



Managing Chalara Ash Dieback in England

Chalara dieback of ash, also known as Chalara or ash dieback, is a disease of ash trees caused by a fungus called *Hymenoscyphus fraxineus* (*H. fraxineus*). The fungus was previously known as *Chalara fraxinea* and *H. pseudoalbidus* before its name was reviewed.

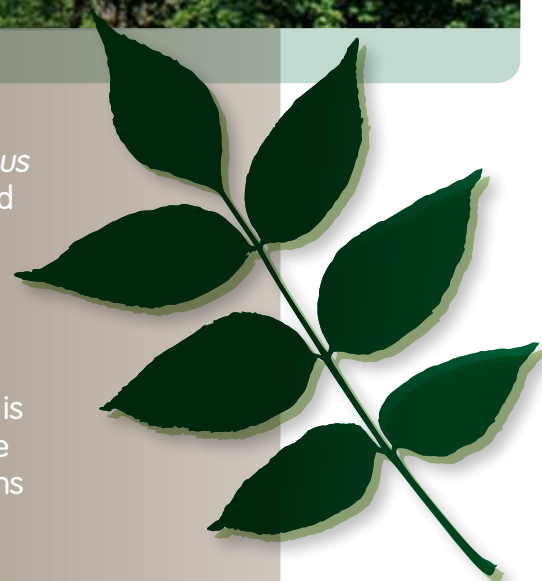
The disease is known as 'Chalara' dieback to distinguish it from other causes of dieback in ash trees.

Chalara causes leaf loss, crown dieback and bark lesions, and infection is eventually fatal to most affected trees in forests and woodland. Trees are killed either directly by the fungus, or indirectly, because Chalara weakens the tree to the point where it succumbs more readily to attacks by other pests or pathogens, especially *Armillaria* (honey fungus).

This leaflet gives practical advice on Chalara ash dieback to help slow the spread, minimise impacts on biodiversity, protect economic return from timber production, mitigate any safety risks and comply with legislation. It is intended for anyone who owns or manages ash trees, including local authorities, highway and railway authorities, other public and private tree and woodland owners, and forestry, tree and ground-care workers.

Tree and woodland owners and managers can help to safeguard the long-term future of our ash trees by taking the actions advised in this leaflet. Advice on the Forestry Commission website at [forestry.gov.uk/chalara](https://www.forestry.gov.uk/chalara) provides further information about managing ash trees in the presence of Chalara.

Most of the advice is applicable to a wide range of circumstances, but some will need local adaptation. This leaflet reinforces and complements the advice available on the Forestry Commission website or at [forestry.gov.uk/biosecurity](https://www.forestry.gov.uk/biosecurity)



CAUTION!

Other pests and diseases might be present, for example in soil, most notably *Phytophthora ramorum*. Some tree diseases can be spread in soil, so adopting biosecurity (plant hygiene) measures is sensible practice, especially for those who travel to multiple sites over a wide area.

Chalara in England

Key Information

Chalara dieback of ash has the potential to cause significant damage to the UK's ash population. It has caused widespread damage to ash populations in continental Europe, especially in forests and woodland, and to young trees.

What to expect

Experience in continental Europe, and emerging evidence in England, suggests that we could see the following trends.

- Young trees anywhere, whether planted or naturally seeded, usually die quickly after infection.
- Ash trees in woods and forests, which are most exposed to the damp conditions conducive to development of *H. fraxineus* fruiting bodies, and to other damaging agents such as root-attacking fungi and bark beetles, are likely to deteriorate quickly.
- Death of mature forest trees usually happens after several years, depending on initial vitality and other factors. However, ash trees in managed forests in continental Europe are sometimes felled before they die, for specific reasons such as to preserve timber value.
- Coppice regrowth of infected trees can be quickly killed, from new infection or infected stools.
- Evidence suggests that large, mature trees in open situations such as streets, parks and fields, and many well established young trees, especially in well maintained situations in towns and cities, can survive or escape infection for many years, continuing to provide ecological, landscape and social value.

Among the reasons why trees in open and urban situations, especially older, mature trees, can survive for long periods appear to be that:

- they are more exposed to the drying effects of wind and sunshine than forest trees, so that conditions can be less than optimal for fungal infection;
- they are less likely than forest trees to be exposed to secondary damaging agents, such as bark beetles and basal infections, which can exacerbate the effects of Chalara; and
- leaf litter is more likely to be removed in streets, parks and gardens, breaking the fungus's lifecycle and reducing trees' exposure to it.

Spread

Chalara is spread by spores dispersed from small, mushroom-like fruiting bodies which develop on the rachises (leaf stalks) of infected leaf litter during late spring and summer of the year after leaf fall.

Natural spread occurs as spores carried on the wind and deposited on to the leaves of healthy ash trees, so that moving leafy material poses a significant risk of human-assisted spread. There is also the potential to move the fungus in infected leafy material if it sticks to vehicles, clothes, equipment and footwear.

Planting alternative species

If diseased ash trees must be removed, diversifying species when planting replacement trees can help make woodlands and urban forests more resilient to climate change, pests and diseases. However, don't forget that a proportion of ash trees is likely to be resistant to or tolerant of Chalara ash dieback, so we advise owners to keep ash trees that are showing only limited or no symptoms for as long as possible.

Species choice will vary according to factors such as soil, climate, management objectives and designations such as ancient woodland, SSSI and AONB. Trees growing from locally sourced seed are a key resource. Alternative species in woodlands with significant ash content could include field maple, small-leaved lime, large-leaved lime, hazel and hornbeam.

In future years we hope to provide guidance on planting alternative species of ash, such as the native European manna ash (*Fraxinus ornus*), the oriental species Manchurian ash (*F. mandshurica*), or the North American species white or American ash (*F. Americana*). Anyone interested in planting ash trees should check at forestry.gov.uk/chalara to read our latest guidance.

More-detailed advice is available at <http://apps.rhs.org.uk/plantselector> and forestry.gov.uk/england-resilience

In the meantime we continue to watch for Chalara-resilient trees in the landscape, which could help efforts to breed tolerant trees for the future. Our Forest Research agency is also working with other research institutions to understand the genetic factors which enable a proportion of our native common ash (*F. excelsior*) to tolerate or resist infection by *H. fraxineus*, so that tolerant trees can be bred for planting. Forest Research's role in this work is explained at forestry.gov.uk/fr/chalaratrials

TOP TIP!

When selecting replacement or new trees, select species suitable to the site and for their ability to adapt to expected changes in the local climate, and select a variety of species to boost resilience to pests and diseases.

Choose the nursery and planting stock carefully: specifying UK-grown plants, and buying only from nurseries which practise strict biosecurity, can help to reduce the risks of accidentally importing and spreading pests and diseases.

Trees, woods and forests are precious national assets which offer extensive social, economic and environmental benefits. We must safeguard these assets from threats such as climate change, pests and diseases. This means that the range and diversity of tree species in our forests and woodland need to change so that they are more resilient to threats.

Together, we play a vital role in protecting, improving and expanding our trees, woods and forests for the people who enjoy them, the businesses which depend on them, and the wildlife which flourishes in them. We are working alongside a wide range of public, private and third-sector partners to achieve these goals.

For latest map of Chalara distribution see forestry.gov.uk/chalara



Dead ash regeneration

Keep it Clean – Don't give pests and disease an easy ride

The fungus can be spread in soil and leaf debris, so following these basic precautions can help to slow the spread of the disease.

- Think kit: Clean machinery, tools and vehicles between sites.
- Think plants: Do not move leafy brush long distances.
- Think boots: Clean footwear and outerwear frequently, ensuring they are visibly free from leaves.

Moving timber

There are no restrictions on ash timber movement in England, Wales and Scotland unless a Statutory Plant Health Notice has been served. Before moving timber, ensure that it is cleared of twigs, leaves and leaf litter. Stacking timber on bearers can help avoid leaf litter being picked up during loading.

Dealing with leaves and other tree debris

It is essential to take sensible biosecurity precautions to avoid fruiting bodies and spores being transmitted via infected leaves and shoots.

In high-infection areas...

- When working or having work done on infected trees in high-infection areas, take reasonable biosecurity measures to prevent the movement of infected plant material from high-infection areas to low-infection areas.
- Do not remove ash leaf litter or wood chip from high-infection areas into areas where there is no significant outbreak.
- In urban areas, or to protect valuable specimens, compost leaf litter on site or, where this is not practicable, collect it as usual during the course of grounds maintenance or highway works and take it to a composting site inside the high-infection area. (This does not apply to gully emptyings and dedicated street sweepings.)
- Chip and compost brushwood containing leaf litter and infected shoots on site, or chip it and take it to a composting facility in the high-infection area.
- Composting areas should be as close as possible to the source of the material.

At all sites.

If felling or pruning infected trees, aim to do so after leaf fall.

Clean vehicles and equipment, such as tyres, chippers, chainsaws, boots and clothing, after working on infected trees and before moving to new areas.



forestry.gov.uk/biosecurity

Urban & Suburban Ash Management

Infected ash trees in towns and cities should be managed in line with national guidance, which aims to:

- aid the identification of trees which might show resistance, tolerance or ability to recover;
- maintain the values and benefits associated with ash trees;
- reduce the rate of spread of Chalara;
- maintain as much genetic diversity in ash trees as possible, to encourage continued long-term presence of ash;
- minimise the impacts on associated species and wider biodiversity; and
- maximise time for replacement tree species to grow, to give a more gradual transition of dominant landscape species.

Ash trees should be retained wherever possible. Where there are no over-riding safety or management objectives, works to infected ash trees should be limited to those necessary to meet the above objectives.

Deadwood in infected trees can present a health and safety risk, but unnecessary pruning or felling should be avoided.

A balanced approach should be taken to tree safety management – advice is available at [forestry.gov.uk/safetreemanagement](https://www.forestry.gov.uk/safetreemanagement). Where public access exists close to infected trees, use site notices to let people know about attempts to minimise the spread of the disease, and to encourage them to support the biosecurity measures in place. [forestry.gov.uk/biosecurity-visitoradvice](https://www.forestry.gov.uk/biosecurity-visitoradvice)



Wilting on natural regeneration

NOTE!

The likelihood of infection with Chalara is not a justification to fell or prune ash trees.

REMEMBER...

Although deadwood can sometimes present a hazard, it is also a vital ecological asset. Many species require deadwood for the whole or part of their life cycles, and those species are in turn part of the food chain for many other species.



Healthy ash leaf, and leaf affected by Chalara



Classic winter stem lesion

Taking action

Ash trees protected by tree preservation orders (TPOs) and conservation areas (CAs)

Owners of ash trees in these situations should consult their local authority before taking action. Applications and notices seeking consent to prune or fell infected or uninfected trees will be judged on their merits, with consideration given to the tree's potential resilience to the disease, and its biodiversity value as the ash population diminishes.

NOTE! Potential for a tree to become infected with Chalara will not be a significant consideration when dealing with applications and notices to prune or fell protected ash trees.

Ash trees on development sites

As part of any tree survey to support a planning application, trees should be categorised using the criteria in Table 1 of **British Standard 5837:2012**. This will identify the quality and value of the existing tree stock, and inform decisions about retention or removal. A felling licence might be needed if tree felling is not explicitly covered by an extant Planning Permission – see 'Felling licences'.

Current knowledge does not provide full clarity on the impact of Chalara on the ash population, or on the life expectancy of individual ash trees. We therefore encourage owners to retain ash trees in the expectation that some will be tolerant or resistant to the fungus, and can be useful for breeding ash trees for the future.

As this leaflet went to print, there was a national prohibition on the movement of all ash plants and seeds for planting, so please check at forestry.gov.uk/chalara for our latest guidance. While the ban remains in place, substitute species will be needed to fulfill landscaping conditions, and an alternative replacement species will be required if an ash tree which was planted before the ban dies.

Ash trees close to highways and railways

Safety considerations will be at the discretion of the relevant highway or railway authority, and will take priority in the management of ash trees close to highways and railways.

The frequency and timing of monitoring regimes might need to be modified within infected areas. Privately owned trees next to highways and railways might have an impact on local government's responsibilities to ensure users' safety.

Ash trees in parks, public open spaces and heritage sites

Safety considerations will be at the discretion of the local authority or owner. The frequency and timing of monitoring regimes might need to be modified within infected areas.

Ash trees on private property (not woodland and not protected by TPO or CA)

Owners should check that their tree surgeon is familiar with the contents of this guide, and ensure that they adhere to it and any additional advice they receive from their council tree officer.

Owners can usefully remove ash leaf litter from around ash trees in the autumn, and burn (if permitted), bury or compost it. If the fungus is present in the area, this will break its life cycle and help to protect nearby ash trees from infection.

Ancient, veteran and heritage ash trees

As above, remove leaf litter around ancient, veteran or isolated ash trees of merit, and around any nearby ash trees, to help protect them from infection.

Felling licences

In some circumstances owners might need to obtain a felling licence from the Forestry Commission before trees can legally be felled. This applies to trees on any land, whether publicly or privately owned. Please consult your Forestry Commission England Area office about this before taking action – contact details are available at forestry.gov.uk/england-localcontacts.

REMEMBER...

Become a citizen scientist: 'tag' an ash tree and monitor and report on its health over time to help identify tolerant trees. See ashtag.org. Or play Fraxinus to help scientists spot tiny genetic differences which can identify tolerant ash trees. See <https://apps.facebook.com/fraxinusgame/>

Managing ash trees in woodland

The objectives of national guidance are to:

- maintain the values and benefits of ash woodlands and iconic trees;
- secure an economic return where timber production is a key objective;
- reduce the presence and rate of spread of Chalara;
- maintain as much genetic diversity in ash trees as possible with the aim of ensuring the presence of ash in the long term; and
- minimise impacts on associated species and wider biodiversity.



Fruiting bodies on fallen rachises (leaf stalks), visible in summer.

Taking action

In high-infection areas...

DO NOT

- rush to fell because Chalara is present;
- remove recently planted ash trees – you might remove some resistant or tolerant trees;
- fell trees in the first year they show severe symptoms, because they might regenerate vigorously in subsequent years; and
- kill ash coppice stools which are not showing symptoms.

DO

- monitor and retain trees of all sizes, from natural regeneration to mature, which show signs of Chalara tolerance or resistance;
- encourage natural regeneration of other species;
- consider planting suitable alternative native species soon after felling;
- thin woodlands as usual to encourage canopy development and, in mixed stands, favour retention of species other than ash; and
- select trees for thinning that show symptoms of Chalara in the early stages of the disease. This should be done while they are in full leaf to ensure that infected trees are selected; in later stages it can be easier to identify infected trees in winter, from unusual crown structure and the epicormic shoots emerging from the trunks.

Further guidance for coppiced areas

- Avoid carrying out a traditional coppice operation where ash forms more than 30% of the canopy; the loss of a proportion of these stools might be expected if licensed coppicing of ash is agreed as the correct management prescription.
- Continue planned work, or consider cutting areas containing species other than ash first.
- Retain as many ash trees in the canopy as practicable to encourage seed production.
- Where creation of temporary open space is not critical, leave about 50–70% cover by maintaining some canopy of ash and other species, and retaining standards and maidens.

In low-infection areas...

DO NOT

- rush to fell because Chalara is present; or
- feel forced to change planned coppicing cycles of ash – stools will either tolerate Chalara or be killed by it, whatever their size.

DO

- continue planned work, and consider modifying coppice management as in high-infection areas;
- thin woodland as usual in high forest to maintain tree vigour and a full canopy;
- select trees for thinning which show symptoms of Chalara. This should be done while they are in full leaf to ensure that only infected trees are selected; and
- remove recently planted or naturally seeded trees if small numbers are infected, and burn or bury them on site.

Pollarding

Continue with regular pollarding, but avoid pollarding all trees in the same year. Avoid starting the restoration cutting of ancient pollards not currently in management unless there is a risk that they will fall apart.