All-Ireland Chalara Control Strategy

July 2013

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

Department of Agriculture and Rural Development
www.dardni.gov.uk
An Roinn Talmhaíochta agus Forbartha Tuaithe
Mànaystrie o Fairms an Kintra Fordèrin

Contents

Section	Page
1. Introduction	3
2. Scope of the Control Strategy	4
3.Department of Agriculture & Rural Development and Department of Agriculture, Food & the Marine Plant Health Policy Objectives	5
4. Aims of the Chalara Control Strategy	5
5. Risks	6
6. Operational Objectives	7
7. Objective 1 – Reduce the risk of the disease becoming established in the wider environment	7
8. Objective 2 –Support research on modelling the spread of the disease and developing resistance	11
9. Objective 3 – encouraging industry, landowner, voluntary organisation and general public engagement	13
10. Objective 4 – building resilience in woodland and in support of associated industries	15
11. Next Steps	17

1. Introduction

Common ash (*Fraxinus excelsior*) is one of the most important native tree species on the island of Ireland and makes an important contribution to the island's ecology, landscape and culture. However, it is threatened by the disease "Chalara ash dieback" caused by a fungal pathogen identified as *Chalara fraxinea* (the asexual stage or anamorph) and *Hymenoscyphus pseudoalbidus* (the sexual reproductive stage or teleomorph).

The disease was first described by scientists in 2006, although dieback symptoms in ash had been noted in Poland in the early 1990s. However, it was not until 2011 that scientists described its sexual and harmful stage *Hymenoscyphus pseudoalbidus*. The disease is not regulated under the EU Plant Health Directive (Council Directive 2000/29/EC). A Pest Risk Analysis (PRA)[1] for *H. pseudoalbidus* (anamorph *Chalara fraxinea*) has been developed for Britain and Ireland which updates and provides a more detailed analysis compared with the Rapid Risk Assessment initially produced by Forest Research in August 2012.

Chalara ash dieback has caused widespread damage to ash populations in continental Europe, where it is now recorded in 22 countries, including estimates of between 60 and 90 per cent of Denmark's ash trees affected by the disease. In Britain the disease was found during 2012 in ash trees in the wider environment[2] and young ash plantations. In Ireland, so far the disease has only been found in recently planted ash trees in woodland, horticultural nurseries, private gardens and amenity landscape planting including farms and roadsides. Documentary evidence links these plants to imported material from Britain and continental Europe.

[1] The International Plant Protection Convention (IPPC) has adopted a framework for pest risk analysis - International Standards for Phytosanitary Measures (ISPM) No. 2 Framework for pest risk analysis (2007). Pest risk analysis provides the rationale for phytosanitary measures for a specified PRA area. It evaluates scientific evidence to determine whether an organism is a pest. If so, the analysis evaluates the probability of introduction and spread of the pest and the magnitude of potential economic consequences in a defined area, using biological or other scientific and economic evidence.

[2] The term ash trees in the "wider environment" describe ash of any age, which is thought to have been infected by the spread of spores in the environment. This is distinct form disease outbreaks in "recently planted" or "new planting" which is thought to have been introduced onto a site by planting previously infected forest nursery plants.

The fact that Ireland is an island functionally isolated by water from sources of known infection in Britain and continental Europe suggests that there may be some scope to prevent or slow down the disease from becoming established here. The effectiveness of this approach is likely to depend on maintaining that isolation in disease terms, detecting and eradicating any foci of disease within Ireland before transmission to trees in the wider environment takes place. The potential for longer term airborne incursions of spores from other infected areas will also be taken into account.

2. Scope of the Control Strategy

This Control Strategy provides a framework for the policy of identification, control and eradication of the causal agents of Chalara ash dieback in Ireland, and sets out the actions that will be taken to implement it.

The Control Strategy has been developed jointly by the Department of Agriculture and Rural Development (DARD) and The Department of Agriculture, Food and the Marine (DAFM) in conjunction with Agri-Food and Biosciences Institute (AFBI). The authority for intervention under the Strategy comes from the Plant Health Order (Northern Ireland) 2006 and the Plant Health (Wood and Bark) Order (Northern Ireland) 2006, both as amended, and in Ireland from the Statutory Instrument No.431 of 2012, Destructive Insects and Pests Acts 1958 and 1991(*Chalara fraxinea*) Order (No. 2) 2012 respectively.

Because of the potential threat that trade in ash plants and wood may pose in terms of introducing the disease into the island of Ireland, emergency legislation was introduced in tandem by authorities in both jurisdictions to control the importation of ash trees and wood and reduce the risk of spread to the island of Ireland. This all-Ireland approach to plant health seeks to take full advantage of the island status to give all the protection possible. To ensure that the legislative measures adopted to protect the island of Ireland from Chalara ash dieback disease are technically justified, DARD and DAFM have assisted authorities in Britain in developing the necessary PRA for Britain and Ireland.

Chalara ash dieback disease has been confirmed on the island of Ireland on a number of recently planted ash woodlands, horticultural nurseries, private gardens and amenity landscape plantings including farms and roadsides. Some of these infections were found by tracing the movement of young plants from sources of infection in Britain linked to continental Europe or from imports direct from the Continent. Other infections were found by official surveys of recently planted sites including roadside planting, and by surveillance of nurseries or reports of suspicious symptoms. Public notifications of older established trees in hedgerows and woodlands with disease symptoms have to date not led to disease confirmation.

As the same picture is emerging in both jurisdictions, this gives us some grounds for hope that the disease has not yet become established in the wider environment. However, Chalara ash dieback is a complex disease and our current knowledge and understanding of it is incomplete. Therefore scientists on the island of Ireland will continue to collaborate with scientists in Britain and Europe to get a better understanding about how this disease is likely to spread in the future and how best to treat infection if it is discovered here.

3. DARD & DAFM Plant Health Policy Objectives

A shared *strategic* objective for plant health policy is to maintain and improve the island's plant health status. The *operational* objectives for plant health policy are to implement EU and national regulatory measures to develop efficient markets without putting an unnecessary burden on producers and processors. This will be done by preventing the introduction or spread of serious plant pests and diseases that threaten agriculture, horticulture, forestry and/or biodiversity. Both Departments have given increased prominence to plant pests and diseases and are also considering what more needs to be done to address these risks

4. Aims of the Chalara Control Strategy

The aims of this control strategy are to ensure:

- All incidents of ash dieback disease found on the island of Ireland are managed consistently and promptly in order to contain and eradicate the disease, and to minimise the risk of the disease spreading and becoming established.
- A programme of work and development of an evidence base in the context of the International Plant Protection Convention's International Standard for Phytosanitary Measure ISPM No 4 in order to make a case for the establishment of a Pest Free Area by the end of 2013 and seek consideration by the EU Standing Committee on Plant Health to recognise pest free status in EU legislation, through designation as a Protected Zone.

5. Risks

This Control Strategy can only be as effective as far as the policy of containing and eradicating the disease is achievable. Experience in Britain and elsewhere in Europe indicates it has not been possible to eradicate the disease once it becomes established in the wider environment. If this critical point were to occur, it would be necessary to re-evaluate our policy options. Also, the understanding of Chalara ash dieback has developed rapidly over the past few months but there remain many scientific uncertainties. The actions set out in this strategy are based on the current state of knowledge and will be reviewed as that knowledge develops.

The PRA for *H. pseudoalbidus* (anamorph *C. fraxinea*) [3] was published on the 17 May 2013. It concluded that it was moderately likely (with high uncertainty) that the pest will be eradicated in Ireland. Areas of uncertainty included the biology of the fungus, the level of infection per site detected and the extent to which the fungus has had the opportunity to spread to undetected areas. It concluded that surveillance in

[3] Sansford, CE (2013). Pest Risk Analysis for *Hymenoscyphus pseudoalbidus* (anamorph *Chalara fraxinea*) for the UK and the Republic of Ireland. Forestry Commission.

2013 will help to more accurately determine the extent to which eradication will be successful before a final position can be taken.

Pending the outcome of future surveillance, the PRA stated that plant health authorities in Ireland should keep existing controls in place to help prevent any potential for further introduction and spread of the disease.

The key risks to achieving the aims of the Control Strategy will have to be managed and reviewed throughout the implementation of the strategy in conjunction with stakeholders. These are summarised below:

- There may be insufficient evidence to support aspirations for establishment of a Pest Free Area and ultimate designation as a Protected Zone.
- The disease may already be more widely distributed in Ireland, but not detected.
- Insufficient public acceptance of the environmental, economic and social costs of containment and eradication.
- Pathogen spread within the wider environment may be uncontrollable
- The potential risk of airborne incursion of spores from other infected areas is greater than anticipated.

6. Operational Objectives

The aims of the Chalara Control Strategy will be delivered through four operational objectives as follows.

1. Reduce the risk of the disease becoming established in the wider environment.
2. Support research on modelling the spread of the disease and developing resistance to the disease.
3. Encourage industry, landowner, voluntary organisation and general public engagement and action in tackling the problem.
4. Plan for resilience in woodland and to support associated industries in the event that the disease becomes established here in the wider environment.

7. Objective 1 – Reduce the risk of the disease becoming established in the wider environment

Scientific evidence and experience in other countries suggests that it is very unlikely that Chalara ash dieback can be eradicated if it becomes established in the wider environment. However, the results of the surveillance exercises carried out in Ireland to date suggest that the disease is currently restricted to recently planted ash associated with imports to the island. The hypothesis is that Chalara is not established in the wider environment and it is most likely to have arrived here on young plants for planting grown outside Ireland, most probably on the Continent. Therefore a range of measures have been considered in order to reduce the risk of the disease becoming established in the wider environment. These include:

Import and movement restrictions

Ireland has imported significant numbers of ash trees for planting and wood with bark from countries where the disease is present. The disease is not regulated under the EU Plant Health Directive and because this trade in plants and wood may be a means of introducing the disease into the island of Ireland, DARD and DAFM introduced emergency legislation to control the importation of ash trees and wood respectively. Imports and movement of plants, and wood and bark will continue to be monitored to ensure that they comply with the legislative requirements.

Controls on new ash planting

As a temporary measure, DARD and DAFM have suspended grant aid for new ash planting to reduce the risk that the effort in creating new ash woodland would be unsustainable. Any relaxation of this depends on achieving the aims of this Strategy and the availability of a disease free supply of plants. At present, the alternative for those wishing to create new grant aided woodland is to plant with species that are not affected by Chalara ash dieback.

Surveillance

In order to build on existing surveillance data, 2013 Chalara Surveillance Plans will be implemented aiming to: (a) monitor ash for the occurrence of the disease from known risk areas and, (b) contribute to the evidence base for establishing Pest Free Areas and potentially the introduction of Protected Zones, which are free of the disease, and within which businesses can issue “plant passports” to trade in ash trees, wood and bark.

The Surveillance Plans will combine systematic, risk based and targeted approaches. The Plans will cover surveillance of woodland and non-woodland areas, including roadside and amenity planting, farm planting, seed orchards and ongoing nursery and garden centre surveillance. To improve the likelihood of identifying infected plants, plant movements will be traced from known or suspected sources of infection back to supplying nurseries and consignments, and forwards to other sites linked to the consignment or supplying nursery. Account will be taken of the location of previously infected sites in relation to existing ash woodland in identifying sites for surveillance. GIS will be a useful tool in this work and other technologies such as Unmanned Aerial Vehicles (UAVs) and rapid diagnostics are being evaluated. Surveillance will continue at previously infected locations to include the ongoing monitoring of hedgerows. Account will be taken of meteorological modelling and the likelihood of airborne incursion of spores. Work will continue at pace on this issue so there is time to act before the fungal pathogen releases its spores.

The Plans will remain responsive to reports suggesting infection in the wider environment, by building on the existing reporting facility and continuing to raise awareness and understanding of stakeholders and the public. The Plans will be kept under review as our understanding and knowledge of Chalara ash dieback develops.

Action on recently planted infected trees

In ash plantations where there are suspect symptoms of Chalara ash dieback, the risk of disease spreading will continue to be assessed and to minimise this DARD may issue a Statutory Plant Health Notice preventing movement of plants from the site; imposing bio-security measures; and prohibiting further planting of ash at the

site. In order to eradicate the disease from the site, notices will be issued requiring destruction of ash plants and associated plant debris. To assist rapid clearance of the sites, DARD Forest Service will continue to offer help to private landowners participating in the Woodland Grant Scheme, to destroy ash plants and associated plant debris, thereby further minimising the risk of disease spreading. The existing Woodland Environment Grant is also available to support woodland owners to replant their woodland with alternative species following destruction of affected ash.

DAFM have recently introduced a scheme to assist forest owners who are affected by the disease. Site owners who have planted with the assistance of grant aid under the afforestation scheme will be assisted through the reconstitution scheme (Chalara ash dieback). This scheme provides funding for the destruction in accordance with a Sanitation Action Plan, which will have been previously agreed with Forest Service. The scheme also provides funding for the planting and re-establishment of the plantation with an alternative species. DAFM will issue a Statutory Disposal Notice to order destruction of plants where the disease is confirmed or where the ash trees are from an infected batch.

Targeted advice and guidance

The main pathway for transmission of Chalara is through movement of plant material and leaf litter. Advice will continue to be produced, targeted at stakeholders and the general public with the aim of reducing this risk. This may include, where appropriate:

- Bio-security advisory signs will be erected for visitors to public woodlands at appropriate sites;
- Relevant telephone help lines to receive calls from the public about trees of concern and websites with links to photographs of disease symptoms will be maintained. A series of frequently asked questions and answers will continue to be updated and information notes reviewed, amended and developed as required;
- Providing further briefing for staff in relevant agencies on bio-security, recognising disease symptoms, and surveillance of woodland;

- Ongoing advice to utility companies, such as electricity and telephone infrastructural network providers, and roads authorities on bio-security and disease symptoms.
- Continued engagement with local government officials, woodland agents and arborists/tree surgeons and providing further briefing and advice on bio-security and disease symptom recognition.

8. Objective 2 –Support research on modelling the spread of the disease and developing resistance

Knowledge about the spread of the disease is limited, and based largely on experience in other European countries where, for the most part, no action has been attempted to contain or eradicate it. However, DARD and DAFM are engaging with research studies in Britain and Europe to help inform the approach taken. This includes a research group from the University of Cambridge and the Met Office examining airborne spore incursion risk and participating in FRAXBACK COST Action. The aim of the FRAXBACK COST action is, through sharing and synthesis of available knowledge, to generate comprehensive understanding of Chalara ash dieback phenomenon, and to elaborate state of the art practical guidelines for sustainable management of ash species in Europe.

Meteorological models, incorporating data on spatial distribution of ash, strongly support the hypothesis that airborne incursion of spores is both possible and likely. The models provide evidence that the pathogen was carried in the air by wind currents etc. across the Channel from Continental Europe into Britain and conclude that Britain and Ireland continue to be at risk from airborne sources of infection.

Recent modelling work undertaken by the University of Cambridge and the Met Office incorporates the most up-to-date data and knowledge of the pathogen and its epidemiology. The results reflect the best predictions that can currently be made about possible airborne incursion of spores into Ireland. Meteorological data from 2012 was used to simulate airborne dispersal of *Chalara fraxinea* spores from:

i. recently planted infected locations in Britain;

ii. wider environment infected locations in Britain; and

iii. Continental Europe.

It was concluded that:

- there is likelihood of airborne incursion of spores into Ireland from all of the three sources described above and although the relative infection potential from each of these three sources is unknown, the results of all three deposition models are very similar.
- if spores are airborne the model predicts that the highest probability of deposition, compared with other areas, is at high elevations in the North-East of Ireland.

This preliminary prediction points to a need for a greater level of surveillance in the wider environment particularly in the North-East of Ireland, due to the risk of infection as a result of a higher probability of spore deposition.

The modellers hypothesise that if no intervention takes place to slow the spread of the disease in England, there is potential for a low level of infection across the whole of England, and for high levels of infection in the South-East and South-West of England by 2017.

In the event that the disease were to become established in trees in the wider environment the best hope of securing the future of ash will be for DARD and DAFM to engage with existing and new medium and long term research studies to understand the genetic science and identify resistance to Chalara ash dieback. As part of this effort, Irish ash plants have been planted out over a range of sites in the South East of England to test for resistance. The research, part funded by DAFM is being carried out by Forest Research, an agency of the Forestry Commission.

Several countries affected by Chalara ash dieback have reported ash trees displaying partial resistance to the disease. Although the proportion of tolerant and resistant trees is low (estimated that 1% show less than 10% infection rates), these

reports provide evidence for natural selection by producing progeny with increased resistance to dieback. Crossbreeding may accelerate the production of tolerant ash clones. Chalara experts from 30 countries across Europe met in Vilnius for the first meeting of the four-year FRAXBACK COST Action on 13-14 November 2012 to discuss the health status of their ash, on-going research projects and significant results as well as research needs.

An ongoing Danish study tested 39 clones of common ash, *Fraxinus excelsior*. Field trials conducted over three years showed that a small percentage of clones maintained crown health and exhibited low levels of symptoms, showing considerable resistance to infection by *Chalara fraxinea*. Importantly, the study also demonstrated that tolerance is highly heritable (i.e. it can be passed on between generations). Further studies published in February 2013 provide evidence that the healthiest clones inhibited direct growth of the fungus rather than tolerating or modifying the toxic metabolites and that resistance appears to be due to a suite of genes rather than a single gene. This latter point is important because the disease resistance is less likely to break down due to a genetic change or changes in *Chalara fraxinea* if the observed disease resistance is based on a combination of several genes in ash. These studies further our understanding of host/pathogen interactions and are vital to inform future breeding programmes.

Genetic resistance research consists of the identification and analysis of genes involved in conveying resistance to disease symptoms. There are several research bodies in Britain and Europe including universities, research institutes and government agencies that have the capability to carry out such research and we will continue to engage with these organisations on projects which will work on identifying genetic resistance in ash using novel molecular techniques. This work should where appropriate utilise improved ash and ash from a diverse range of seed lots. DARD and DAFM will also engage with research studies in Britain and Europe about modelling the spread of the diseases and its impact, to help inform our approach.

9. Objective 3 – encouraging industry, landowner, voluntary organisation and general public engagement

Feedback from Chalara stakeholder meetings has highlighted the important role that industry, farmers, landowners, voluntary organisations and the general public play in helping to identify issues around tackling the disease. DARD have developed a telephone help line where calls can be taken from forest and nursery owners, other stakeholders and the general public about suspicious symptoms in ash trees. Similar helplines are in place in DAFM. Websites with links to photographs of disease symptoms and frequently asked questions and answers, information notes and import requirements have been developed. Awareness of the disease will be raised with stakeholders and the general public alike at agricultural shows e.g. Balmoral Show, the Forestry Show and Ploughing Championships both in Co Laois and other relevant events, as well as a focused publicity campaign during the summer months. During May DAFM and Teagasc carried out a series of 22 information meetings aimed at farmers and the general public.

Advice and guidance

Work will continue with a range of organisations to ensure that evidence based, up-to-date advice is available to all those with a part to play in tackling threats to ash. Some of the actions taken are set out under Objective 1 of this plan.

Partnership working with stakeholders

DARD has established a group of stakeholders, which has already met on four occasions to give advice and, in conjunction with officials, develop policy recommendations in response to Chalara ash dieback. This group includes representatives of farmers, landowners, the forestry and horticulture sectors, environmental organisations, and local government. This group has contributed to the development of the Chalara Control Strategy and will continue to work with us as policy on Chalara ash dieback evolves. **Annex A** provides a list of stakeholders who provided comment on the Chalara Control Strategy to both DARD and DAFM.

DAFM has established a Chalara Steering Group that meets regularly and has also met with representatives from the forest industry including forest management

companies, forest nurseries, hurley manufacturers and the horticultural hardy nursery stock representatives. DAFM have also engaged with the National Roads Authority and Local Authorities. These meetings have also contributed to the development of the Control Strategy and will continue to contribute to Chalara policy development.

General public engagement

DARD and DAFM are committed to tackling the disease through a collaborative approach with industry and wider public engagement in identifying and reporting Chalara ash dieback symptoms, timed for summer 2013 when the trees have come back into leaf. For this engagement to be effective, it requires further ways of encouraging the general public, farmers, landowners and the industry to engage in surveillance, monitoring and action. This requires careful planning otherwise success may be limited due to reports being received which incorrectly identify ash trees, provide poor information on site location or poor descriptions of suspect disease symptoms. This in turn may lead to excessive resources required to investigate reported suspect sites. A number of available options will be examined which provide an effective reporting mechanism. Collaborative action with an already existing scheme could be a constructive mechanism to increase engagement.

10. Objective 4 – building resilience in woodland and to support associated industries

Chalara ash dieback has not been detected in ash woodland in the wider environment in Ireland. While measures have been implemented to minimise the risk of the disease entering the island through trade, the potential of wind borne spore spread in the medium to long term has increased as a result of recent findings in the wider environment in Britain. Ongoing collaboration with Chalara modelling exercises in Britain will assist in predicting likely patterns of spread.

In response to the increased risk and the long time frame associated with managing woodland, action to consider how to adapt to the disease's possible impact and minimise its effect on our trees and woodlands, whether for timber production, for

their biodiversity benefits, or for access and recreation, needs to be taken now. This includes encouraging increased diversification of species planted.

The forestry and wood products sectors

Ash is not one of the major timbers sold and processed in Ireland. Ash timber is used as a raw material in the production of furniture, tool handles and for making hurleys. The hurley making industry is reported to be responsible for supplying at least 400 full-time jobs throughout the whole of Ireland and around 350,000 hurleys are produced annually. Around 80% of ash for hurleys is imported. There has also been a growing market in recent years for firewood, coinciding with many broadleaf plantations, particularly ash, coming on stream for thinning. While the impact of Chalara ash dieback on the forestry industry as a whole is likely to be small, some forest nurseries, merchants and hurley makers who trade in ash are likely to be most affected. The limited evidence available suggests that timber degrade caused by Chalara ash dieback is likely to occur within a minimum of four years after infection and may be longer. Thus there is no need for woodland managers to rush to market, with the likely impact being a significant price reduction if large volumes were to come on stream.

Wider Cultural and Biodiversity values and Ecological resilience

Although the economic value of ash is small at a national scale, as a component of the landscapes it has a significant value as part of our cultural identity and heritage and also has a significant ecological value. It is an important feature of many Special Areas of Conservation, Areas of Special Scientific Interest, Natural Heritage Areas, Areas of Outstanding Natural Beauty, as well as hedgerows and farmlands and supports a range of ecologically important flora and fauna. The evidence suggests that the impact of Chalara ash dieback on biodiversity and ecosystems will not be rapid, but work will continue with other agencies and Departments to better understand that.

A range of silvicultural guidance has been developed by the Forestry Commission in consultation with stakeholders and is available on the Forestry Commission website http://www.forestry.gov.uk/chalara. This is designed to aid tree and woodland owners

and managers to make the right decisions in the light of Chalara ash dieback. This includes advice on when to fell, alternative species and silvicultural systems, and ongoing management guidance. It also includes advice on biodiversity and the management of single trees. We will develop guidance as to how this can best be applied to Ireland, taking in to account the potential impact on biodiversity, and contribute to the review of Forestry Commission guidance as our understanding of Chalara ash dieback develops. It is also one of the aims of the FRAXBACK COST Action to elaborate state of the art practical guidelines for sustainable management of *Fraxinus* in Europe.

Nursery and horticulture sectors

As this plan develops over the coming months, we will work closely with the horticultural and nursery sectors to consider the resilience of those sectors and what action the sector and the authorities should take to ensure that trade in plants and trees does not expose us to unacceptable risks of new pests and pathogens and maximises opportunities for stock to be grown domestically. For example, both DARD and DAFM are currently considering the introduction of legislation requiring pre-notification of the import of certain tree species from elsewhere within the EU.

11. Next Steps

A clearer picture of the extent of Chalara ash dieback will become evident over the next few months. The actions set out in this Control Strategy will be kept under constant review based on information about the extent of Chalara ash dieback in Ireland and the development of scientific knowledge. Similarly, DARD and DAFM respective surveillance plans will be kept under constant review.

Annex A

Consultation responses were received from the following groups:

Ulster Farmers Union

Belfast City Council

Ballymoney, Coleraine, Limavady & Moyle Councils (composite reply)

RSPB & BirdWatch Ireland (composite reply)

Council for Nature Conservation and the Countryside

NI Farm Forestry

Farm Woodlands Ltd

Teagasc

Environmental Pillar

Friends of the Irish Environment

Crann

None-so-Hardy Nurseries Ltd.

Institute of Horticulture, (Ireland Branch)

Forestry Services Ltd.

Society of Irish Foresters

Coastway

Treemetrics

Woodland Mangers Ltd.

Ms. Marie Comerford-Munyon

Mr. Michael Brennan