



# Current Training Resources for Plant Health online



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# Introduction

This report describes the sources of resources, currently available online, for raising awareness of plant health and training in the subject area. This collection is not exhaustive but gives a flavour of the information that is available.

The resources provide information at a variety of levels from beginner to expert and for scientists and growers. Some of the resources are from the UK whilst others are international and those may not be wholly applicable to the UK and will need further explanation when being used.

Included in the report are resources to help with career choice and development into plant health.

The report only includes sources of information which are specifically aimed at training and education. Other information sources on current plant health issues can be found on the Tyfu Cymru Knowledge Hub.

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## Training and Education

### Modules suitable for horticulture sector stakeholders

1. **Plant Healthy** e-learning modules. Plant Healthy was established by the Plant Health Alliance in the UK to raise standards. They operate the Plant Health Management Standard. PowerPoint modules have been developed to support learning for this scheme and can be used at any time. Each module takes approximately 45 minutes to complete.

The modules cover a range of subjects fundamental to the management of plant health and biosecurity in the UK i.e. Regulations and Control, Harmful Organisms and Pest Risk Analysis, Pathways of Introduction and Spread, Good Biosecurity Practices, Training and Recognition (for the Plant Health Management Standard)

<https://planthealthy.org.uk/resources/plant-healthy-e-learning-modules>

2. Narrated, PowerPoint Modules are available on the **Tyfu Cymru** Knowledge Hub as a plant health introduction for horticulture stakeholders. Each takes approximately 45 minutes to complete and is accompanied by notes and a self-assessment quiz. The subjects are: Diagnosis in Ornamental Plants, Health of Trees and Shrubs, Plant Biosecurity. There are also recordings of webinars on Plant Protection in Ornamentals – how, when and why, Integrated Pest Management

### Resources for schools, colleges and universities

1. The **British Society for Plant Pathology** has resources in the form of written notes and posters for primary and secondary levels

<https://www.bspp.org.uk/education/>

2. **Science and Plants for Schools** (Gatsby Foundation) has plant health focused PowerPoint presentations on the context of plant health.

[Plant health contexts \(saps.org.uk\)](http://Plant%20health%20contexts%20(saps.org.uk))

3. The **American Phytopathological Society** has resources for secondary and advanced educational levels on its education platform of teaching notes and tests, webinars, and educational games.

[APS Education Center Online Teaching Portal \(apsnet.org\)](http://APS%20Education%20Center%20Online%20Teaching%20Portal%20(apsnet.org))

#### 4. Search Engine results

A wide range of modules, particularly aimed at university level education are available from many universities, internationally, to support their own courses. These can be found by entering the topic into a search engine. Searches are particularly effective in finding presentations if the terms .ppt or slideshare are included in the search term.

#### Training apps

Apps can be used on mobile devices when people have time available. These apps are good at generating interest in plant health and in training and self-assessment of knowledge.

**PestSmart Diagnostic Simulator.** Produced by Plantwise (CABI) This is used to assist learning of the diagnosis of key pests and diseases (available on GooglePlay).

**Crop Management Simulator.** Also produced by Plantwise for training in plant health. This app is designed to improve the user's ability to provide suitable Integrated Pest Management solutions for farmers and growers (available on GooglePlay).

## Careers

There need to be sufficient plant pathologists and entomologists available, in the long term, to provide staff for teaching and research, APHA and Government, diagnostic facilities and consultancies. So, it is important that there is continued recruitment into the subject area. Resources are available to encourage people to consider a career in plant health. Examples of such material are:

#### 1. **British Society for Plant Pathology**

<https://www.bspp.org.uk/education/careers/>

This resource contains information on universities in the UK delivering undergraduate and postgraduate plant health courses and modules, placement and work experience opportunities, bursaries and studentships.

#### 2. **Royal Horticultural Society**

The careers advice gives the qualifications that are needed along with a case study video of an individual who works in the discipline.

There is a resource for a plant pathologist [Careers in horticulture / RHS Gardening](#)

and for an entomologist [Careers in horticulture / RHS Gardening](#)

3. **American Phytopathological Society** provides internationally applicable advice and is suitable for those seeking international careers. This resource includes a video on work in plant health along with articles on making applications and attending interviews, articles on progressing a career, and it provides a “mentoring forum”

[Careers in Plant Pathology \(apsnet.org\)](http://apsnet.org)

## Raising Awareness and Understanding

### Test your knowledge.

A series of quiz questions is available from CABI **Plantwise** on the blog site [Test your plant health knowledge - The Plantwise Blog](#)

There are currently 30 quizzes available and a new one is being added each month. Each gives a series of questions with photographs to test knowledge of pest and disease diagnosis. When an answer is entered a correct answer can be found and the total correct answers given for the quiz are scored.

This a very valuable resource, being fun to use and so motivates learning. It also enables the user to make a self-assessment of their knowledge level. This will encourage users to improve their knowledge.

The resource is aimed at an international audience and so a wide range of symptoms, pests and diseases are encountered through the quizzes.

### Diagnostic tools

If a symptom of a pest or disease is seen, then there are a number of electronic diagnostic tools that can be used to identify the pest or disease. The availability of these can encourage people to look up the symptoms. This increases knowledge and generates an interest to investigate problems further.

Examples of this are:

**Plantwise diagnostic tool** <https://www.plantwise.org/KnowledgeBank/diagnostictool>

Within this, the user enters the country and the crop on which the symptom has been detected. Then the part of the plant on which it has been found, and if known, to which broad group the causal organism belongs. A range of possible pests or diseases is then given along with pictures and control measures.

The webpage from the **Royal Entomological Society** can give help in identifying insects by allowing the user to upload pictures of the insect and send it to an expert <https://www.royensoc.co.uk/identifying-insects>

The **Royal Horticultural Society** offers a service to their members who can send specimens to the Society for identification. Their website also gives photographs of commoner UK pests and diseases along with advice on control measures, the host range and the biology of the causal organism. <https://www.rhs.org.uk/advice/plant-problems/diseases-disorders>

**Picture Insect** is a mobile app for insect identification. A picture of the insect is uploaded and recognition software can identify more than a thousand insects. (Available from Google PlayStore)

**iSPOT** is a citizen science project that has a website for identifying a wide range of plants and animals. Users are encouraged to upload pictures with geolocations and identifications of the plant or animal. However, if the user is not sure of the identification then another member of the group will do this. <https://www.ispotnature.org/>

### Information sources

There are many websites that provide material on aspects of plant health. These can be used to source specific information or can be browsed to increase the user's knowledge. Examples of such sources are:

**International Society of Plant Pathology.** This site is particularly useful for checking the correct common names for diseases, and their synonyms. [https://www.isppweb.org/names\\_common.asp](https://www.isppweb.org/names_common.asp)

**British Society for Plant Pathology.** Of particular interest here are the New Disease Reports describing new incidences <https://www.ndrs.org.uk/search.php>

**FAO** (Food and Agricultural Organisation of the UN) Plant Production and Protection Division has international resources available. These include details of the international agreements and conventions. <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/en/>

The **UK Plant Health Information Portal** gives a range of guidance and information that is essential for Welsh growers, including links to Defra, APHA, the UK Plant Health Risk Register and gov.uk. This includes disease alerts, how to report a pest or disease, how the government carries out contingency planning for disease outbreaks, legislation, Pest Risk Analyses (PRA) and pest and disease factsheets. <https://planthealthportal.defra.gov.uk/>



The Agriculture and Horticulture Development Board (**AHDB**) has a knowledge library and tools (including disease prediction calculators) [Horticulture | AHDB](#)

**Bartlett Tree Experts** is an arboricultural company that carries out research and provides an online resource library with guidance notes on tree pests and diseases. <https://www.bartletttree.co.uk/expert-advice-and-resources.cfm>

The National Farmers Union (**NFU**) has advice and guidance for horticulturists, particularly on crop protection and Integrated Pest Management <https://www.nfuonline.com/cross-sector/science-and-technology/crop-protection/>

**ObservaTree** is a Citizen science project which encourages engagement in reporting and monitoring tree diseases across the UK. It gives guidance to identification of the pests and diseases that it is monitoring in its project. <https://www.observatree.org.uk/tree-health/pests-and-diseases/>

**Forest Research** is a partner in the ObservaTree project and also provides its own detailed resources on tree pests and pathogens which give the history and biology of each of the organisms listed. [Pest and disease resources - Forest Research](#)

Information on the main species of concern is also given on the website of the British Association of Landscape Architects (**BALI**) <https://www.bali.org.uk/help-and-advice/pests-and-diseases/>

## Professional Societies and Trade Associations

Professional societies provide accreditation and Continuing Professional Development for their individual members, ensuring high standards. They also provide news and research bulletins and training to ensure that their members are fully up to date. They represent the profession on behalf of their members. Trade associations carry out a similar role for organisations, providing guidance, particularly interpreting legislation, and representing their member businesses to government. So, membership opens learning opportunities as well as advice lines.

A selection of professional societies and trade associations of relevance to horticulturists is:

### Professional Societies

The **Arboricultural Association** represents tree professionals and provides a mix of courses and online training including in tree health [Arboricultural Association - Home \(trees.org.uk\)](#)

**British Mycological Society** – for those interested in the science of fungi <https://www.britmycolsoc.org.uk/>

**British Society of Plant Pathology** [BSPP](#)

**Chartered Institute of Horticulture** [Growing professional relationships in horticulture - Chartered Institute of Horticulture \(CIH\)](#)

**Royal Entomological Society** <https://www.royensoc.co.uk/the-society>

**Royal Society of Biology** [Royal Society of Biology \(rsb.org.uk\)](#) – which also hosts the Plant Health Professional Register [Plant health register \(rsb.org.uk\)](#)

Trade Associations

**British Association of Landscape Industries** [Home - BALI](#)

**British Society of Plant Breeders** representing plant breeders and agents [BSPB](#)

**Horticultural Trades Association** [HTA | Home - Horticultural Trades Association](#)

National Farmers Union (NFU) [Horticulture and Potatoes \(nfuonline.com\)](#) which includes the British protected Ornamentals Association link [British Protected Ornamentals Association \(nfuonline.com\)](#)

Other membership societies

**Plant Network** is of interest to horticulturists and provides resources, meetings and webinars (e.g. sourcing healthy trees, Xylella awareness) [Home | PlantNetwork](#)

**Royal Horticultural Society**, whose aim is to inspire gardeners and gardening and promote the science of horticulture [RHS - Inspiring everyone to grow / RHS Gardening](#)

## Training Organisations

**Lantra** provides guidance on where to find training in plant pathology for careers, including information on college and university course that are available in the UK [Plant Pathologist | Lantra - Scotland](#)

**ACS Distance Education** provides an online Plant Health in Horticulture course [Plant Health e-learning course | Study Pest and Disease online \(acsgarden.com\)](#)

**RHS** has developed a series of qualification levels for those starting out in gardening and horticulture up to those embarking on a career in the sector. Each of these levels includes teaching on plant health [Study for an RHS Horticultural Qualification / RHS Gardening](#)