Emerging diseases in UK crops
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Chief Plant Health Officer
Defra’s five-year strategy

Purpose
Unleashing the potential of food and farming, nature and the countryside, championing the environment and protecting us all from natural threats and hazards.

Objectives
- A cleaner, healthier environment which benefits people and the economy
- A world-leading food and farming industry
- Excellent delivery, on time and to budget and with outstanding value for money
- A nation protected against natural threats and hazards, with strong response and recovery capabilities
- A thriving rural economy, contributing to national prosperity and wellbeing
- An organisation continually striving to be the best, focused on outcomes and constantly challenging itself

Themes
- Boosting UK productivity
- Data availability and utilisation
- Better domestic regulation
- Delivering our priorities internationally (including EU reform, US and China)
• An overall approach to plant health in England
• Management approaches for tree pests and diseases
• A framework for managing future threats
## The Plant Biosecurity Strategy

### Overarching principles

- **Risk-Based Decision Making**
  - Increased awareness and stakeholder involvement

### Biosecurity Continuum

#### Pre-Border

- International working
- Better protection by EU regime
- Share information on pathways and threats

#### Border

- Risk-based inspections
- Detection and identification
- Collaborate with border force

#### Inland

- Targeted surveillance
- Contingency plans
- Build resilience

### Actions

- **Evidence**
- **Skills, Capability and Capacity**

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Department for Environment, Food & Rural Affairs
Protecting GB from plant and tree threats

Numerous challenges

- Increasingly globalised trade
- Increasing imports of nursery stock, trees, mature plants and wood packaging
- Increasing risks from pests and diseases
- Direct sales – internet, post
- Pressures on industry to minimise costs and losses

Collaborative work as part of our published strategies and

- Work with suppliers and exporting countries to tackle pests at source to minimise their risk of arriving in GB
- Support the supply of cleaner plants and plant material
- Increase awareness with trade and public
UK Plant Health Risk Register - objectives

1. To identify the greatest plant health threats to UK crops, trees, gardens and ecosystems

2. To suggest appropriate actions

3. To provide a framework for decision making on priorities for actions
Risk-Based Decision Making

UK Plant Health Risk Register

Department for Environment, Food & Rural Affairs

Search for a Pest or Organism

794 pests in the Risk Register

Advanced Search

Download Entire Risk Register

About

The UK Plant Health Risk Register is a major step in implementing the recommendations of the independent Task Force on Tree Health and Plant Biosecurity. It is a tool for government, industry and stakeholders to prioritise action against pests and diseases which threaten our crops, trees, gardens and countryside. The Register is publicly available.

Risk Register News

Additions to the Risk Register

31/07/2015
The following pests have been added to the Risk Register recently:

View More

Pest Interceptions 21/07/2015
The following pests have all been recently intercepted or detected in the UK. They are considered to...

Example Searches

Show pests marked as a priority for...

Which entries are pests of Fraxinus?

Which entries are pests of Solanum?

About Plant Health

What’s New

Latest Pest Risk Assessments

Legislation

Licensing of non-native biocontrol
New entries over the last 12 months

Number of Pests on the Risk Register

- Sep-15: 817
- Aug-15: 813
- Jul-15: 794
- Jun-15: 781
- May-15: 777
- Apr-15: 775
- Mar-15: 771
- Feb-15: 764
- Jan-15: 752
- Dec-14: 746
- Nov-14: 734
- Oct-14: 731
- Sep-14: 720
Pests by Mitigated Risk

- Relatively low proportion of pests with a high residual risk
Priority actions identified through the RR

Number of Pests per Priority Action

- Research: 55
- Publicity: 56
- Contingency Plan: 34
- PRA: 26
- Targeted Survey: 46
- Management by Industry: 36
- Deregulation: 19
- Regulation: 60

Department for Environment, Food & Rural Affairs
Reasons for adding a pest

- Interceptions and Outbreaks: 31
- EPPO Alert: 8
- Horizon Scanning: 18
- Stakeholder suggestion: 13
- Other: 10
Reviewing current entries

- Risk Register entries are reviewed in response to new information and the completion of actions.

![Bar chart showing reasons for reviewing entries]

- PRA
- Change in Regulation
- New Information
- Other (e.g. stakeholder feedback)
- Total
Ca. Phytoplasma fragariae

What is it?
A bacterial-like pathogen of strawberry found for the first time in the UK infecting Hazel.

What does it do?
Relatively minor pathogen in strawberry, but hazel trees show yellowing, necrosis of leaves and many are dead or dying.
Ca. Phytoplasma fragariae

Symptoms

Symptoms include horse-show shaped necrosis on leaves (left), yellowing of leaves (centre) and vertical cracks in the trunk (right).
Ca. Phytoplasma fragariae

How does it get here/spread?
Probably introduced on clonally propagated material. Spread by insect vectors but no evidence of spread at the site – so vector may be absent.

Current Actions:
Pest Risk Analysis and Pest Alert published. Possibly introduced to other sites – appealing for reports of any suspicious decline of hazel.
What is it?
A bacteria that causes Zebra chip disease of potato/tomato in America/New Zealand. Another strain causes disease in carrots/celery in Europe.

What does it do?
Relatively minor pathogen in carrots. Causes ‘zebra chip’ symptoms in potatoes that make them unsuitable for processing leading to massive economic losses.
Ca. Liberibacter solanacearum

Symptoms

Symptoms on a potato plant (left) include purple, rolling leaves. Zebra chip symptoms when potatoes are fried (centre). Carrots show purple leaves in the field. Images courtesy of J.E. Munyaneza, USDA-ARS
Ca. Liberibacter solanacearum

How does it get here/spread?
Spread by the potato psyllid (*Bactericera cockerellii*) which could ‘hitchhike’ on tomato fruits to enter the UK/EU.

Current Actions:
Recommended for EU regulation of both the pathogen and psyllid. PRA and Pest Alert available. Survey work in carrots in parts of the UK.

The potato psyllid. Image courtesy of J.E. Munyaneza, USDA-ARS
Fusarium oxysporum f. sp. lactucae

What is it?
A fungal pathogen of lettuce spread in Europe – present in Italy and Portugal and detected in Netherlands in 2015 in protected cultivation.

What does it do?
Symptoms vary depending on cultivar. 70% losses seen in Italy and some sites in the Netherlands forced to abandon lettuce production.
Symptoms include stunting, chlorosis, death of older leaves and complete collapse of the plant with rotting of the tap root. Rotting of the vascular system (left) and symptoms in field crops (right) image courtesy of Servizio Fitosanitario Regione Emilia-Romagna (IT).
How does it get here/spread?
Could enter on young plants, and can survive in soil for long periods. Appropriate hygiene measures can help reduce risk of entry and spread.

Current action:
A pest factsheet will be produced to alert the industry. PRA available online.
Xylella fastidiosa

What is it?
A very damaging bacterial pathogen, with a wide host range and many strains and subspecies, now present in Europe (Italy, France).

What does it do?
Globally responsible for a wide range of diseases include quick decline of olive in Italy, leaf scorch of blueberry and dwarfing of lucerne.
Symptoms dwarfing in lucerne (left), the plant on the right of the image is infected with *X. fastidiosa*. Typical leaf scorch symptoms (right) which can be seen on a large number of hosts – image courtesy of John Hartman, University of Kentucky.
Xylella fastidiosa

How does it get here/spread?
Most likely to enter on plants for planting – has been intercepted on coffee plants in the UK.

Current Action:
EU emergency measures in place to help prevent spread and further introduction. Pest fact sheets and pest risk analysis available online. Further research needed to fully understand risk.

EU to give 7m euros in fight against olive tree killer
By Mark Kinver
Environment reporter, BBC News
13 November 2015 | Science & Environment
Ca. Phytoplasma solani

What is it?
A bacterial-like pathogen of potatoes, tomatoes, grape and maize. Only regulated on potatoes and tomatoes. Outbreak on Strawberry in the UK in 2014.

What does it do?
Causes maize redness disease in the Balkans leading to yield losses of 40-90% and Stolbur disease of potato which causes zebra chip like symptoms and aerial tuber production. Also causes Bois Noir of grapevine (below).
Ca. Phytoplasma solani

Symptoms:

A severe outbreak of maize redness (left, Image courtesy Jelena Jovic) and aerial tubers on potato infected with Ca. Phytoplasma solani (right, image courtesy M. T. Cousin).
How does it get here/spread?

Known insect vectors of the disease are absent from the UK, but *Hyalesthes obsoletus* (image below), vector of the disease in potato/tomato has been spreading north. Can also enter via plants for planting.

Current Actions:

Statutory action taken against findings. A pest risk analysis is available online. Watching brief on distribution of vector species.
**Erwinia pyrifoliae**

**What is it?**
Bacterial pathogen of Asian pear now found infecting strawberries (field grown and protected cultivation) in Belgium and the Netherlands.

**What does it do?**
Impacts vary depending on when infection occurs. Early infection leads to black, unmarketable fruits but late infection only has minor impacts.
Symptoms

Affected strawberry fruits from Dutch glasshouse production.
Erwinia pyrifoliae

How does it get here/spread?
Established in Netherlands and Belgium so could enter on planting material. Spreads quickly within glasshouses via water splash/mechanical transmission through pruning.

Current Actions:
Use of PHPS certified material can help mitigate risk of introduction. A pest fact sheet will be created to alert the industry.
Ca. Phytoplasma asteris in Carrot

What is it?
An ‘endemic’ phytoplasma, usually recorded from weed/wild hosts, but detected in a carrot crop in Scotland for the first time in 2013.

What does it do?
Globally responsible for a number of economically important diseases, but currently of minor importance in the UK.
Ca. Phytoplasma asteris in Carrot

Symptoms:

Yellowing of carrot foliage (left) and production of secondary roots (right) as seen in the outbreak in Scotland.
Ca. Phytoplasma asteris in Carrot

How does it get here/spread?
The pathogen is already present in wild/weed hosts in the UK, but its insect vector is unknown.

Current Actions:
No action will be taken on findings in carrot crops. More research is required to better understand phytoplasma distribution in the UK.
Future initiatives - Prunus

- Statutory notification scheme for Prunus
- Reflects outcome of consultation earlier this year
- Risk of both regulated and non-regulated pests being introduced on Prunus
- Aim is to add Prunus (all species) to the existing statutory notification scheme
- Legislation under preparation, to be introduced early next year
A strengthened EU Plant Health Regime

1. Faster decision-making (to get ahead of new pests)
2. Better risk targeting including:
   - More focus on higher risk plants for planting
   - New requirements to assess risk from new trades before they start
   - Registration of all plant traders
   - Strengthened plant passporting regime
   - Better practical collaboration between plant health services (plant health / inspectorates / customs) and simpler passenger baggage controls
3. More controls on direct sales
4. Shared responsibility and joint working with UK Plant Health Advisory Forum
An online hub for all your tree and plant health information, data and resources

Search the portal

UK Plant Health Risk Register

752 Recorded pests

The UK Plant Health Risk Register records and rates risks to UK crops, trees, gardens and ecosystems from plant pests and pathogens.

Visit the Risk Register of

The Chalara Viewer

The Chalara Viewer shows areas where Chalara dieback has been confirmed to be affecting ash trees in the natural environment in England, Scotland and Wales.

Visit the Chalara Viewer Website of

What's new?

27 January 2015

Plant disease factsheet for Xanthomonas arboricola pv. pruni (Bacterial spot and canker on Prunus)

27 January 2015

Extension of statutory notification scheme for certain tree species to include Prunus spp.

27 January 2015

Review of the regulatory status of certain organisms listed in the Annexes of the Plant Health Directive (2000/29/EC)