

## Getting to grips with the basics of plant health...



We can hazard a guess that ensuring the quality of the plants you produce ranks fairly highly on your list of priorities? But with quality comes managing plant health, and this is very much affected by whether they are infected with diseases or troubled with pests. You may already know that the United Nations has declared 2020 as the International Year of Plant Health (IYPH)? So, to welcome in the new year, we explore the fundamentals of plant health and provide you with information, tips and resources to ensure your plants stay healthy.

## Protecting plants, protecting life...

Let's start by understand why the United Nations are placing such an importance on Plant Health during 2020. Plants make up 80% of the food we eat and produce 98% of the oxygen we breathe. Food and Agriculture Organization (FAO) estimates that agricultural production needs to rise by around 60% by 2050 in order to feed a larger population. However, the worlds plants are under constant attack, with estimates stating that up to 40% of food crops are destroyed each year as a result of pests and diseases, which leave people without food and has a negative impact on the agriculture industry through loss of yields and income.

But what is contributing to the threat to plant health? Low biosecurity, poor plant hygiene and inadequate control of invasive species allows the large scale spreading of pests and diseases. At the same time, international trade and travel has tripled in volume over the last decade, which can quickly spread pests and diseases around the world. This leads to the loss of ecosystems, significant economic losses and the inability to grow certain crops.



Epidemics (also called epiphytotics in plants) are when the increase in disease level is sudden and is significantly destructible to a large number of plants. Epidemics occur because of genetic uniformity in crop monocultures or when large numbers of native or cultivated plants are susceptible (usually to an imported pathogen or a new strain of the pathogen).

Plant pests and diseases are often impossible to eradicate once they have established themselves and managing them is time consuming and expensive. Which is why the International Year of Plant Health (IYPH) 2020 emphasizes prevention and protection as key focus. Protecting plants from pests and diseases is far more cost-effective than dealing with full-blown emergencies, so prevention is critical to avoid the devastating impact of pests and diseases on agriculture, livelihoods and food security.

Another key focus of IYPH 2020 is around environmental protection. FAO encourages environmentally friendly ways of dealing with pests, such as through integrated pest management. Minimizing the use of poisonous substances when dealing with pests not only protects the environment, it also protects pollinators, natural pest enemies, beneficial organisms and the people and animals who depend on plants.

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*International Year of Plant Health (IYPH) is a once in a lifetime opportunity to raise global awareness on how protecting plant health can help end hunger, reduce poverty, protect the environment, and boost economic development - Food and Agriculture Organization*

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The IYPH 2020 have further information on their website, as well as details on events and conferences throughout 2020: <http://www.fao.org/plant-health-2020>

## How does this affect me?

To sell high quality plants, you need to produce healthy plants. Plant pests and diseases lead to production and sales losses.

As a grower you need to be able to identify the pests and pathogens that might affect your crop. Then you need to understand how to treat the pests and pathogens to ensure that you get a good crop at the end of your cycle and reduce the risk of lost crops which could potentially have been avoided with earlier identification of pests and diseases.

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*“Plant health is usually considered the discipline that uses a range of measures to control and prevent pests, weeds and disease causing organisms to spread into new areas, especially through human interaction such as international trade.” -*

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### **Let’s look at some definitions:**

- Pest – an animal that causes damage to plants e.g insect, rodent, nematode
- Pathogen – an organism that causes damage in plants e.g fungi, bacteria, viruses
- Disease – the collection of symptoms that are caused by a pathogen
- Disorder – a plant problem caused by a physiological problem e.g frost

Did you know that Defra has established a plant health risk register? Today, this register has over 1,000 different pests and pathogens listed which are a potential threat to crops or the natural environment in the UK. Do you know which pests and pathogens pose the biggest risk to your crops? Could you identify them?

The UK Plant Health Information Portal provides information about plant pests and diseases, including risk assessments, links to other sites of interest and information on plant health controls and services provided by government.

### **Where do pests and diseases come from?**

Rising temperatures mean that more plant pests are appearing earlier and in places where they were never seen before. Climate change also threatens to reduce not only the quantity of crops, lowering yields, but also the nutritious value of crops. Let’s not forget about the beneficial insects, which are vital for plant health - for pollination, pest control, soil health, nutrient recycling – and yet, insect abundance has fallen 80% in the last 25-30 years\*.

### **Here are some examples of what can cause pests and diseases to spread:**

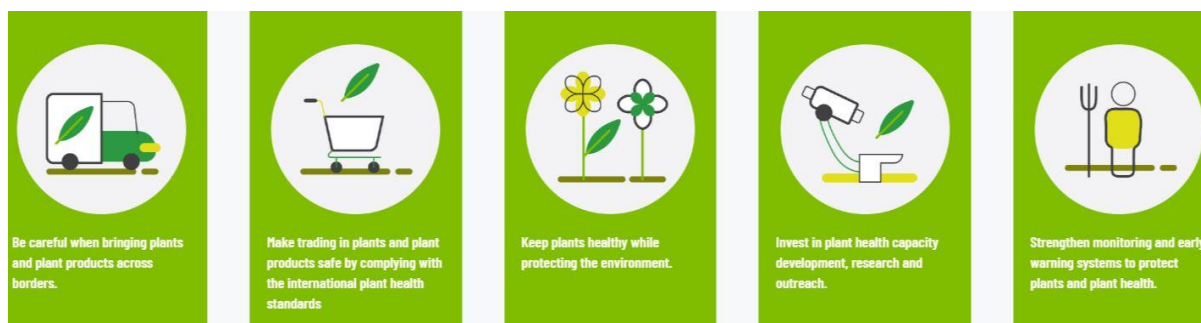
- Wind e.g. ash die-back
- Rain and splash dispersal e.g. potato blight
- Soil and irrigation water e.g. Pythium damping-off disease
- Infected stock
- Animal vectors e.g. aphid transmission of viruses
- International imports e.g. wooden pallets, fruit





## ***What can be done to reduce the impact on Plant Health?***

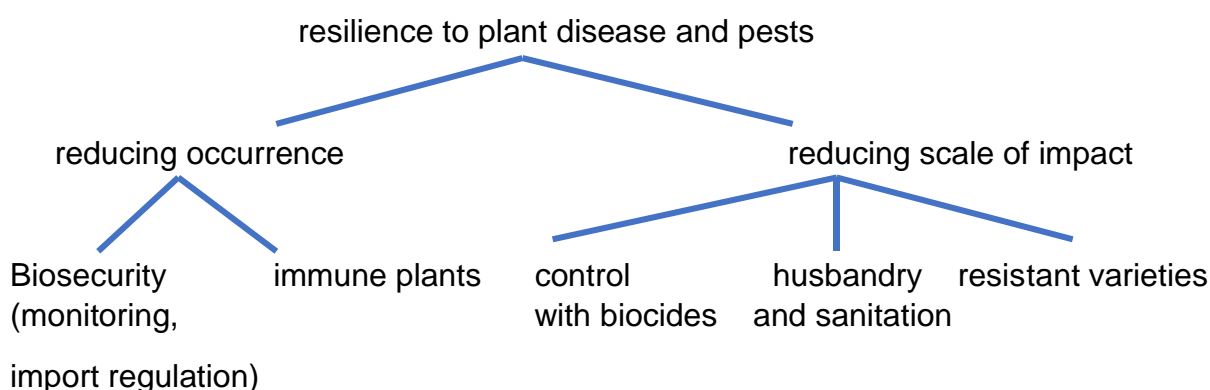
According to the IYPH 2020, we all have a role to play in reducing the impact of pest and diseases. The campaign is urging the general public to be aware of the risks involved in bringing plants and plant products – which may have pests and diseases, across borders. They also advise consumers to be careful when plant products online and through postal services that can bypass phytosanitary controls. The image below demonstrates the key messages highlighted in the campaign:



Growers can take steps to protect their crops from pests and diseases by understanding the risks to their crops and regularly monitoring plant health. They can prevent the spread of pests by using only certified pest-free seeds and seedlings and by regularly reporting the occurrence of pests on their holdings. Environmentally friendly pest-management practices can be implemented, including those based on biological approaches that do not kill pollinators, or beneficial insects and organisms.

Trade can increase the risk of plant pests and diseases spreading, to make trade safe it is important to implement international plant health standards and norms. This reduces the negative impact of pests and pesticides on human health, economies and the environment. It also makes it easier to prevent and control the spread of pests and diseases without setting up unnecessary barriers to trade.

## What reduces the likelihood of epidemics?



## Where does legislation come in to play?

If you are importing or exporting your produce then you will also need to get to grips with plant health legislation, which controls the import and movement of certain plants, seeds and organic matter such as soils, fruit, potatoes, vegetables, cut flowers, foliage and grains.

To add a little more complexity, controls differ according to the species but could include the need for classification, a phytosanitary certificate, a plant passport and/or inspection requirement. It is important that as a grower you understand the legislations that apply to you and are aware of things like plant passporting and how you issue plant passports and phytosanitary certificates.

Plant Health is a devolved matter to Wales under Plant Health Act 1967 (as amended). Welsh Government works with Animal and Plant Health Agency (APHA) Plant Health and Seeds Inspectorate (PHSI) and Natural Resources Wales (NRW).

Plant Passports ensure that plants and plant products can be traced throughout the supply chain, which is essential for maintaining biosecurity. A Plant Passport is an official label for the movement of regulated plants and plant products within the EU. It assures compliance with all plant health requirements for the relevant plant or plant product, for example that it is free from particular pests and diseases.

But what is the difference between a Plant Passport and a Phytosanitary Certificate? A phytosanitary certificate is a global certificate used for biosecurity purposes and is necessary for regulated plants and plant products imported into the UK from 3rd countries (non-EU



countries) or exported from the UK to 3rd countries. Phytosanitary Certificates are issued by the competent authority. In England and Wales this is APHA (Animal & Plant Health Agency).

A Plant Passport is for internal movements within the EU alone and is an EU specific label. They are issued by authorised operators (authorisation is granted by the competent authority). The list of plants and plant products which require a Phytosanitary Certificate is not the same as the list for those that require a Plant Passport.

For added complexity, there is also the matter of Brexit Implications. If you are an exporter or an importer, your regulations for importing plants could well change all depending on the outcome of Brexit negotiations. Both tariffs and plant health legislation are likely to be affected. Please ensure that you keep up to date by visiting:

## Resources

### Plant Health Portal

For more information on this topic please visit, and make use of the resources available on the Plant Health Portal: <https://planthealthportal.defra.gov.uk/>

The Plant Health Portal provides information about plant pests and diseases, including risk assessments, links to other sites of interest and information on plant health controls and services provided by government.

### UK Plant Health Risk Register

The UK Plant Health Risk Register was established and is maintained by Defra. It is a tool for government, industry and stakeholders to prioritise action against pests and diseases which threaten our crops, trees, gardens and countryside. To access the risk register please visit: <https://secure.fera.defra.gov.uk/phiw/riskRegister/>

### Websites

Make sure you are looking at UK advice, different countries have different diseases, different host ranges, and different permitted treatments.

Tree diseases <https://www.gov.uk/guidance/find-a-specific-tree-pest-or-disease>

Ornamentals <https://www.rhs.org.uk/advice/plant-problems/diseases-disorders>



### **Subscriptions based sources:**

AHDB

HTA

Horticulture Week (fact sheets and disease alerts)

### **Books:**

RHS Pests and Diseases, Pippa Greenwood and Andrew Halstead

Collins. Pests, diseases and disorders of garden plants 4th edition Stefan Buczacki and Keith Harris

### **Consultancy services:**

ADAS <https://www.adas.uk/Service/disease-management-plants>

<https://www.adas.uk/Service/pest-management-and-entomology>

FERA Plant Clinic <https://www.fera.co.uk/crop-health/plant-clinic>

Forest Research Tree Health Diagnostic and Advisory Service

## **What have we learnt?**

- Estimates state that up to 40% of food crops are destroyed each year as a result of pest and diseases. Low biosecurity, poor plant hygiene and inadequate control of invasive species allows the large scale spreading of pests and diseases.
- The United Nations have declared 2020 International Year of Plant Health, and states this is a once in a lifetime opportunity to raise awareness. Make sure to make use of the resources, events and toolkits made available.
- Minimizing the use of poisonous substances when dealing with pests not only protects the environment, it also protects pollinators, natural pest enemies, beneficial organisms and the people who depend on plants
- Defra has established a plant health risk register. Today this register has over 1,000 different pests and pathogens listed which are a potential threat to crops and the natural environment in the UK.



- Make use of the resources available on the Plant Health Portal and the UK Plant Health Risk Register.
- Think about how pests and diseases could impact your business. Ensure that you take advice on monitoring, diagnosing and treating pests and diseases, and keep up dated on legislation updates.
- A plant passport is for internal movement within the EU alone, they are issued by authorised operators (authorisation is given by the competent authority).
- A phytosanitary certificate is a global certificate used for biosecurity purposes and is necessary for regulated plants and plant products imported into the UK from 3<sup>rd</sup> countries or exported from the UK to 3<sup>rd</sup> countries.
- Keep up to date with Brexit updates as legislation, processes and tariffs could all impact on how you sell your produce outside of the UK.

**We hope that you found this fact sheet helpful, if so keep an eye out for the next editions of our Plant Health Workshops, coming early in the new year.**

**If you would like more information, please contact [tyfucymru@lantra.co.uk](mailto:tyfucymru@lantra.co.uk) or call 01982 552646**