



Inspiring the next generation of Plant Health Scientists

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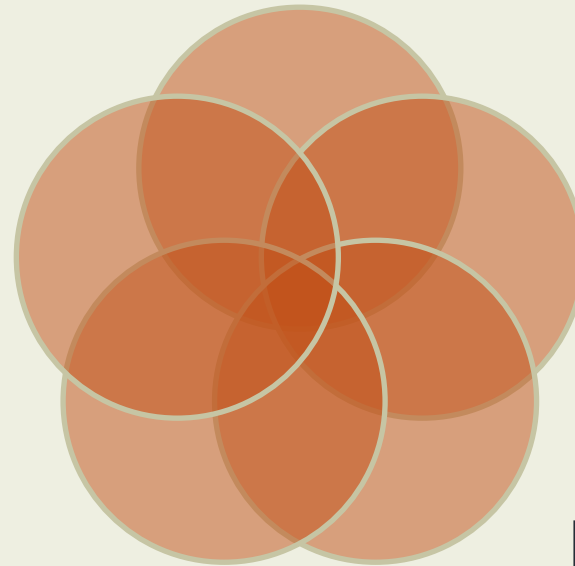
#healthytrees





Defra

Forestry
Commission



APHA
Animal & Plant
Health Agency

Forest
Research

Fera Science Ltd



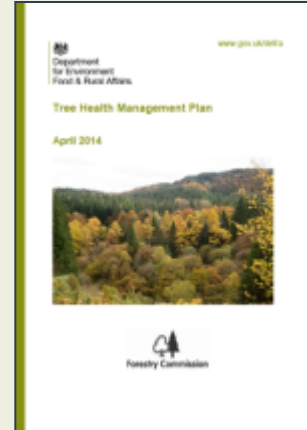
Tree Health and Plant Biosecurity Strategy



Expert Taskforce Report 2013



Plant Biosecurity Strategy 2014



Tree Health Management Plan 2014



Ash dieback found in the UK in the 'wild' in October 2012

Raising Awareness and Involvement

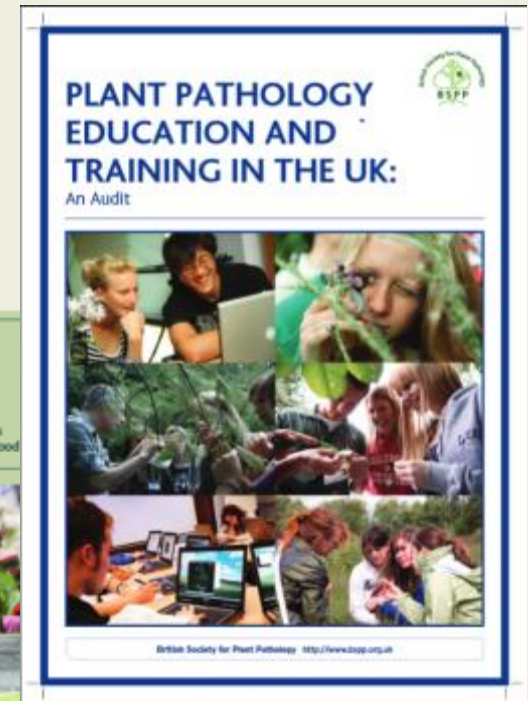
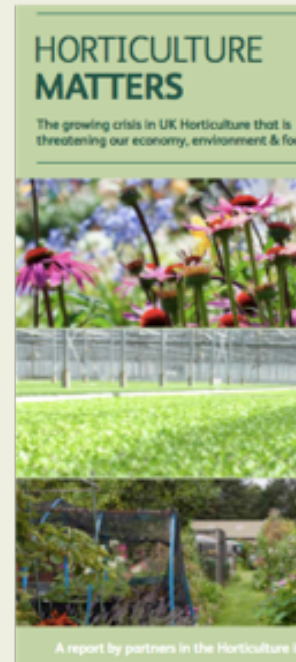
Ensure all those with a role in plant health are more aware of plant health risks and know what they can do to reduce them. Ensure that, where appropriate, responsibility sits with those who benefit from the reduction in risk.

The value of the input from public and industry was highlighted during the response to *Chalara fraxinea* (ash dieback), when they made a major contribution to the effort to identify its extent. Raising awareness of plant biosecurity and developing an integrated

Make use of and support existing networks of individuals with an interest in plant health. Including supporting public participation in scientific research (citizen science) through initiatives such as Open Air Laboratories (OPAL) and ObservaTREE which seek the public's help in identifying tree pests. These will provide a cadre of trained members of the public able to spot outbreaks of plant pests thereby increasing capability and capacity. We will ensure that these individuals are aware of biosecurity and plant hygiene to avoid spreading pests through their own activities.



National plant health skills challenge



Animal and Plant health in the UK: an assessment of future science capability

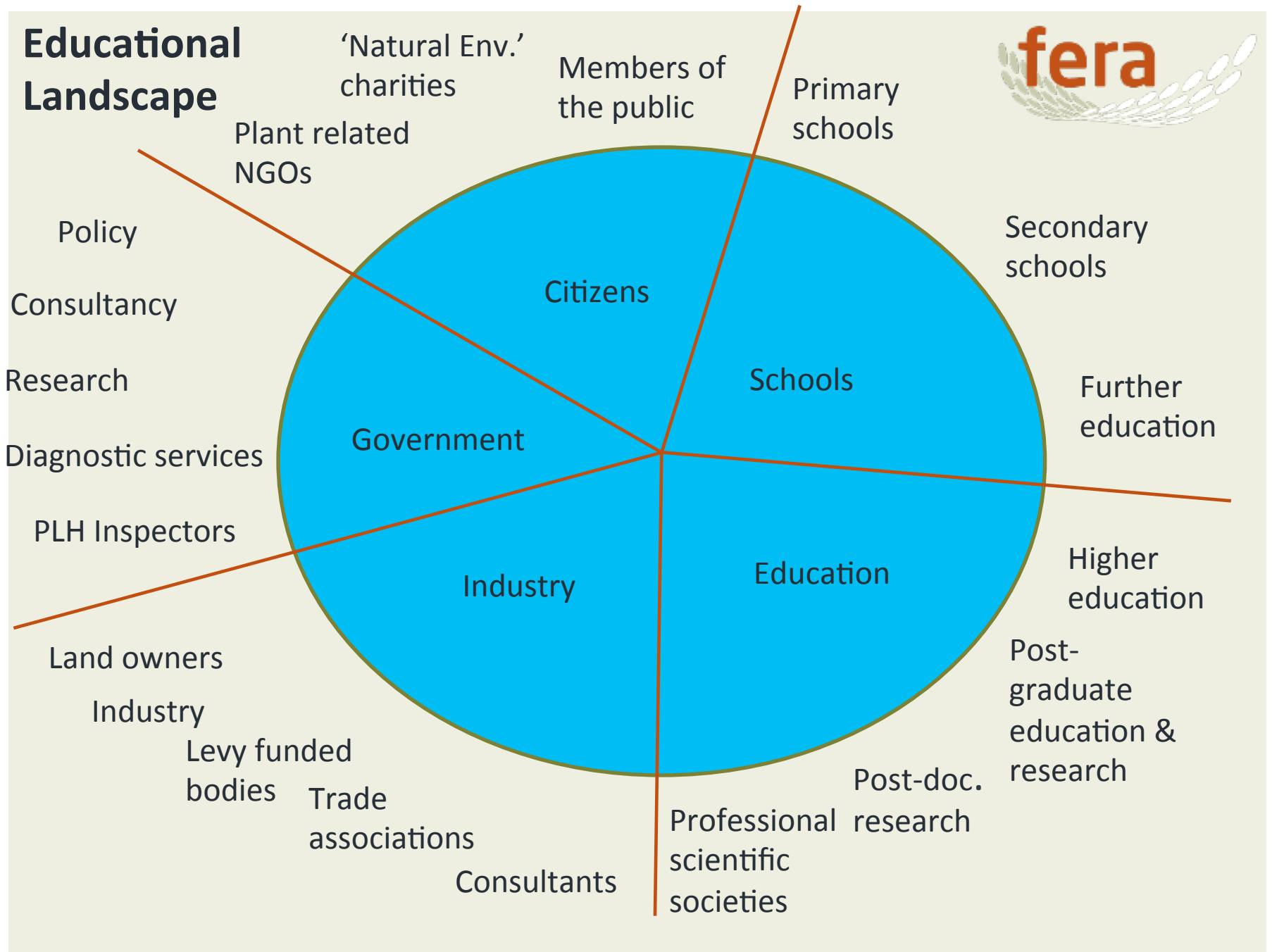


- Identify needs and opportunities for developing skills and creating a recognised profession for plant health.
- SRO Prof. Nicola Spence, UK Chief Plant Health Officer
- Project Team:
 - Dr Charles Lane, Consultant Plant Pathologist, Fera
 - charles.lane@fera.co.uk
 - Dr Celia Knight, CK Consulting
 - Simon Anning, Defra



August 2014 to
July 2015

Educational Landscape



'Natural Env.'
charities

Plant related
NGOs

Members of
the public

Primary
schools

Secondary
schools

Policy

Consultancy

Research

Diagnostic services

Citizens

Schools

Further
education

PLH Inspectors

Land owners

Government

Education

Higher
education

Industry

Post-
graduate
education &
research

Levy funded
bodies

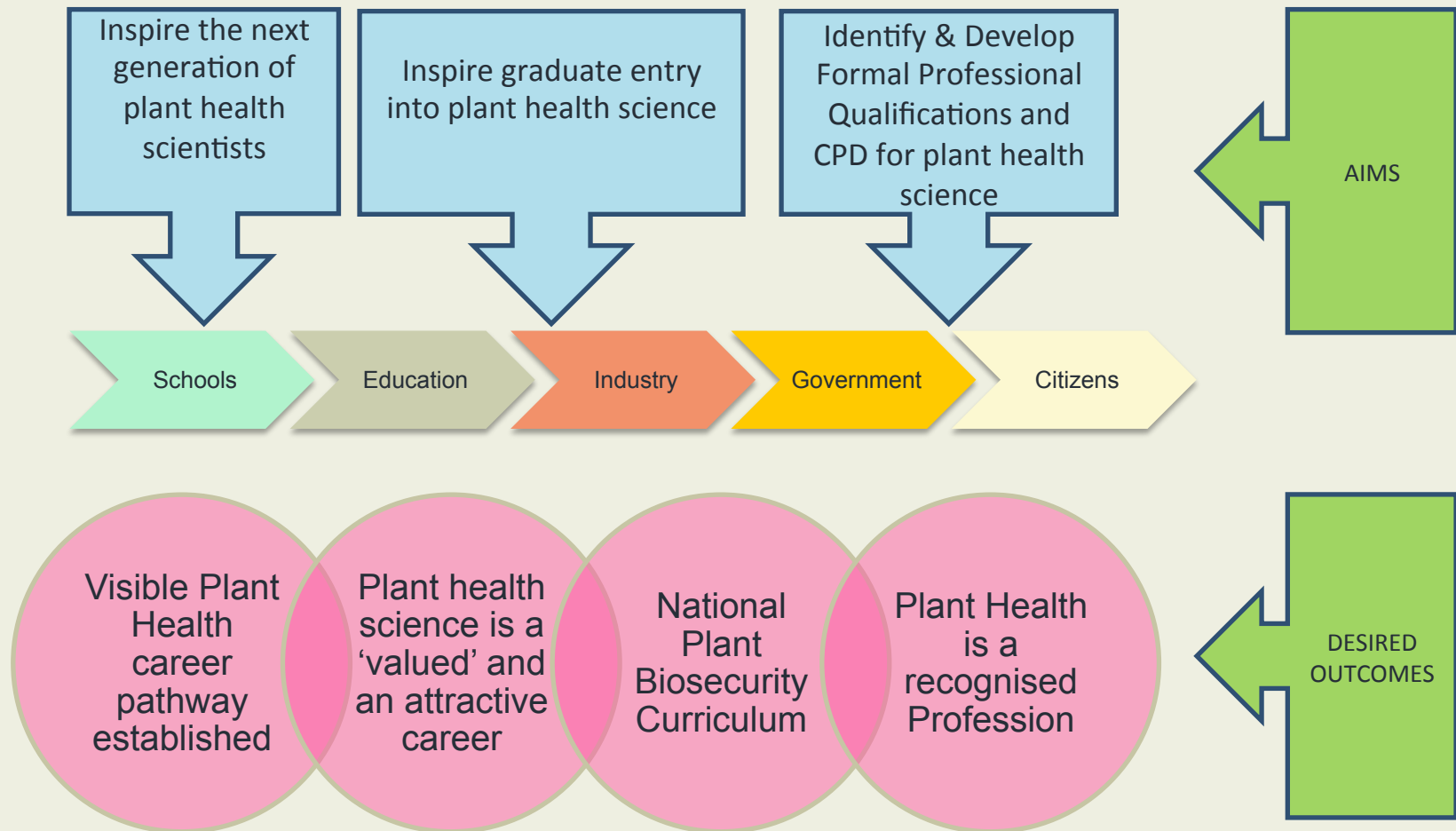
Trade
associations

Post-doc.
research

Professional
scientific
societies

Consultants

Plant Health Skill Pipeline - aims and desired outcomes





**Visible
Plant Health
career
pathway
established**

Plant health
science is a
'valued' and
an attractive
career

National
Plant
Biosecurity
Curriculum

Plant Health
is a
recognised
Profession

Schools Science Advisors Workshop, January 2015

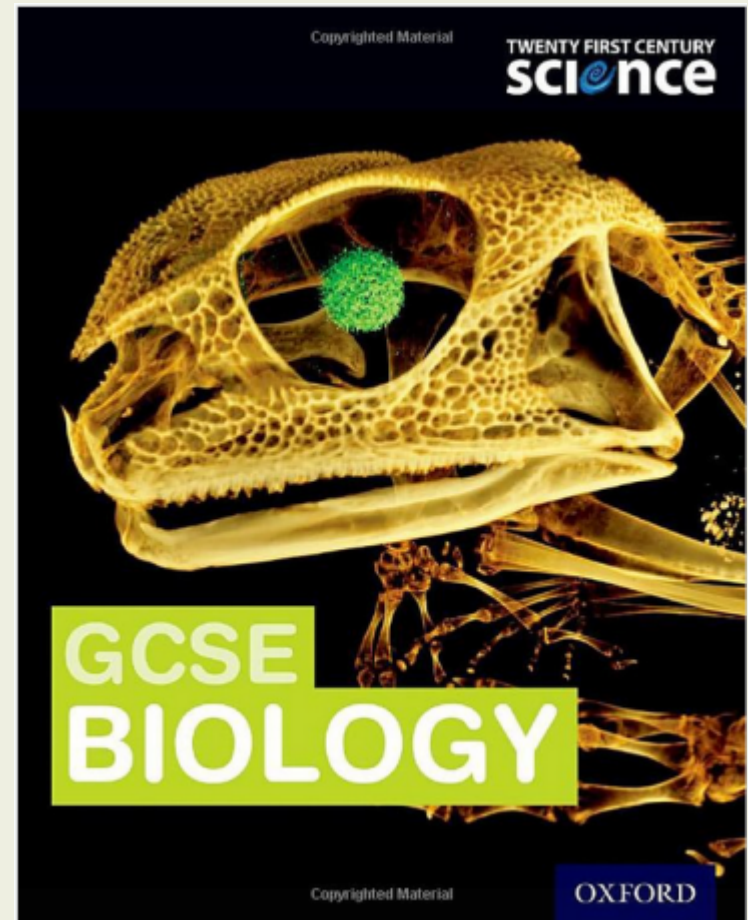
Recommendations:

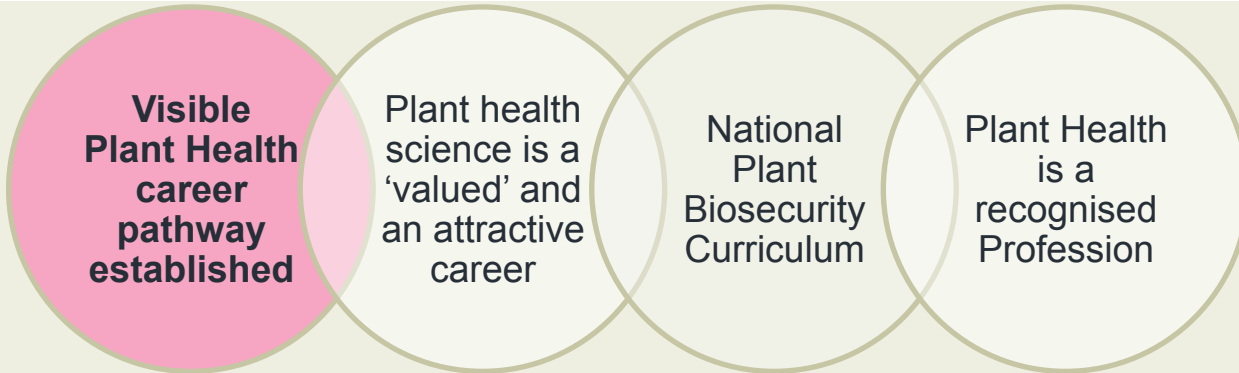
- **Science Curricula**

- Work with Qualifications authorities
- Work with Teaching Resource Writers and Publishers
- Work with Science & Plants for Schools [SAPS]

New resources for GCSE & A-Level

- Working with:
Science & Plants for schools
University of York, Science
Education Group
- Plant Pathogens are now
included in 'Communicable
diseases'
- Inclusion of Ash dieback
- Presentation to Association
for Science Education





New Plant health CEIAG

Careers education, information, advice and guidance

- Developing career pathways
 - Plant Health Inspector
 - Plant Health Research Scientist
 - Plant Health Consultant
 - Plant Health Diagnostician
- Visibility - on-line careers services

Outcomes:

U-Explore profiles - access to 370K pupils in 500+ schools



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- Developed a new interactive 'Outbreak Management' Game for Citrus Longhorn Beetle for HEI Students

Outcomes:

Delivered to HEI Arboriculture and Horticulture HEIs UK wide



Our Countryside at Risk!

An Outbreak Role-Play Game

**Created by Emily Beardon
Sheffield University
BBSRC, DTP Internship**



Before we start...

Questions:

1. Should the free movement of plants by trade be allowed?
2. Should we always try to eradicate a plant pest?

The Characters

1. Mr/Mrs. Riggley/Riggley family – resident of Langham
2. Diagnosticians
3. BBC News
4. Inspectors (Plant Health and Seed Inspectorate (PHSI))
5. Scientific Advisors (including Press Officer)
6. Mr/Mrs. Aldridge/Aldridge family – resident of Peterborough
7. RSPB
8. Forestry Commission/Forest Research
9. Mr/Mrs. Eden/Eden family – residents of Stamford
10. Mrs. Ottley – resident of Stamford
11. Mr. Brown – resident in Stamford
12. Mr/Mrs. Ryder/Ryder family – residents of Stamford

ROUND ONE

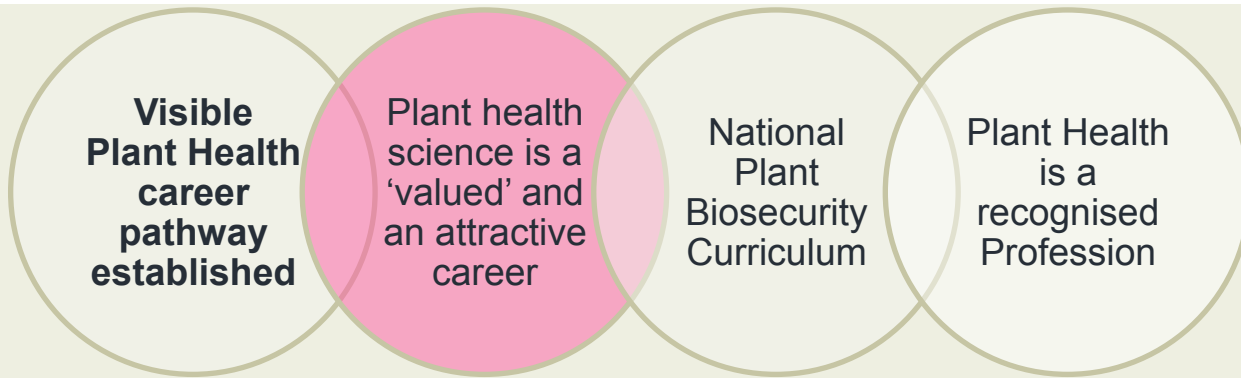


Tuesday 27th July 2010

Langham C.E. Primary School, Leicestershire

Mr/Mrs. Riggley reports the finding of an unusual beetle to
Plant Health and Seed Inspectorate (PHSI)





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- Delivered the Plant Pathology Practical to 80+ undergraduate students on the Gatsby Plant Sciences Summer School
- Developed a new Longhorn Beetle Survey challenge at the Yorkshire Arboretum



Work based Learning Studentships and Interns

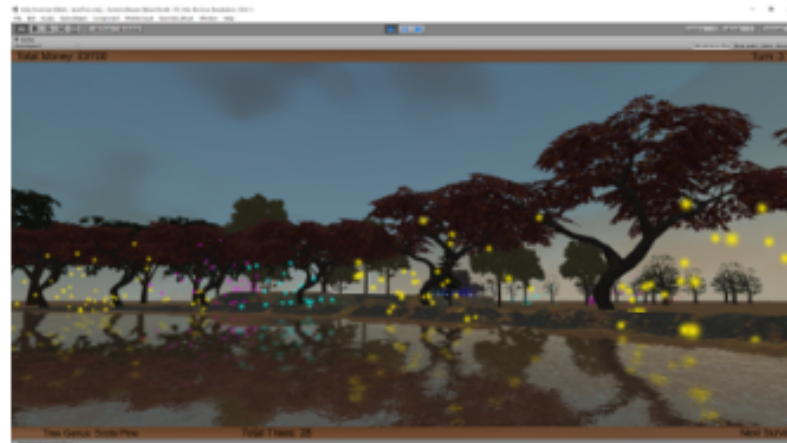


"The Summer Internship Program with FERA – backed by DEFRA – was an amazing experience. Not only was there ample opportunity to develop my skills, I got to do so in the knowledge that my work was going towards a meaningful, real world application"

Craig Docherty – 4th Year Software Engineering, University of Stirling, 2015

The project, Urban Tree Management, looked to develop a proof of concept game world that would introduce the users to several tree species, threats to those trees, and the concept of managing the estate to mitigate the effect of those threats.

With the successful delivery of the proof of concept, work will be undertaken in my Final Year Project at the University of Stirling to further expand the game. Moving towards a more complete version for use outside of the laboratory.



Plant health science is a 'valued' and an attractive career

Craig Docherty now studying for a PhD on gamification in tree health education funded by Defra

Employers Plant Biosecurity Training Needs Workshop

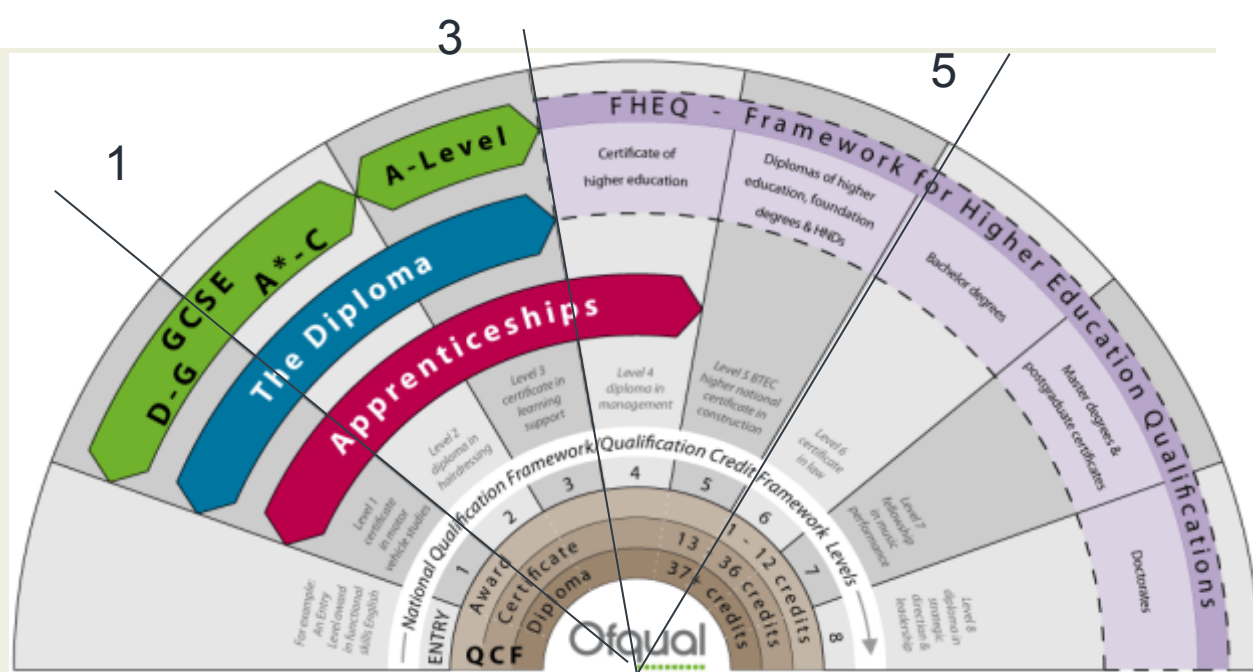


**National
Plant
Biosecurity
Curriculum**

- **Objectives**
- Identify skills training needs in Plant Health and Biosecurity
- Identify job roles and competency levels (level 0-8)
- Develop a skills/competency matrix for plant health and Biosecurity

Job roles & Competency Levels

- Generic supply chain industry
- *Transient workforce which may increase by x2-3 times



Job role	Activity	Competency Level	Approx. %
Operator*	'Eyes & Ears'	0-1 (2)	60-80*
Supervisor	'Verifier'	2-3 (4)	15
Manager	'Reporter'	>4	5
Consultant	'Advisor'	>5	<5

National Plant Biosecurity Curriculum

- Skills/Level Matrix



No.	Biosecurity Curriculum Modules	0	1	2	3	4	5	6	7	8
1	Introduction to plant biosecurity and why it is important	√	√	√	√	√	√	√	√	√
2	Understanding your responsibility within your organisation in reporting, reducing risk and where to get help	√	√	√	√	√	√	√	√	√
3	Basic recognition of plant pests and diseases	√	√	√	√	√	√	√	√	√
4	Practical measures to reduce risk and prevent pest and disease spread	√	√	√	√	√	√	√	√	√
5	Understanding plant pests and diseases and how they spread					√	√	√	√	√
6	International legislation and controls					√	√	√	√	√
7	Risk-based decision-making, PRA and Risk Register					√	√	√	√	√
8	Understanding the plant biosecurity continuum-pre border, border, inland surveillance and inspection					√	√	√	√	√
9	Contingency planning and outbreak management (including safe disposal)					√	√	√	√	√

Industry CPD

Outcomes:

Need for Plant Biosecurity training for NVQ Level 0-4

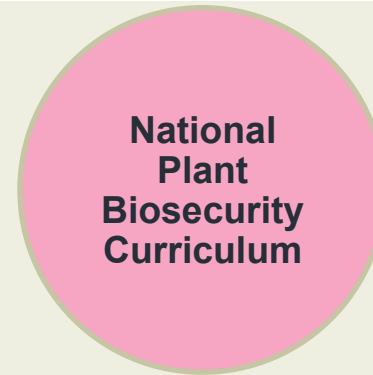
- Why is plant biosecurity important?
- Understanding your responsibilities in reporting, reducing risk and where to get help
- Basic recognition of plant pests and diseases

Is there an industry need/desire for formal training and qualification in Plant Biosecurity?

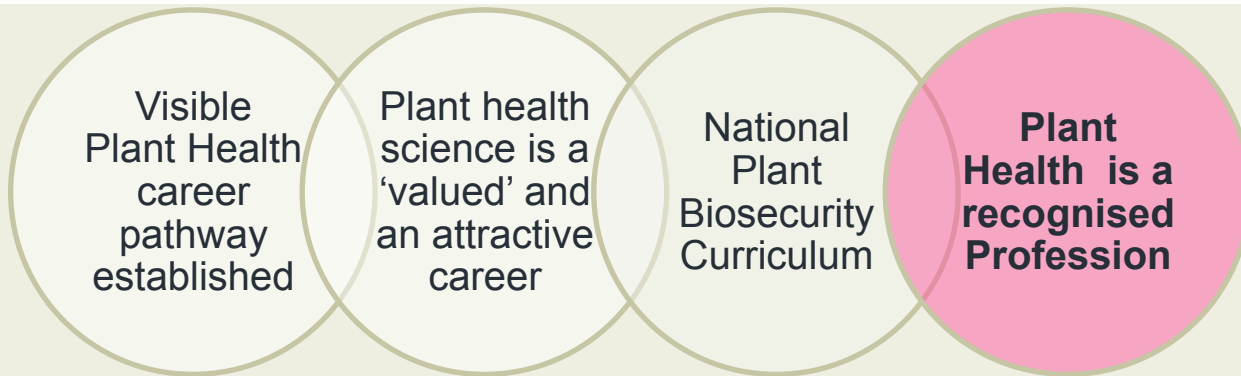
Outcomes:

New MSc Plant Biosecurity module at Harper Adams University aimed at Level 5 and above

- International legislation and controls
- Risk based decision-making
- Understanding the plant biosecurity continuum
- Contingency planning and outbreak management



N o.	Biosecurity Curriculum Modules	0	1	2	3	4	5	6	7	8
1	Introduction to plant biosecurity and why it is important	√	√	√	√	√	√	√	√	√
2	Understanding your responsibility within your organisation in reporting, reducing risk and where to get help	√	√	√	√	√	√	√	√	√
3	Basic recognition of plant pests and diseases	√	√	√	√	√	√	√	√	√
4	Practical measures to reduce risk and prevent pest and disease spread	√	√	√	√	√	√	√	√	√
5	Understanding plant pests and diseases and how they spread					√	√	√	√	√
6	International legislation and controls					√	√	√	√	√
7	Risk-based decision-making, PRA and Risk Register					√	√	√	√	√
8	Understanding the plant biosecurity continuum-pre border, border, inland surveillance and inspection					√	√	√	√	√
9	Contingency planning and outbreak management (including safe disposal)					√	√	√	√	√



Professional Recognition for Plant Health

- Royal Society of Biology: New Plant Health Professional Register
- Senior Plant Health Professional - Level 7
- Registered Plant Health Professional - Level 5
- Associate Plant Health Professional - Level 3

You are here ▶ [Home](#) ▶ [Careers & CPD](#) ▶ [Registers](#) ▶ [Plant health register](#)



- Careers & CPD**
- Registers
- RSciTech
- RSci
- Chartered
- Qualified person
- UK Register of Toxicologists
- International Diploma in Toxicology
- Fetal morphologists
- BSAS
- Plant health register**
- External examiners database
- Careers



Plant Health Professionals

The Plant Health Professional Register has been created in response to the Department of Environment, Food and Rural Affairs (Defra) and Government Office of Science reports¹ recommending development of plant health skills and creating opportunities for a wider community of trained plant health professionals.

The Department will work with professional bodies to embed greater awareness of plant health



Royal Society of Biology

Enhance your professional status

Find out about our

Register competency framework



Competency Cluster	Elements
1 Plant Health Regulations	<ul style="list-style-type: none">• Understanding how plant health services operate in the UK• Understand the significance of international plant health• Understanding plant biosecurity continuum
2 Roles and Responsibilities in Reporting Plant Health Concerns	<ul style="list-style-type: none">• Demonstrate communication of the risks of plant health policy• Understand roles and responsibilities for plant health within your organisation and outside your organisation
3 Risk Based Decision-Making	<ul style="list-style-type: none">• Understand risk-based decision-making and identify which pests and diseases are high-risk within your area and to the UK• Understand how trade and commodity pathways affect biosecurity and risk mitigation
4 Contingency Planning and Outbreak Management	<ul style="list-style-type: none">• Demonstrate knowledge of good biosecurity practice• Contingency planning an outbreak management• Understand the impact of control strategies measures

Competency	<i>Assessors will be looking for evidence that you know / do / take an active part in:</i>			Plant Biosecurity Strategy for GB report ref
	Associate	Registered	Senior	
Competency Cluster 1. Plant Health Regulations				
1. Understand how Plant Health Services operate in the UK and reporting mechanisms for plant health concerns	<p>The government departments responsible for Plant Health and Forestry in the UK</p> <p>Be able to define "biosecurity"</p>	<p>The flow of information and decisions about plant health in your organisation</p> <p>The economic significance, diversity of trade and natural environment that could be affected by biosecurity</p> <p>Understand good biosecurity practice</p>	<p>Initiate the flow of information and decision making within your organisation and communicate with counterparts in other UK organisations.</p>	Page 6
<p>2. Understand the significance of:</p> <p>a) International Plant Health Standards</p> <p>b) International Plant Protection Convention</p> <p>c) EU Plant Health regime</p> <p>d) Plant Health and Plant Health (Forestry) Orders and associated powers.</p> <p>d) Procedures for import of</p>	<p>What are they and how do other third countries' regulations differ from UK/EU regulations.</p> <p>Understanding of international phytosanitary agreements and requirements</p> <p>Procedures for working in quarantine licensed facilities</p>	<p>The detail for a specific area and shared knowledge of differing practices</p> <p>Appreciation of global spread of pests and pathogens and opportunities for improved biosecurity</p> <p>Working knowledge of prohibited, controlled and uncontrolled classifications.</p> <p>Use of phytosanitary certificates and plant passports</p>	<p>Actively contribute to national and international initiatives to improve practices</p> <p>Dissemination of good practice internationally</p>	<p>p 15</p> <p>p 16</p>

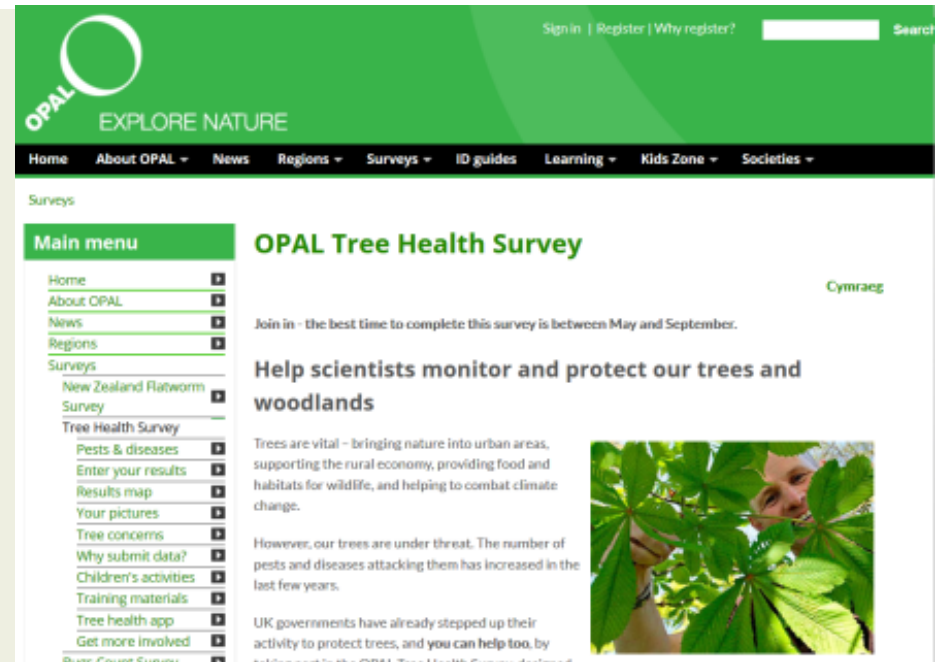
Citizen Science - getting involved

- Citizen Science has an invaluable role to play in increasing capability and capacity
- Raising awareness and understanding of risks

Make use of and support existing networks of individuals with an interest in plant health. Including supporting public participation in scientific research (citizen science) through initiatives such as Open Air Laboratories (OPAL) and ObservaTREE which seek the public's help in identifying tree pests. These will provide a cadre of trained members of the public able to spot outbreaks of plant pests thereby increasing capability and capacity. We will ensure that these individuals are aware of biosecurity and plant hygiene to avoid spreading pests through their own activities.



Get involved



<http://www.opalexplornature.org/treesurvey>



International Plant Sentinel Network

