

Ash Dieback:

Description

Chalara dieback of ash is a serious disease of ash trees caused by a fungus called *Chalara fraxinea* (*C. fraxinea*), including its sexual stage, *Hymenoscyphus pseudoalbidus* (*H. pseudoalbidus*). The disease causes leaf loss and crown dieback in affected trees, and usually leads to tree death.

Threat

It is potentially a very serious threat. It has caused widespread damage to ash populations in continental Europe, including estimated losses of between 60 and 90 per cent of Denmark's ash trees. We have no reason to believe that the consequences of its entering the natural environment in Britain would be any less serious. Experience on the Continent indicates that it kills young ash trees very quickly, while older trees tend to resist it for some time until prolonged exposure causes them to succumb as well.

Susceptible species

Chalara fraxinea is especially destructive of common ash (*Fraxinus excelsior*), including its 'Pendula' ornamental variety. Narrow-leaved ash (*Fraxinus angustifolia*) is also susceptible. Chalara dieback of ash is particularly destructive of young ash plants, killing them within one growing season of symptoms becoming visible. Older trees can survive initial attacks, but tend to succumb eventually after several seasons of infection.

Spread

Local spread, up to some tens of miles, may be by wind. Over longer distances the risk of disease spread is most likely to be through the movement of diseased ash plants. Movement of logs or unsawn wood from infected trees might also be a pathway for the disease, although this is considered to be a low risk.

Outbreak stage

Ash trees suffering with the infection have been found widely across Europe since trees believed to have been infected with this newly identified pathogen were reported dying in large numbers in Poland in 1992. These have included forest trees, trees in urban areas such as parks and gardens, and also young trees in nurseries. In February 2012 it was found in a consignment of infected trees sent from a nursery in the Netherlands to a nursery in Buckinghamshire, England. Since then it has been found in young ash trees in a number and variety of locations in Great Britain, including urban landscaping schemes, newly planted woodland, and more nurseries.

In October 2012, Food & Environment Research Agency (FERA) scientists confirmed a small number of cases in Norfolk and Suffolk in ash trees at sites in the wider natural environment, including established woodland, which do not appear to have any association with recently supplied nursery stock. Further finds in trees in the wider environment have since been confirmed in a number of places, mostly on the eastern side of England and Scotland, and mostly concentrated in the south-eastern region of England. In May 2013 the first wider-environment case was found in south-west Wales, which is the farthest west site in Britain that a wider-environment case has been confirmed. (Map on front page of AAB News).

C. fraxinea is now being treated as a quarantine pest under national emergency measures and any suspected sighting must be reported.

Hundreds of staff from government agencies checked ash trees across the UK for signs of the disease during early November 2012. It was one of several actions to emerge from a meeting of the Government's Emergency Committee, COBR, chaired by Environment Secretary Owen Paterson.

Because ash trees have many genetic variants and occur all across the UK, they come to leaf at different times. In general, they come into leaf later in spring than many other trees, often as late as the end of May. So if an ash tree does not have any leaves on it in April and May, it does not necessarily mean that it is diseased or dying, but by mid-June all healthy ash should be in full leaf. The leaf symptoms of Chalara dieback of ash are best observed in August and September because in autumn infected leaves can be confused with leaves that are naturally changing colour.

Ash trees are starting to break-bud and will produce new growth some time in May, and we expect the vast majority to develop normally.

Ash is traditionally one of the last tree species to flush, sometimes taking as long as six weeks to do so. Some ash trees will break-bud, or flush, earlier than others, and some buds will produce flowers rather than new shoots. Trees in the colder north flush later than trees in the warmer south. Some variation will be more apparent in older trees.

Some shoots on ash trees will fail to flush altogether, while others will flush normally before showing signs of ill-health or dieback later. These events might mean that the trees are damaged in some way, but shoot death and dieback in ash trees can have a number of causes.

We are very grateful for the many reports we have received. We are working through these, and are sorry that we might not be able to respond to each one individually. However, every one of them will be assessed, and for each report we will:

- prioritise action according to our existing knowledge of the disease's distribution and

threat to our National heritage?

- decide it isn't Chalara dieback of ash; or
- ask for more information, which might include asking for photographs; or
- arrange for someone to do a further investigation on site.

The disease does not spread via spores from the fungus during the winter, so we have the time to carefully examine all the reports.

Managing infected trees

You are not required to take any particular action if you own infected ash trees, unless we or another plant health authority serves you with a statutory Plant Health Notice. You should, however, keep an eye on the trees' safety as the disease progresses, and prune or fell them if they or their branches threaten to cause injury or damage. You can also help to slow the spread of the disease by, where practicable, removing and disposing of infected ash plants, collecting up and burning, burying or composting the fallen leaves.

Advice and guidance

The science

Government scientists have set out the most up-to-date understanding of the disease. Their assessment agreed with the earlier Pest Risk Analysis carried out in August, and concluded that:

- the spores are unlikely to survive for more than a few days
- spore dispersal on the wind is possible from mainland Europe
- trees need a high dose of spores to become infected
- spores are produced from infected dead leaves during June to September
- there is a low probability of dispersal on clothing or animals and birds
- the disease will attack any species of ash
- the disease becomes obvious within months rather than years
- wood products would not spread the disease if treated properly
- once infected, trees can't be cured
- not all trees die of the infection - some are likely to have genetic resistance

Scientists are working with their counterparts in other countries to learn from existing and emerging research and practical experience in combating the disease in other countries. They are also approaching companies with proposed treatment solutions for Chalara to rapidly evaluate their research.

Our Forest Research agency is part of a consortium awarded £2.4M research funding to gather an in-depth understanding of the ash dieback fungus and to provide genetic clues about the natural resistance of some ash trees to attack.

Consortium Q&A - science of chalara

Key scientific facts

Origins

Ash trees were first recorded dying in large numbers from what is now believed to be this newly identified form of ash dieback in Poland in 1992, and it spread rapidly to other European countries. However, it was 2006 before the fungus's asexual stage, *C. fraxinea*, was first "described" by scientists, and 2010 before its sexual stage, *Hymenoscyphus pseudo-albidus*, was described. It is believed to have entered Britain on plants imported from nurseries in Continental Europe. However, now that we have found infected older trees in East Anglia, Kent and Essex with no apparent connection with plants supplied by nurseries, we are also investigating the possibility that it might have entered by natural means. These include being carried on the wind or on birds coming across the North Sea and English Channel, or on items such as footwear, clothing or vehicles of people who had been in infected sites in Continental Europe.

Pest Risk Analysis

A full Pest Risk Analysis (PRA) on *C. fraxinea* was published in May 2013. (The document title uses the name of the sexual stage of the fungus, *Hymenoscyphus pseudoalbidus*).

This followed consultation on and publication of a Rapid Assessment of the Need for a Detailed Pest Risk Analysis in 2012.

Import and movement restrictions

To prevent further spread of the disease in Britain a Plant Health Order prohibits all imports of ash seeds, plants and trees, and all internal movement of ash seeds, plants and trees.

- DEFRA September 2013