ASH DIEBACK

Ash dieback disease. *Courtesy Crown © FERA / Science Photo Library*

- Ash dieback is an infectious disease of ash trees caused by a microscopic fungus, *Chalara fraxinea*.
- Ash dieback was first spotted in the UK in February; experience in Europe suggests it may devastate our ash tree population.
- Re-stocking dead ash with disease-resistant trees will be vital to preserve woodland.

OVERVIEW

Ash dieback is an infectious disease of ash trees – primarily of the common ash – caused by the fungus *Chalara fraxinea*. Infection, initially via the leaves, severely weakens or kills the tree. According to the Forestry Commission, the disease was first observed in the UK in February 2012. Experience of ash dieback in Continental Europe suggests that disease spread is unstoppable and may devastate our ash tree population. Re-stocking dead ash woodland with disease-resistant trees will be vital if we are to preserve our woodland as a carbon capture measure, wildlife habitat and amenity for leisure.

WHAT IS ASH DIEBACK?

Ash dieback is an infectious disease of ash trees first noted in the north-eastern USA in the 1950s and early 60s – and possibly as early as the 1920s in Quebec.[1]

Authorities in Poland reported similar disease symptoms in the early 1990s in forests in the north-east of their country. The disease appeared in Western Europe in 2002, when it hit forests in Scandinavia and northern Germany; the late 2000s saw its arrival in France and Italy.[2]

In 2006, Professor Tadeusz Kowalski, at the Kraków Agricultural University, convincingly linked the disease to infection with the microscopic fungus *C. fraxinea*. Scientists sometimes refer to the fungus by an alternative name, *Hymenoscyphus pseudoalbidus*.

Although the fungus is likely to be the primary disease-causing agent, other pests and environmental stressors may also be involved in the disease process.[3]

WHY ASH MATTERS

The advent of dieback calls into question an ash-based stocking strategy in woodlands. Ash – accounting for 13.3% by area of broadleaf woodland in the UK – is vital in mixed woodland because it can survive common fungal diseases that afflict other native trees.[4]

HOW CAN TREE DISEASES SPREAD?

Ash dieback is just one of multiple fungal diseases that attack trees. These infections spread through the global trade in saplings, seeds, wood and wood products; through spores carried on the wind; on tools used for cultivating; or on insects and wildlife.

Saplings and seeds. Tree diseases can enter the UK through the trade in saplings and seeds; phytosanitary regulations should aim to stop this. Brasier argues that an expanding international nursery trade has stretched current phytosanitary measures to breaking point.[5]

Wood and wood products. In the most recent figures, the UK was the third largest net importer of forest products.[6] Imported logs, wood chips and cut timber may present a risk for disease transmission.[7] Wood pellets (for burning in power stations) should not pose a disease risk as they are treated during manufacture.[8]

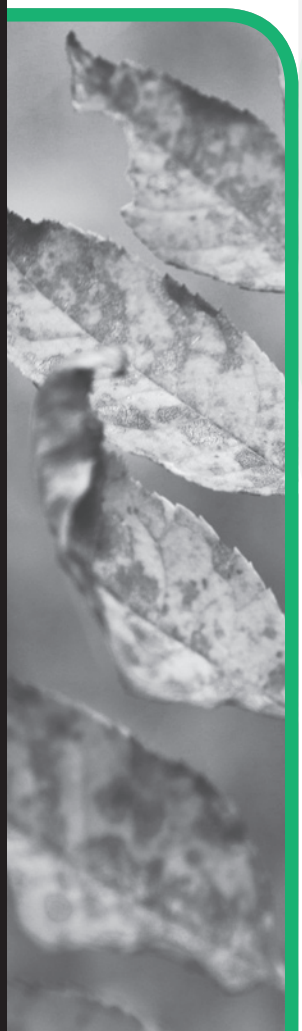
Wind. Fungal diseases can spread in the wind. In the particular case of ash dieback, the Forestry Commission believes that winds have carried fungal spores 'some tens of miles' and therefore the disease may have blown from the Continent.[9] On this point, French and Belgium authorities have reported the disease within 'some tens of miles' of the UK's south-east coast in the Pas-de-Calais and Flanders.[10]

SCIENTIFIC SOLUTIONS TO ASH DIEBACK

Emergency response. In a plant nursery, disinfection of cultivation tools, coupled to rapid molecular disease testing of saplings, stop dieback spread. However, experience in Continental Europe indicates that there are no known countermeasures that stop spread in woodlands. The infection probably spreads fastest from early July to late September/early October, with the spores wafting from the leaf litter.[11]

Recovery response. Develop a programme for the selection, breeding and production of disease-resistant tree saplings in UK nurseries for re-stocking dead ash woodlands. Resistance survey data from Denmark and Sweden suggest that naturally resistant specimens of the common ash will already be growing in our forests.[12] These may serve as resources for a breeding programme. Woodland regeneration with the manna ash that appears potentially more disease-resistant than the common ash and other ash species is an option that requires more investigation.[13]

Strategic response. Recognition of tree disease as one of multiple strategic threats to our woodland. Collaborative molecular, ecological, economic and social scientific research to assess risks and risk perceptions – coupled to stakeholder engagement aimed at updating mechanisms to protect our trees while safeguarding trade.[14]



REASONS TO CARE FOR WOODLAND

The 2009 'Read Report' from the Forestry Commission argued that our existing woodland – plus an enhanced woodland creation programme of 23,200 ha per year over the next 40 years – could by the 2050s be cutting greenhouse gas emissions by 10% every year.[15]

The report authors indicated that conifer plantations and rapidly growing energy crops were the two most cost-effective options. But they also wrote that mixed woodlands could deliver abatement at less than £25 per tonne of carbon dioxide.

As well as capturing carbon, woodlands serve as habitats for wildlife and as amenities for leisure. The UK has made commitments to maintain or increase its forest area and to protect trees from disease.[16]

Details of references cited in this briefing can be found at ***www.sgm.ac.uk/news/hot_topics/Ashdiebackreferences.pdf***

SGM BRIEFINGS

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Contact **William Burns, SGM, Marlborough House, Basingstoke Road, Spencers Wood, Reading RG7 1AG** [tel. **+44 (0)118 988 1829**; email **w.burns@sgm.ac.uk**]

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- *Written by* William Burns
- *Edited by* Dariel Burdass
- *Designed by* Ian Atherton

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ASH DIEBACK – REFERENCES

Ash dieback disease. Courtesy Crown © FERA / Science Photo Library

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