning this approach would also be more costly for the industry.

However, as a means of introducing a more efficient and environmentally effective policy, a simple banded system could be introduced, which would set two or three broad levy rates. For example, peat composts with <20% peat could be levied at a rate of 2p per litre, composts with between 20% and 50% charged at 4p per litre and those between 50% and 100% charged at 6p per litre. In addition to providing incentives for firms and consumers to go peat free, this would be a more flexible and attuned policy, encouraging consumers reluctant to stop using peat entirely to move towards products that contain less peat, thereby incentivising firms to lower their peat use in all products. In time these bands could be united at a higher rate, or the levy rates escalated, in order to meet the zero peat policy objective within the set timeframe.

The revenue calculations in this paper do not take a banded system into account when assessing a levy's possible impact upon demand and ability to raise revenue; however, it is certainly a viable option for future consideration.

How much?

Given the lack of information about the price elasticity of demand (PED) for peat products, and variability of prices for peat-based growing media, some assumptions are necessary to calculate the total revenue of the policy (detailed in Annex II below). It is estimated that the proposed levy could raise between £44 - £143 million in the first year (depending on the level of the levy and market conditions). A 40% levy on peat composts (roughly averaging at 4p per litre on bags of up to 125 litres), would raise between £60-102 million, and cause between a 12-48% fall in peat growing media consumption in the year of introduction. It must

be noted that although revenues would continue in subsequent years, other factors affecting substitution (such as awareness campaigns and the price and quality of alternatives) may mean further falls in peat consumption, and annual revenue would be diminishing in the lead up to achieving the zero peat policy objective.

Table 1: Revenue matrix for possible levy options based on various Price Elasticity of Demand (PED) assumptions:

Levy rate	-0.3 PED ⁹	-0.6 PED	-1.2 PED
2p / litre (20%)	£55m	£51m	£44m
4p / litre (40%)	£102m	£88m	£60m
6p / litre (60%)	£143m	£111	£49m

A levy does not need to force industry away from peat use faster than the UK Government deems appropriate, but it can facilitate the transition, raising money in the process from consumers who do not change their behaviour.

Introducing a levy on an escalator basis would allow it to map with the gradual transition of gardeners away from peat. The optimal levy rates would become clearer once the initial levy allowed for an assessment of the PED of peat composts.

Spending revenues?

The size of the growing media market in the UK means that a levy has the potential to raise significant funds. One option for the use of these funds would be to hypothecate the revenues, to improve the environmental effectiveness of the policy and further alleviate damages to peatlands. These funds could be invaluable in helping to fill the financing gap for nature conservation in the UK, which prior to the 2010 Spending Review was £273 million.¹⁰ This shortfall is only likely to increase given the extent of cuts to DEFRA's departmental budget laid out in October, meaning that funding natural environment programs will be a major challenge if this government is to become the greenest ever.

Bearing this in mind, the RSPB have identified areas where revenue could be allocated to help redress the damage caused by the mismanagement of peatlands:

1. A restoration fund that would target extraction sites that do not already have 'after use provisions' in place. Funds could help restore these areas in line with conservation objectives, and in some cases enhance carbon sequestration at sites.

⁹ Price Elasticity of Demand (PED) describes the % change in demand a product experiences when it's price increases by 1%.

¹⁰ GHK Consulting, 2010, *Costs of the UK Biodiversity Action Plan – Update*, DEFRA.

2. Targeted funding for wildlife friendly farming in peatland areas which could help both wildlife and peatland conservation, for example arable reversion to grassland.

Case study: The Aggregates Levy Sustainability Fund - A success story for green levy hypothecation

The aggregates levy was introduced in April 2002 to recognise the environmental impacts of extracting aggregates, and encourage the use of alternative materials. A proportion of the revenues from this levy are put towards the Aggregates Levy Sustainability Fund (ALSF), which invested £65 million from 2008-2011 in delivering benefits to areas subject to the environmental impacts of quarrying.

The £20m of this spending that was linked to benefits that can be monetised has a cost:benefit ratio of almost 1:10, leading to benefits with a present value of £195m to 2020. This included work by the Carbon Trust, Environment Agency, and the Waste & Resources Action Program to reduce industry emissions by over 600,000 tonnes per year, and divert 12.5 million tonnes of waste from landfill.¹¹

Trade effects?

Based on this option, the UK industry (producers and industry consumers) would have no *added* incentive to import peat from overseas, as the levy targets the final sale of peat composts for amateur consumption. Retailers, commercial growers, and manufacturer/extractors would all face the same input costs for using peat, meaning that there would be no advantage to sourcing peat from foreign suppliers of peat products. Peat-based horticultural products other than peat composts such as plants and vegetables would also be exempt from the levy at the retail level, meaning there would be no change in prices.

As shown in the diagram in Annex I, the sales levy would target the final consumption level. It is assumed that there is unlikely to be much, if any, demand for direct purchase of foreign products at this level from recreational gardeners, who tend to buy locally, and in small quantities. The levels of levy being assessed are unlikely to be higher than any transport costs for imports, meaning that individual UK produced bags of peat composts should stay competitive at this level. Even in the event that a foreign supplier set up a means to import individual orders of compost cheaply to individual consumers, habitual factors are likely to mean that gardeners continue to buy from their local retailers. Some trade effects (shifts towards foreign products by amateur gardeners) are considered later in the calculations of the revenue potential of a levy, but if any were to occur, they are likely to be small, and so the assumption is that they would be limited to 20% of consumption.

¹¹ IHPR, 2010, *ALSF 2008-11 Evaluation*, DEFRA.

A lack of trade effects ensures that the levy is effective in targeting consumption, giving market incentives to firms to phase out peat, whilst protecting UK industry, and ensuring the environmental effectiveness of the policy.

Capacity of peat alternatives?

A well designed levy system could encourage transition away from peat at a gradual rate, as deemed appropriate by policy makers. Based on the current availability of alternatives, and crucially, the potential for alternatives supply that could be achieved with an increase in investment, there is potential for this market to respond to a transition away from peat.

Peat alternatives currently supply 58% of the materials to the growing media market (4 million m³), and have the challenge of increasing supply to 100% (currently around 7 million m³) over the coming years.¹²

Between 2007 and 2009, *coir* (coconut fibres – a by-product from coconut processing) saw a significant increase in supply of 154%.¹³ However, available volume is currently limited largely by the lack of a supply chain with foreign exporters such as India and Sri Lanka who produce large amounts as waste, and can ship to the UK in large quantities at low cost and relatively low carbon footprint. *Wood fibre*, the supply of which increased 269% between 2007 and 2009, is another example of an alternative for which supply is limited by the large sunk costs associated with investment.¹⁴ A processing plant would be expensive initially to build, however, this could lead to a significant increase in the supply of alternatives (sourced at similar prices to peat is currently), with 120,000 m³ being available per plant compared to a current total of 200,000 across the UK.¹⁵ Both of these materials have the potential to offer significant increases in supply if firms were incentivised to invest. They also act to dilute another alternative material, with the greatest potential for UK supply, green waste.

There has been a steady increase in the levels of *green waste* supplied to the UK horticulture industry in recent years, and current supply is at around 1.2 million m³. Green waste, despite its high nutrient levels, also has high pH levels, meaning it is mostly only suitable to constitute around 30% of the materials in growing media products.¹⁶ Therefore the potential market supply by green waste is around 2.1 million m³ (30% of the total

¹² DEFRA, 2010, *Monitoring the horticultural use of peat and progress towards the UK Biodiversity Action Plan target*.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ DEFRA, 2009, *Availability and supply of alternative materials for use in growing media to meet the UKBAP target on reduced peat use in horticulture*.

¹⁶ Royal Horticultural Society website, <http://apps.rhs.org.uk/advicesearch/Profile.aspx?pid=441>, Accessed 2 Feb 2011.

6,975,100 m³ of growing media currently consumed in the UK).¹⁷ This figure is well within the capacity of the current level processed in the UK, which in 2007/08 was 2.7 million m³. This source is also significantly cheaper than peat (at £7-15/m³ compared with £10-19/m³ for sourced in peat¹⁸) Supply is currently limited by the technology and expertise to ensure green waste meets the PAS100 standard for use in growing media. This emphasises the gains that could be made from further investment in the capital and expertise required to make the most of this market opportunity.

Some firms such as William Sinclair Holdings have already taken steps to capitalise on this market opportunity, investing in the technology to utilise green waste more effectively. They have subsequently developed a new product which they claim has the capacity to supply 4 million m³. A recent presentation from the company stated that a £1 million capital investment in this product is expected to lead to a new revenue stream worth over £30 million.¹⁹ This illustrates both the potential for alternatives to supply the market, and the benefits to business of investing in alternatives.

A 2009 DEFRA report identified a lack of investment and supply chain infrastructure, especially regarding imports of coir and UK supplied green waste, as major barriers to the phase out of peat within the UK Government timeline. A levy, by increasing demand and making the alternatives industry more competitive with peat, would incentivise firms to innovate and expand the availability of these materials at a quicker pace, benefiting the UK economy, as well as our environment.

There is a unique opportunity for the UK to lead the way in sustainable practice in both the waste management and horticulture industries. Firms have the potential to capitalise on gains close to home in alternatives markets, as well as future gains internationally from being world leaders in the technology, capital and expertise required for sustainable growing media production.

Jobs supported by alternatives market?

Although much of the alternatives market relies on imports of substances such as coir, there are many UK jobs supported by the sourcing of wood waste products such as bark, and green waste. There are opportunities for significant gains through encouraging investment in these and similar materials. For example, processing domestic waste for green compost is relatively labour intensive, compared to peat processing. The Association for Organics and Recycling (AfOR) estimate that 1,350 FTE jobs are currently supported by the composting and biological treatment industry.²⁰

¹⁷ DEFRA, 2010, *Monitoring the horticultural use of peat and progress towards the UK Biodiversity Action Plan target*.

¹⁸ DEFRA, 2009, *Availability and supply of alternative materials for use in growing media to meet the UKBAP target on reduced peat use in horticulture*.

¹⁹ Sinclair, 2010, *Sincro-BoostPlus: 'A Technological Breakthrough'*, Presented at public event 23 June 2010.

²⁰ AfOR, 2009, *Market survey of the UK organics recycling industry - 2007/08*.

There will also be jobs created in researching and developing new avenues for the cheap supply of green alternatives, which will yield current and future benefits for UK businesses.

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Annex I: The Peat industry

Industry structure

- 3 distinct industry levels: Peat extractors and growing media manufacturers (these two processes are almost entirely integrated, with firms acting as both extractors, and manufacturers); professional horticultural growers; retailers.
- Extractor/Manufacturers: Operate as growing media manufacturers, and the industry is dominated by a small number of large firms (e.g. William Sinclair Holdings) that supply growing media to professional plant growers and retailers.
- Professional growers: A large number of firms (such as Hillier Nurseries) buying growing media in bulk directly from extractor/manufacturers, bypassing retailers.
- Retailers: Peat is sold through peat-based growing media, and peat grown plants and foods. The 3 large DIY 'sheds' (e.g. B&Q) account for 50% of peat growing media sales, with the rest being accounted for by around 20 smaller garden centre chains and between 2,000-4,000 independent sellers.

Peat consumption

- Growing media accounts for 99% of horticultural peat use, and peat accounts for 70% of all materials used in these composts.
- 69.4% of peat is used in amateur or recreational gardening (small scale peat-based growing media purchases from retailers), and around 30.3% in professional or commercial horticultural growing (mostly bulk supply of peat-based growing media direct from manufacturers). The final 0.3% of peat is consumed by local authorities and landscape contractors, this usage will not be included in the analysis.²¹

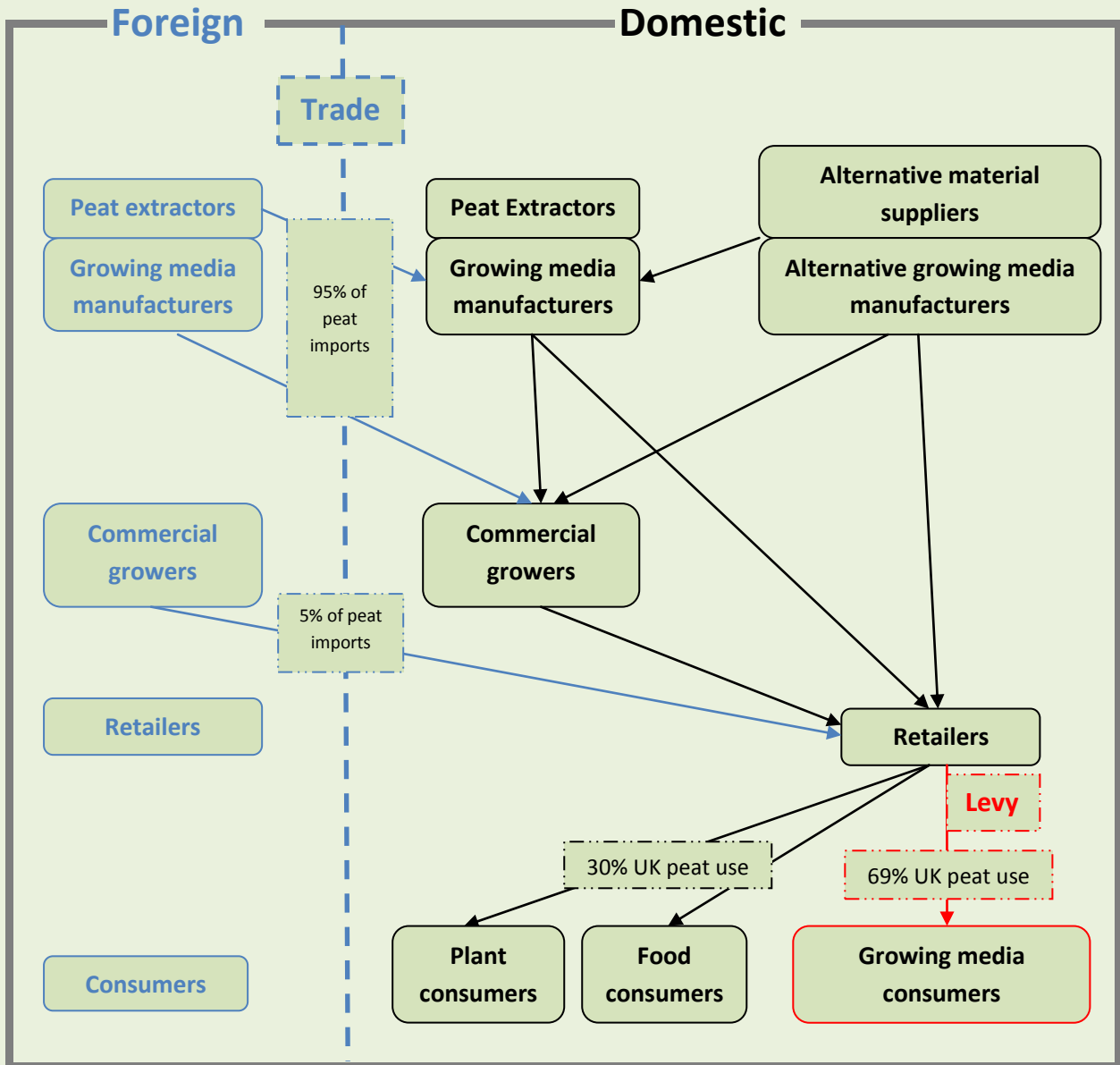
Location

- Extraction/Manufacture (supply of growing media to markets): 68% of all peat consumed in the UK is imported, with 95% of trade occurring at the integrated upstream levels (bulk peat and peat-based growing media). 60% of extraction of imported peat occurs in Ireland, and 8% in Northern Europe.²²
- Retail consumption (growing media use): 80% England, 10% Scotland, 5% Northern Ireland, 5% Wales.

²¹ DEFRA, 2010, *Monitoring the horticultural use of peat and progress towards the UK Biodiversity Action Plan target*.

²² Ibid

Figure 1: The peat industry



Annex II: Estimating the revenue of a sales levy on peat-based growing media

Assumptions

- Total growing media consumed annually in the UK is 4.2 billion litres, around 2.9 billion litres of which was by amateur gardeners.²³ This 2.9 billion will be the figure that is assumed consumption solely from UK retailers, i.e. the consumption that would be targeted by a levy.
- A recent study comparing peat growing media bags gave an average price of roughly 10p per litre.²⁴ Given the diversity of products in the market, and the variability of price based on brand, perceived quality, and especially bag size, an aggregated per litre price is not completely representative, however, it will be used for illustrative purposes.
- Price Elasticity of Demand (PED): It is difficult to ascertain an aggregated PED for all consumers of peat; some will be stubborn due to habitual factors or product loyalty, constituting inelastic demand. Others will be motivated by the slight price differential between peat and alternatives-based composts, or be unaware of the damages caused by peat use, constituting more elastic demand. Public awareness about the reasons for transitioning away from peat around the introduction of a levy may be key in facilitating a shift in demand.

However, current information campaigns from DEFRA, the RHS, and others, have been going for some time to educate gardeners about the damages associated with peat. In addition, there are a huge variety of products and prices in the market, with consumers often willing to pay over the odds for a product because of its brand or perceived quality. A 25 litre bag of “multipurpose compost” can range from £3.50 to £7. These factors suggest that product loyalty is a more significant driver of consumption, and that demand for peat composts is generally inelastic.

Considering that there may also be a price threshold for substitution towards alternatives, an elastic PED will also be considered. Values of -0.3, -0.6 and -1.2 are used. These elasticities refer only to the first year of introduction. Inevitably these figures will become more inelastic in subsequent years, as consumers with elastic demand shift away from peat.

²³ RSPB calculations from DEFRA, 2010, *Monitoring the horticultural use of peat and progress towards the UK Biodiversity Action Plan target*.

²⁴ RSPB calculations, Which?, March 2010, *Gardening*.

- Finally, the possibility of some unforeseen trade effects was examined (considering that a proportion of the market may find a way to avoid the levy and continue consuming peat). A figure of 20% for this assumed possibility.
- Three levels of levy are assessed: 2p, 4p, and 6p per litre of growing media.

Table 2: Market effects of a sales levy on peat-based growing media: PED of -0.3

Rate	Reduction in peat consumption following levy	Peat consumption by amateur gardeners in post-levy year (billion litres)	Revenue in post-levy year	New peat consumption (billion litres) (in case of 20% trade)	Revenue in post-levy year (based on 20% trade)
20% (2p/l)	6%	2.73	£54.6m	2.76	£43.6m
40% (4p/l)	12%	2.55	£102m	2.62	£81.7m
60% (6p/l)	18%	2.38	£142.7m	2.48	£114.1m

Table 3: Market effects of a sales levy on peat-based growing media: PED of -0.6

Rate	Reduction in peat consumption following levy	Peat consumption by amateur gardeners in post-levy year (billion litres)	Revenue in post-levy year	New peat consumption (billion litres) (in case of 20% trade)	Revenue in post-levy year (based on 20% trade)
20% (2p/l)	12%	2.55	£51m	2.62	£40.8m
40% (4p/l)	24%	2.2	£88m	2.34	£70.5m
60% (6p/l)	36%	1.86	£111.4	2.06	£89.1m

Table 4: Market effects of a sales levy on peat-based growing media: PED of -1.2

Rate	Reduction in peat consumption following levy	Peat consumption by amateur gardeners in post-levy year (billion litres)	Revenue in post-levy year revenue	New peat consumption (billion litres) (in case of 20% trade)	Revenue in post-levy year (based on 20% trade)
20% (2p/l)	24%	2.2	£44m	2.34	£35.3m
40% (4p/l)	48%	1.51	£60m	1.79	£48.3m
60% (6p/l)	72%	0.81	£48.7m	1.23	£39m