

# Identifying the plant health risks associated with plant waste disposal and peat-free growing media and developing best practice guidance for waste disposal and composting across sectors

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## Policy Summary



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# 1 Policy Summary

## 1.1 Background

Until recently, the presence and spread of plant pathogens in discarded growing media and waste plant material has seldom been considered as a management priority in plant nurseries, potentially posing significant plant health risks to all sectors.

Plant waste composted to BSI PAS100 (Publicly Available Specification for Composted Materials) standards ensures that the the resulting product is safe and reliable, however, most plant production nurseries, large parks, and gardens do not produce enough waste to justify investing in a PAS100 system. These businesses and organisations therefore need to know what other options are available to them.

Closely related to the issue of safe disposal and recycling of nursery waste is the phasing out of peat-based growing media. Sales of amateur growing media containing peat are due to be banned in England from 2024, with sales of such media to commercial growers likely to follow shortly after. In future, growing media will be made entirely from alternative constituents, including bark and wood products, coconut fibre [coir] and green waste, with the latter comprising unknown quantities of domestic and commercial landscaping wastes. There is potential for some growing media constituents, in particular composted bark and green compost to contain plant pathogens, but there has been very little work done to determine the nature and level of risk that that poses to plants being grown in peat-free growing media.

## 1.2 Key Research Questions

1. What current waste disposal practices are currently being utilised by businesses and organisations and why?
2. What are the biosecurity risks associated with these practices?
3. What economically viable, biosecure, disposal methods are available and how can businesses and organisations be encouraged to take advantage of them?
4. What are the biosecurity risks associated with the constituents of peat free compost?
5. Does the perceived or real biosecurity risk associated with the constituents of peat-free compost threaten an industry-wide move to peat-free production?

## 1.3 Research Undertaken

- To improve our understanding of current practices and perceptions of alternative 'best practice' options we held two virtual workshops with stakeholders in February 2022.
- A comprehensive desk-based study was undertaken to provide a thorough review of relevant literature, current industry practice, stakeholder opinions and assessment of relevant legislation.
- In order to provide evidence for the level of risk from discarded nursery waste and the constituents of peat-free compost, a concurrent study and an "in kind" study were undertaken to identify *Phytophthora* species present in waste heaps and peat-free constituents using an Illumina metabarcoding method which identifies *Phytophthora* species present based on their DNA signatures.

## 1.4 Main Findings

### Plant waste management

- Plant waste management practices are varied with an ad-hoc approach to waste management being adopted in the absence of clear sector-wide advice.
- There is widespread acknowledgement of the biosecurity risk across sectors in Scotland but uncertainty about what to do about it.
- *Phytophthora* spp. were confirmed in plant waste heaps, including two quarantine-regulated species, *P. ramorum* and *P. austrocedri*. This highlights the risk posed by plant dumps on plant production sites and in parks and gardens.
- Poorly composted plant waste which goes on to be used as a component of a potting medium, mulch or soil improver poses a plant health risk across all sectors. Composting to set quality standards (as in a PAS100 system) reduces the risk of disease transfer but is not suited to all stakeholders.

#### Reduced-peat and peat-free growing media

- Uncertainty surrounding the provenance and safety of growing media constituents, along with the other challenges of changing to reduced-peat and peat-free growing media, is causing considerable concern in both the nursery and growing media production industries.
- This project could not find previous research that identified the risks associated with the specific constituents used in peat-free growing medias. We therefore conclude that this work has not yet been carried out.
- The plant health risks associated with the inclusion of poorly composted plant waste will pertain to reduced-peat and peat-free growing media, just as they do to peat based growing media.
- A concurrent ‘in kind’ diagnostic study detected DNA of a number of *Phytophthora* spp. in constituents of peat-free media (chopped bark, coir and composted green waste). A coir sample was also found to contain DNA closely matching *Peronosclerospora*, a genus of tropical downy mildews. This confirms that the transfer of plant health issues via peat-free options is possible.

### 1.5 Actions and Recommendations

#### Plant waste management

- Make available specific, clear, evidence-led best practice advice on the effective management of plant waste so it can be reused or safely disposed of. This guidance (produced in this project) can be used by managers to assess risk and explore options to address this biosecurity threat.
- To address the waste management issues identified in the project, an additional guidance document has been produced for the Plant Health Management Standard. Organisations and businesses that apply to become Plant Healthy Certified can see exactly what is required to raise their biosecurity standards.
- The guidance is also potentially transferrable to other sectors such as agriculture (e.g., Scottish Quality Crops) and forestry (e.g., UK Forestry Standard) and should be included in knowledge exchange activity.

#### Reduced-peat and peat-free growing media

- A thorough assessment of the potential plant health risks posed by each of the major constituents used in peat-free growing media (namely bark, wood fibre, coir and composted green waste) is required. This should include detailed information on product source, processing treatments, transportation, and storage methods.
- The plant health risks that pertain to the inclusion of poorly composted plant waste in peat-based media will also apply to reduced-peat and peat-free growing media so, as this market develops, the knowledge exchange activities and recommendations on best practice should be transferred to this emerging market.

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