

**Written Evidence submitted by the Royal Horticultural Society  
(RHS)(TPW0040)**

**General Statement:**

The RHS is the UK's primary gardening charity with over 510,000 members who are devoted gardeners and supporters of UK horticulture. There are four RHS Gardens and a fifth will open in the Salford area outside Manchester in 2021. The RHS provides advice to gardeners on a wide range of topics (including trees) and our Advisory service handles 100,000 enquiries from members of the RHS and gardening public each year. As part of an industry worth £24bn to the UK economy, the RHS helps gardeners by sharing our knowledge of plants, gardens and the environment. Trees are a fundamental component of this. The RHS undertakes research to help gardeners become more resilient and adapt to the effects of a changing climate and increasing risks of pests and diseases. The RHS invests around £4.6 million annually into science and advice activities. In 2016 the RHS published *Gardening in a Changing Climate* Report which provided evidence of how gardens and gardening methods would need to adapt to a changing climate, and provided practical solutions to assist gardeners. Our scientists are working on projects to provide evidence for policy making on sustainable use of resources. These include researching the capacity of a variety of species and cultivars to deliver ecosystem services which will assist in adapting to and mitigating against a changing climate, as well as innovative green solutions for some of the biggest environmental and health challenges ever faced. We believe everyone in every village, town and city should benefit from growing plants to enhance lives, build stronger, healthier, happier communities and create better places to live.

**1. Are the UK Government's targets for increasing forestry coverage, and tree planting, for England the UK sufficiently ambitious and realistic?**

The RHS doesn't have a specific view on the government targets for forestry coverage. However, recognising the multiple potential human, wildlife and environmental benefits of trees, the RHS is fully supportive of the overall initiative. While national targets for increasing forestry coverage are important, caution should be taken not to overlook the potential impact of tree planting in public spaces and private gardens. Loram et al. (2007) estimated that 19–27% of cities in the UK comprise gardens. Furthermore, trees on private land were estimated by Monteiro et al (2020), to vary from 12 to 50% of total urban tree cover, suggesting a greater tree density within private gardens compared to urban green spaces in general. They found that overall tree canopy cover in the cities they studied ranged from 9% to 19%. A further study (Johnston, 2012) found that approximately two thirds (67%) of all urban trees and shrubs were on private property (mainly in gardens) or on less accessible public land (i.e. tree status class B). Cumulatively, this represents substantial area across the UK with the potential for increased tree cover. See:

Loram, A., Tratalos, J., Warren, P.H. & Gaston, K.J. (2007) Urban domestic gardens (X): the extent & structure of the resource in five major cities. *Landscape*

Ecology, 22, 601– 615. <https://link.springer.com/article/10.1007/s10980-006-9051-9>

Monteiro, M.V., Handley, P. & Doick, K.J. (2020). An insight to the current state and sustainability of urban forests across Great Britain based on i-Tree. *Forestry: An International Journal of Forest Research*, 93 (107-123).

<https://doi.org/10.1093/forestry/cpz054>

Johnston, M. (2012) *Trees in Towns II: A new survey of urban trees in England and their condition and management*. Communities and Local Government Publications. <https://doi.org/10.1080/03071375.2012.708498>

Consequently, with the number of UK gardeners estimated to have increased from 27 million to 30 million during 2020 as a result of the COVID-19 pandemic, collectively this also represents significant land area and potential for tree planting.

Government tree planting targets should not only consider area (or number of trees) planted, but should also include targets for tree species/cultivars. In the above study by Monteiro et al (2020) 86% of all trees included in the survey were broadleaved and were dominated by a small variety of species, with the most common being: *Acer pseudoplatanus* (Sycamore), *Betula pendula* (Silver Birch), *Fraxinus excelsior* (Common Ash) and *Quercus robur* (English Oak). The study also showed how private land had a wider selection of species/cultivars than public land (with one exception: Glasgow). This shows that private gardens can play a key role in increasing the genetic diversity in species/cultivar representation in urban areas leading to increasing climate and pest resilience. In addition to contributions to the urban forest, front private gardens and the trees in them provide cultural, mental and social health and well-being benefits, and consequently provide a significant public service, so should therefore should not be ignored.

A recent study in Salford (Chalmin-Pui et al., 2020) planted a single tree and two small containers in a grey street and this had a beneficial impact on reducing perceived stress (equivalent to 8 weekly mindfulness sessions as measured after 6 months) and healthier cortisol patterns. This also made 52% of the participants happier, 40% more relaxed and 26% closer to nature. See:

Chalmin-Pui, L.S., Roe, J., Griffiths, A., Smyth, N., Heaton, T., Clayden, A. and Cameron, R. 2020. "It made me feel brighter in myself"- The health and well-being impacts of a residential front garden horticultural intervention. *Landscape & Urban Planning*, 205 (103958).

<https://www.sciencedirect.com/science/article/pii/S016920462030325X>

There are also further benefits in sustainable urban drainage, reducing air and noise pollution. See:

Cameron, R. and Blanusa, T. (2016) Green infrastructure and ecosystem services - is the devil in the detail? *Annals of Botany*. ISSN 1095-8290.

<https://academic.oup.com/aob/article/118/3/377/1741564>

One of the biggest challenges that government will face is in the ability to deliver on the volume of trees in their targets, whilst remaining biosecure. To be able to achieve this properly and to grow the Horticultural Industry from its existing £24.2 billion national GDP, investment is required in infrastructure, training and development, technologies and in the implementation of a plant health assurance

scheme. This will enable the industry to grow more trees in country, increase productivity and reduce the biosecurity risks/breaches which cost significant money i.e. The Oak Processionary moth, Ash dieback, Sudden Oak Death is costing the government millions each year to monitor and manage and further risks from *Xyllella fastidiosa* could incur much larger costs for the UK government. Investment in in-country production to reduce importing trees will help. It is recommended that government support the development and delivery of the Ornamental Horticulture Roundtable Group (OHRG) business case.

The other challenges include planning permissions to plant trees in urban environments and the planning permissions for land and infrastructure such as glasshouses to grow the volumes of trees required. It would be good to see if the government could review these planning permission challenges and remove some of the red tape from these so that trees can be effectively produced and planted to meet the governments' targets.

## **2. Are the right structures in place to ensure that the UK wide target for increasing forestry coverage is delivered?**

With ambitious targets for tree planting, growing public awareness of the ecosystem and health benefits of trees, increasing popularity of gardening and the expansion of public green spaces, it is essential that government policy foster confidence among UK growers so they can invest in growth and achieving import substitution. Specific measures that could achieve this would be:

- A presumption of a preference for buying British in public sector procurement.
- More timely specification of requirements and funding with investment in long-term procurement to enable UK growers to grow and supply healthy tree products without producing crops speculatively at their own risk.
- Flexibility in plant varieties/cultivars and sizes that are specified in public procurement, for instance allowing alternative plants appropriate for the needs of the procurement to be supplied in place of plants that would otherwise have to be supplied from abroad.
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There is need for improved structures to help tree planting efforts. These include support for / expansion of tree nurseries, and importantly, advanced planning of tree species / cultivar requirements for those nurseries. They need to know what to grow ASAP, as it takes a number of years, potentially up to five years, to produce a viable sapling that will survive ready for planting out. UK production and supply needs to be incentivised and invested in to enable it to expand and modernise for productivity and sustainability, so that it is able to competitively supply the anticipated additional demand for trees, and to meet the anticipated shortfall in moving towards solely UK supplied trees. From a cash-flow / financial sustainability perspective growers also need the up-front and long-term commitment of orders, with adequate down-payment / deposits. Advanced notice of requirements through forward contracting and procurement is required to ensure

that UK producers can plan production to meet demand. There is thus a need for close engagement and collaboration between Government, Industry and NGOs on strategic partnerships and funding mechanisms to deliver this.

Cost of trees may be a barrier, in that suppliers, particularly in the private sector may be required to choose the cheapest provider without taking into account tree quality. There is a requirement for increased UK innovation, productivity and efficiency to facilitate the delivery of trees of consistently high quality and sufficient quantity. This means advancing new technologies and growing systems into practice across the whole supply chain. Possibilities include robotics and artificial intelligence, with associated R&D funding from Industry and Government. It also means identifying likely direction and rate of change of technology in the tree production (horticulture) industry; how this will affect:

- existing systems of production
- labour demand in future
- required labour skills in future
- current labour shortage/surplus (will the current shortage of professionals in the industry be absorbed by the increased ability of technology to complete repetitive/common tasks?!)

The horticulture industry relies on seasonal labour in order to supply demand, and this is likely to be the case once the tree planting programme starts to be implemented. There will be need for seasonal and permanent roles, from low to high skilled roles such as technical, scientific and supervisory roles. It is recommended that Government continues to connect the Ornamental Horticulture Roundtable Group (OHRG) with the Home Office on the needs for seasonal labour in tree planting.

Given the need to produce and transport high quantities of trees in order to meet the planting targets, it will be important for government to assess Supply Chain Efficiency, ensuring the sustainable use of natural resources and maximising the efficiency with which resources such as water, energy and raw materials are used for tree production and transportation, while minimising net waste across the whole supply chain. Failure to do this will off-set the positive impacts of the tree-planting programme.

Accurate measurements of Urban tree canopy and its tree health status is required. Universal environmental and wellbeing measurements need to be adopted and measured. A baseline is required and this should be reviewed on an annual basis to see if government targets have been reached over the time period. It is essential that private garden trees are measured and included in this work.

Even with implementation of all the measures identified above, there is some question as to whether sufficient saplings will be able to be propagated to plant 30,000 hectares per year across the UK by 2025.

### **3. How effective is the co-ordination between the four nations on forestry issues, including biosecurity, plant health and other cross-border issues?**

As the UK transitions through the exit from the EU, there will be a need for new

arrangements for facilitating trade (imports and exports) in a way that minimises economic waste and cost and that protects the UK from bio-security risks. To facilitate this, it is recommended that:

- A universally accepted Plant Health Assurance Scheme (PHAS), that is affordable to all tree growers, be developed through an alliance between the four nations and with industry, to mitigate biosecurity risks.
- There is investment across the four nations in growing infrastructure, training and new technologies to increase tree production in-country so as to reduce the biosecurity risks.
- There is investment across the four nations in research and development in the choice of the right tree, for the right place and for the right purpose.
- Government makes sufficiently anonymised data on cross-border trade in different varieties open-access to enable better business planning by UK industry.
- Government involves industry in the development of e-passports for plants that take advantage of emerging technologies and big data to provide government and industry with better real-time traceability data on plant movements, mitigating bio-security risks, improving efficiency around inspections, and addressing supply chain efficiencies.
- Government works with the OHRG to develop a ‘trusted trader’ scheme coupling less intensive controls around plant movement for UK businesses with achievement of defined standards in bio-security.
- It would also be important for there to be consensus on national and regional regulations for the use of non-native tree species. A recently published guideline on selection of non-native tree species for tree planting programmes (<https://neobiota.pensoft.net/article/58380/>), aims to minimise negative consequences, such as tree invasions, from tree planting programmes. The above article proposes Global Guidelines for the use of non-native tree species (GG-NNTs) used in forestry, other types of large-scale plantings, restoration projects, and in urban forestry.

In terms of other cross-border issues it is worth mentioning the hydrological impact of tree planting, particularly where water catchment areas targeted for tree planting span across different countries (England / Wales; England / Scotland), as there will be impacts on streamflow from those catchments.

#### **4. Why were previous ambitions for increasing tree planting in England not met and what lessons should be learned?**

A successful tree planting programme should not only be about implementation, but requires an ongoing research component as well. The research aspect should aim to optimise the genetic potential of trees to benefit the environment, human health and commercial value (“right plant, right place, right purpose”), while the

implementation aspect should realise those benefits through effective establishment and ongoing maintenance. Some of the research activities required to support this include the following:

- Identify, quantify and value the impacts of different tree species & cultivars on urban and rural ecosystem services. (temperature regulation, water management, air and noise pollution absorption).
- Identify, quantify and value the impacts of different tree species & cultivars on urban and rural human health and wellbeing. This includes physical, mental and social health and wellbeing.
- Research and Development on tree traits that benefit climate change resilience, human health, the environment & wildlife (ecosystem service character traits).
- Select and breed tree species & cultivars with those character traits.
- Encourage and establish tree breeding and selection excellence in the UK.
- Marketing campaign on tree species & cultivar lines and landscapes that provide health for the environment, people and the planet.
- Research on effective natural resource use and minimising waste during the production of trees (energy, water, peat, plastics, fertilisers)
- (Re)Education of professionals to ensure tree-based landscapes are designed and used to greatest positive environmental effect. Toolbox talks or best practice notes

From a practical implementation perspective, past failures in tree planting programmes are likely to have related to lack of sufficiently good establishment of saplings. This may have resulted from lack of awareness on correct site-species matching and appropriate site preparation, as well as longer-term considerations such as maintenance requirements of the newly planted trees (e.g. adequate watering in dry spells to avoid drought mortality when young, thinning and pruning and associated inspections on tree health). Adequate supplies of trees of appropriate species / cultivar (as guided by research) is critical (requiring sufficient lead-time for nurseries to grow them), while the budgeting process for tree planting shouldn't just take procurement and establishment costs into account, but also needs to account for the costs of ongoing monitoring, maintenance and replacement (of tree mortalities). These longer-term considerations are critical, as the tree planting programme will only be effective in addressing its objectives if the trees survive and preferably thrive.

**5. In relation to increasing forestry coverage in England, what should the Government be trying to achieve? For example, how should the following policy objectives be prioritised?**

- a. Mitigating or adapting to climate change**
- b. Promoting biodiversity and nature recovery**
- c. Increasing biosecurity and plant health**
- d. Improving human wellbeing and health**
- e. Protecting natural and cultural heritage**
- f. Food security**
- g. Creating commercial opportunities from forestry, tourism and recreation**
- h. Any other priorities**

Prioritising the above objectives is difficult, as they are all important, and there needs to be a balance between them. Increased tree planting will in any event progress most of the above objectives to a greater or lesser degree, which is a good thing. However, care should be taken to avoid unintended consequences by over-prioritising any one particular objective to the detriment of another. For example, a focus on tree planting purely to maximise carbon sequestration may be to the detriment of biodiversity and hydrology if high-density fast-growing, but thirsty, monoculture plantations are established in hydrologically sensitive areas such as peat bogs. However the RHS is of the opinion that the above objectives can all be equally effectively addressed through the right combination of tree species / cultivar, appropriate to the site (“right plant, right place, right purpose”).

With support from an industry partner (Frank P. Matthews: Trees for Life), who contributed 50% of the funding, the RHS recently commenced a 5-year programme of research on optimising tree species and cultivar selection in order to deliver chosen ecosystem services / environmental benefits for gardeners. The outcomes and outputs from collaborative partnerships and projects such as this will encourage private investment in tree planting by helping to incentivise the market for the ecosystem services generated as trees grow. If the general public can be made increasingly aware of the importance and potential of ecosystem services of trees, then it is anticipated that the knowledge and insights will have potential to direct increased tree species / cultivar choices by environmentally conscious gardeners, thereby maximising ecosystem benefits and encouraging increased tree planting in private gardens, and community spaces. For example, if the estimated 30 million gardeners in the UK each planted one additional tree in a 5m<sup>2</sup> area, this would be the equivalent of planting up 15000 ha, which is half of the annual 30000 ha target set by the government for the UK. Private and community space tree planting consequently has the potential to contribute significantly. Additional efforts that the RHS is making to encourage tree planting include relevant online advice and guidance to the 512 000 RHS members, promotion of tree ecosystem service benefits at RHS flower shows, information dissemination at RHS Gardens and relevant research projects.

Other initiatives are underway or have already been completed for public spaces. The outcomes of the recently launched NERC call on “Future of UK Treescapes” should in due course provide helpful guidance on approaches to maximising the benefits of tree planting initiatives. For useful publications on approaches to tree species selection in relation to a changing climate in the UK, see the following:

- <https://www.gov.uk/government/publications/managing-englands-woodlands-in-a-climate-emergency>,
- <https://www.forestresearch.gov.uk/research/genetic-considerations-provenance-choice-native-trees-under-climate-change-england/>
- <https://www.forestresearch.gov.uk/tools-and-resources/urban-tree-manual/>

Tree species / cultivar diversity is key to biodiversity, faster growing species will sequester carbon quicker, but will also use more water, urban areas / human health / energy use can benefit from cooling, noise mitigation and air pollution capture potential of trees, food security benefits will be realised through fruit tree planting in private gardens and community spaces such as parks, schools and allotments.

The RHS is striving to connect people with nature, and promote the ecosystem and human health benefits of trees through multiple projects, community activities, communications and information dissemination approaches. Apart from extensive on-line content and advice about gardening with the benefits of trees in mind; the soon to be launched state-of-the-art RHS Hilltop – Home of Gardening Science building at Wisley will be providing visitor experience displays and engagement activities that promote the multiple benefits of trees. On-line we also have the Plant Finder tool for gardeners (<https://www.rhs.org.uk/plants/search-Form>) and have recently published the most up to date Hillier's Manual of Cultivated Trees and Shrubs which is incorporated into our plant finder tool. Furthermore we have developed the My Garden app (<https://www.rhs.org.uk/my-garden>) where people can specify their own garden trees and the RHS then provides advice and support so that they can grow them well in order to optimise their ecosystem service delivery.

From an economic stimulus perspective, the proposed tree planting programme has great potential to be a catalyst for growth in the horticulture industry. This growth will span economic, environmental, health and social value. However, in order to realise maximum growth potential it will require close collaboration between bodies such as the OHRG and government, as well as coordinated cross-industry collaboration, as emphasised in question 2 above.

**6. Are the right policies and funding in place to appropriately protect and manage existing woodlands in England? How will prospective changes to policy and legislation effect this?**

A sustainable tree health policy is critical to appropriately protect and manage existing woodlands in England. Furthermore, acceleration of UK tree production (UK grown) for prospective tree planting programmes will improve UK biosecurity and minimise risk from invasive alien pests and diseases coming in from other countries. This requires a number of interventions, namely:

- Funding investment into training people in Biosecurity and Plant Health (Degree apprenticeships, MSc, PhDs, Fellowships/Post Docs and Professional Training),
- Investment to increase industry, government and public awareness, skills, training and knowledge in Biosecurity and Plant Health across the whole supply chain.
- Guaranteed markets and procurement policies linked to domestic “UK-grown” horticultural production.
- Industry agreed definition of sustainable plant health to ensure targets are met.
- Research which highlights quantifiable benefits of UK production initiatives in relation to:
  - (1) Sustainability
  - (2) biosecurity
- Liaison initiatives between specifiers, growers and users of material to highlight opportunities.
- Industry to collectively support campaigns which highlight importance of UK

biosecurity (start with specifiers and progress towards suppliers).

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