Plant Healthy

Introduction to Plant Health and Good Biosecurity Practice

Module 4

Good biosecurity and the Plant Health Management Standard

www.planthealthy.org.uk

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Content

4.1 What is good plant biosecurity and how can you apply it to your day job?

4.2 What are the underlying principles of the new Plant Health Management Standard?

4.3 What are the main elements of the new Plant Health Management Standard?

Learning objectives

- Be able to able identify the main pathways for introduction and spread of harmful organisms
- Be able to suggest measures to reduce the likelihood of introduction or spread
- Be able to explain how the plant biosecurity continuum applies to your work
- Be able to explain how the PHMS relates to your work

4.1 Content and Learning objectives

What is good plant biosecurity and how can you apply it to your day job?

- Be able to explain how the plant biosecurity continuum applies to your work
- Be able to able identify the main pathways for introduction and spread of harmful organisms
- Be able to suggest measures to reduce the likelihood of introduction or spread

2.1 What is Biosecurity?

‘A series of precautions that aim to prevent the **introduction** and **spread** of **harmful organisms**’

Derived from: Gregory Koblentz, 2010

Good Plant Biosecurity Practice

The Plant Health Management Standard identifies areas to develop good practice, suggestions for issues to think about include:

- HOSTS – what genera are within your business (and surrounding area)?
  - Think about the plants you trade
  - Think about plants in the surrounding natural environment
  - Think about other plant based businesses nearby

- HARMFUL ORGANISMS – which potentially threaten your business?
  - Consider specific named pests (e.g. Asian longhorn beetle) or groups of pests (e.g. nematodes)
  - Review UK risk register, EPPO Pest alerts etc
  - Consult with local Plant Health Inspectors
  - Think about past P&D issues

- PATHWAYS
  - Evaluate potential pathways, focus on plants but don’t forget other routes of entry e.g WPM, VME, visitors etc.
  - Think about other businesses nearby with respect to WPM and VME

Good Plant Biosecurity Practice

- MITIGATION – design strategies to minimise risk throughout the supply chain based on the Plant Biosecurity Continuum:
  - Pre-border – before you order
  - Border – on receipt
  - In-land – on premise

  and apply an appropriate level of protection (ALOP) for your business

- COMMUNICATE RISKS & MITIGATION to all staff to get a shared understanding
- UPSKILL – raise awareness and knowledge about good plant biosecurity with everyone in the business
- REPORTING – encourage rapid reporting and action to deal with issues and notify statutory concerns
- REVIEW and REFRESH – keep upto date and learn lessons from experiences

Good plant biosecurity practices

TURNING OVER A CLEAN LEAF

How to protect your nursery or garden centre from pest and disease invaders

1 Plants coming in: is the main method by which many pests and diseases move between premises!
What can you do?
- Source plants from suppliers with a good record of supplying disease-free stock
- Check whether your supplier belongs to an official accreditation scheme
- Nurseries - if possible, propagate from your own stock plants

2 Plants on arrival need careful inspection.
Remember to:
- Check for compliance with purchase order and any plant passport or phytosanitary certificate required
- Keep accurate records of all bought-in material
- Only accept delivery if you are sure that the plants are healthy
- If there are any problems, inform your supplier immediately

3 Quarantine areas should be isolated from production and retail areas.
What more can you do?
- Restrict access to the area
- Be scrupulous about hygiene
- Use dedicated tools
- Hold new arrivals for an appropriate period and monitor frequently

4 Clear Information helps keep customers and visitors informed and aware. **How can this be done?**
- Display a notice to site visitors about the risks of introducing pests or diseases
- Clearly identify quarantine areas to prevent visitors entering
- Increase consumer confidence by informing them of the methods used to minimise pest and disease risk
- Consider providing information on pests and diseases, e.g. at help desks.

5 Day-to-day hygiene: it's all too easy to spread pests and diseases through poor hygiene!
It's important to:
- Regularly clean and disinfect tools, machinery, clothes and boots
- Protect hands from contamination
- Use new pots and trays wherever possible
- Cover items (e.g. pots, compost storage areas) that could be contaminated by plant or soil debris
- Have regular 'clean-ups' of standing areas
- Bag up pest or disease-affected plants before removal
- Cover skips & other disposal areas and locate them downwind from production/retail areas
- Practice scrupulous hygiene in propagation areas

Concept by David Stawson. Designed by Touchwood Design

6 Good plant husbandry also matters.
What can you do?
- Avoid plant stress caused by nutrient deficiency or under/over watering
- Handle plants with care at all times
- Avoid prolonged leaf wetness or very high humidity:
  - Use sub-irrigation if possible
  - Don't overhead irrigate late in the day
  - Ventilate greenhouses & polytunnels
  - Space plants well
- Protect aerial parts from soil or compost splash

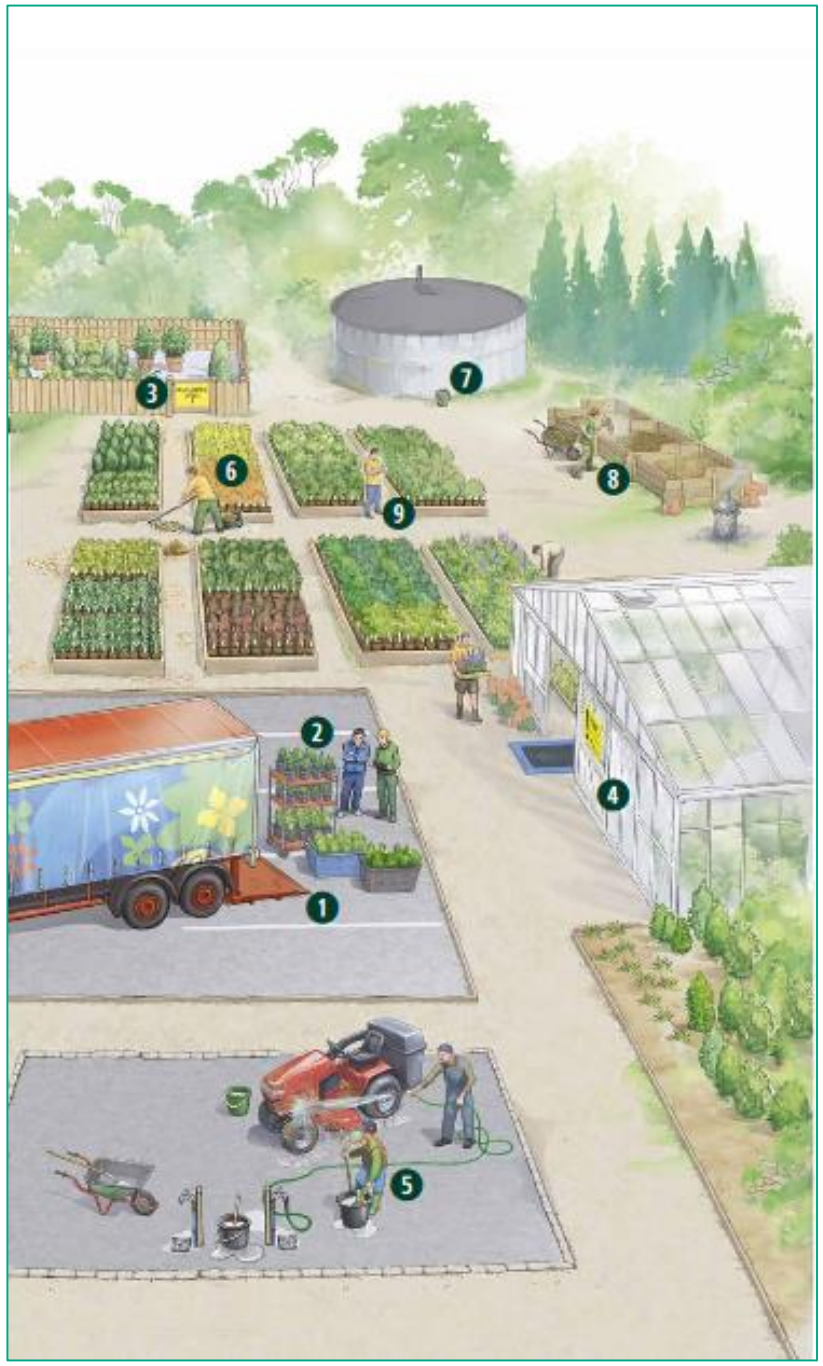
7 Good water management should help to prevent the spread of plant pathogens, such as *Phytophthora* species.
How can this be done?
- Recycled water should be treated before use
- Regularly test recycled water for pathogens
- Cover water storage tanks
- Regularly clean and disinfect storage tanks & irrigation lines
- Keep paths & standing areas in good order to prevent puddles forming
- Improve drainage of soil-grown crops where waterlogging is a problem

8 Organic waste can harbour pests and pathogens.
What should be done with it?
- All dead plants, prunings, etc., must be collected and disposed of safely
- Options for disposal include:
  - Composting according to FERA's Code of Practice for Horticultural Waste
  - Anaerobic digestion
  - Landfill
  - Burning
- Ensure that you are fully aware of the regulations surrounding waste disposal and treatment

9 Regular monitoring helps you spot problems early and take prompt remedial action. **What can you do?**
- Use trained staff to monitor stock at regular intervals for pests and diseases
- Get any unknown problems identified
- Include the site boundaries (e.g. hedgerows) in the monitoring schedule
- Notify suspect findings of quarantine pests or diseases to the relevant plant health authority.

Turning over a clean leaf poster series
Nursery or garden centre

A useful poster summarising good biosecurity practices on a nursery or garden centre



Good plant biosecurity practices

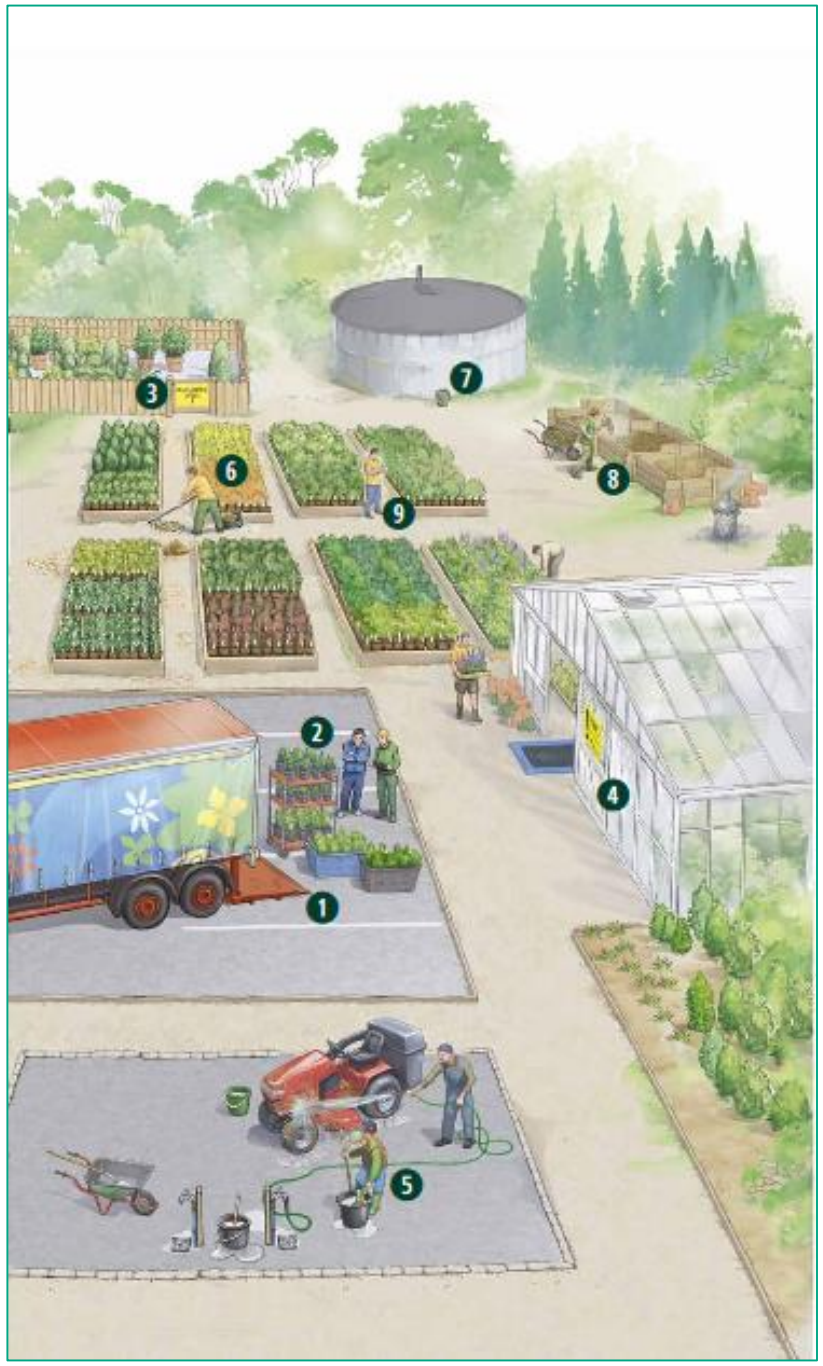
1. Plants coming in
2. Plants on arrival
3. Quarantine areas
4. Clear information
5. Day-to-day hygiene
6. Good plant husbandry
7. Good water management
8. Organic waste
9. Regular monitoring

For each area:

Identify the risks

Suggest good plant biosecurity practices

Good plant biosecurity practices



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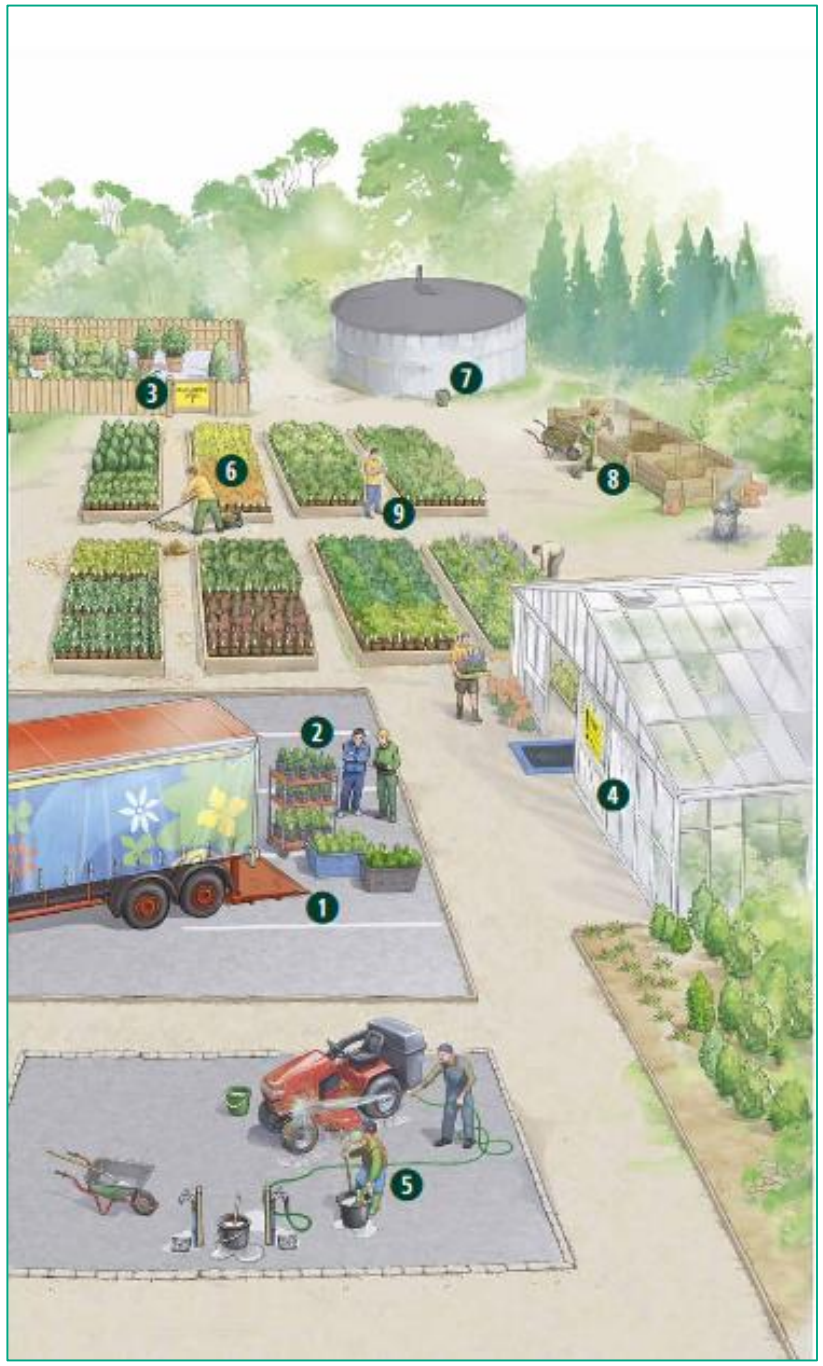

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Good biosecurity advice

Arboriculture Association
Guidance Note 2 - Application of Biosecurity in Arboriculture

- https://www.trees.org.uk/Book-Shop/Products/Application-of-Biosecurity-in-Arboriculture-en

Landscape Institute

- Biosecurity toolkit for landscape consultants
- https://www.landscapeinstitute.org/technical-resource/biosecurity-toolkit/

Royal Horticultural Society

Plant Health Guidelines

- https://www.rhs.org.uk/about-the-rhs/policies/plant-health-policy

Government advice (FC and APHA) for trees

Prevent the introduction and spread of tree pests and diseases

- https://www.gov.uk/guidance/prevent-the-introduction-and-spread-of-tree-pests-and-diseases#public

Good biosecurity advice

What can you do in your day to day job?

Draw upon the knowledge you have gained in previous Modules to think about these questions

- Can you identify the pathways for introduction and spread?
- Can you suggest how these pathways could be managed better to reduce the likelihood of introduction and spread?
- Are you familiar with the common symptoms and damage caused by pests and diseases?
- If you suspect a pest or pathogen problem do you know who to go to in your business for advice?
- Do you know who is responsible for notifying concerns to the relevant plant health authority in your business?

4.1 Summary

- Biosecurity - A series of precautions that aim to prevent the **introduction** and **spread** of **harmful organisms**
- Think about pathways of introduction and spread in your business
- What could you do differently to reduce the risks?
- Can you recognise symptoms of pests and diseases?
- Do you know who you should notify in your business if you suspect the presence of a pest or disease?

4.2 Content and Learning objectives

- What are the main principles of the new Plant Health Management Standard?
- Be able to explain how the PHMS relates to your work
- Be able to explain how the plant biosecurity continuum applies to your work

Plant Health Management Standard - principles

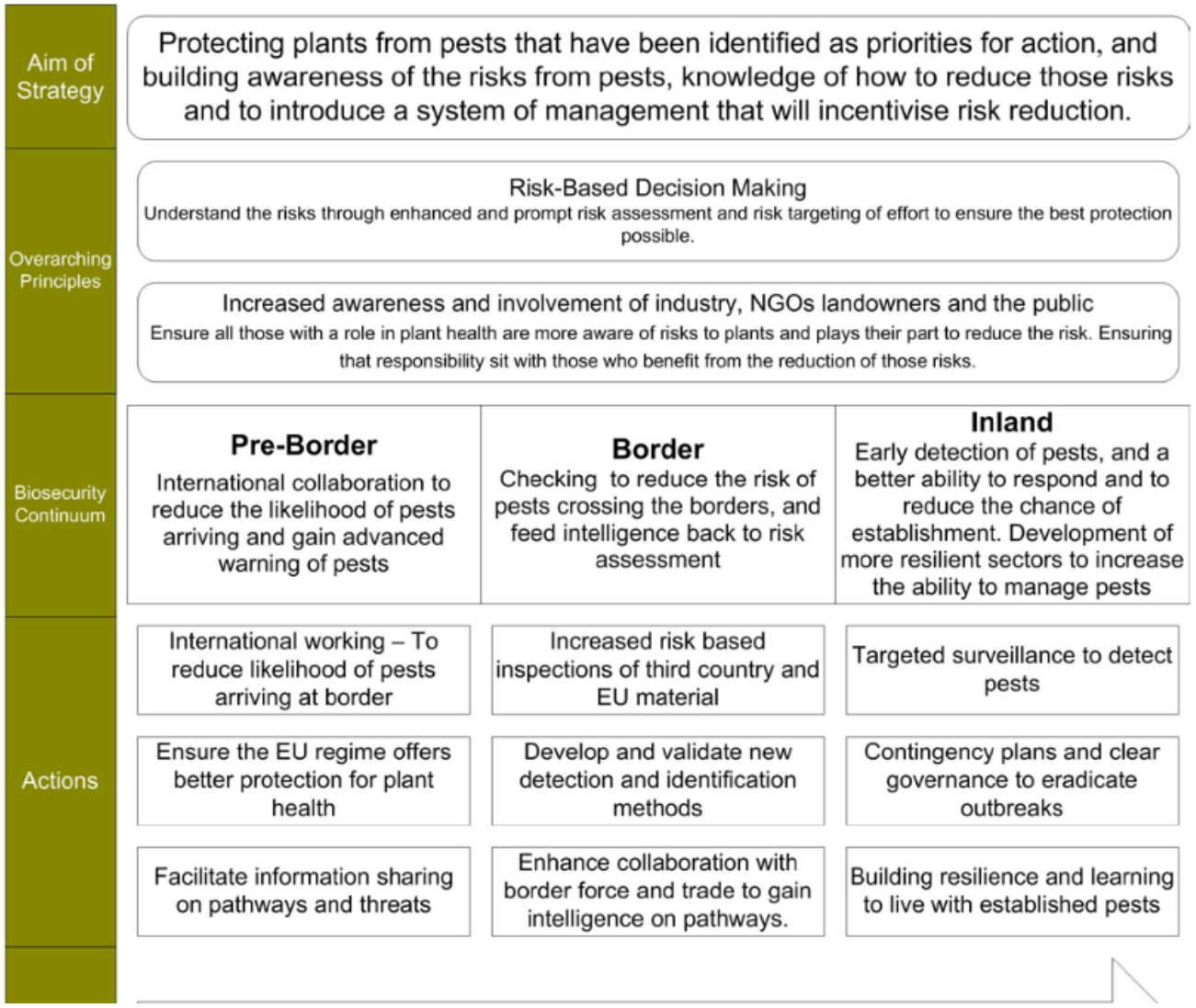
Aim: to develop ways to reduce pest risk to a business, supply chain and the wider environment

Applicable to everyone in the business from purchasing, growing sales and delivery

- Principles
    - Risk management process, PRA and ALOP principles
    - Plant Biosecurity Continuum
    - Generalised plant supply chain

Biosecurity Continuum

Figure 1: Overview



Critical control points in the system:

- Pre-border
- Border
- Inland

Can be applied at an International/Regional Level

But equally at a local or site level

- Pre-border – pre-purchase
- Border – at ‘goods-in’
- Inland – on-site nursey activities

Generalised Plant supply chain

Pre-border and national sourcing requirement:

'As part of the pest risk analysis, the business shall risk assess their suppliers and approve those that they deem to have met their plant health requirements. The ordering or purchasing process must detail any specific compliance requirements and suppliers must be aware of any control measures that are applicable.'

Advice for reviewing Critical control points in the supply chain:

- Visual inspection and/or sampling testing
- Frequency of monitoring
- Significant external factors-season, whether et cetera
- Suppliers and sources of materials
- Volumes of materials
- Review regularly

4.2 Summary

The PHMS

Aim: to develop ways to reduce pest risk to a business, supply chain and the wider environment

Based on three Principles:

- Risk management process, PRA and ALOP principles
- Plant Biosecurity Continuum
- Generalised plant supply chain

4.3 Content and Learning Objectives

What are the main elements of the new Plant Health Management Standard?

Be able to explain how the PHMS relates to your work

Series of slides summarising the key elements based on PHMS Sections 4.1 to 4.9

4.1 Plant health legislation (see Module 1)
4.2 Plant health policy (for your business)
4.3 Plant Health Responsibility (see Module 5)
4.4 Pest risk analysis (see Module 2)
4.5 Supply chain management
4.6 Plant health hygiene and housekeeping
4.7 Plant health controls
4.8 Monitoring and ongoing plant health assessment
4.9 Training and recognition (see Module 5)

4.1 Comply with legislative requirements

‘The business must comply with statutory requirements with regard to the movement and trade in plants and plant material’

4.1.1.Plant Passports

4.1.2 Phytosanitary certificates

4.1.3 Forest Reproductive Material

4.1.4 Notifiable pest interceptions and outbreaks

4.1.5 Statutory notification schemes for certain trees and plants from the EU

4.9.2 Legislation and keeping up to date

‘The relevant person (s) responsible for plant health should demonstrate how they keep up-to-date with legislation and the latest plant health risks’

Keep up to date

Share information

4.1.4 Notify plant health authority

'A procedure must be in place to identify and deal with issues assessed as notifiable pest interceptions or outbreaks'

The procedure should include:

- Inform plant health inspectorate
- Isolate and contain affected plants so they are clearly labelled and delineated
- Clearly mark affected product to ensure that is not inadvertently moved or sold
- No treatment or disposal until plant health inspectors authorisation
- Act on plant health inspectors instructions and requirements of any statutory plant health notice

- Develop a clear escalation process through the business to the plant health authority

4.3 Plant Health Responsibility

- Plant health responsibility within the business shall be clearly defined
- The roles and responsibilities shall include delivering the requirements of this standard throughout the business
- Discussed in Module 5

4.4 PHMS – PRA and ALOP principles

Plant health management standard requires each company to:

- Carry out a **Pest Risk Analysis (PRA)** in order to identify and manage risks

In order to:

- Reach an **Appropriate Level of Protection (ALOP)**

‘ALOP - the level of protection deemed appropriate by the company establishing a sanitary or phytosanitary measure to protect, human, animal or plant life or health within its territory’.

4.4 PHMS – PRA and ALOP principles

- Define the site and the businesses position in the plant supply chain

- Recognise factors that influence plant health (e.g. plants, people, environment)
- Identify and document **critical control points*** to maintain biosecurity
- Select appropriate measures that will give confidence in the biosecurity and health of plants produced
- Establish and document routines for separate handling of non-conforming materials

* '**Critical control points** - points within or between production or movement processes where plant health can be readily assessed (visual inspection or sampling and testing)'

4.5 Supply chain management

As part of PRA the business should:

- Self risk-assess suppliers
- Approve those that meet your plant health requirements
- Ordering and purchasing should specify your requirements
- Suppliers should be made aware of any control (husbandry and hygiene [see section 4.6]) measures required

4.6 Plant health hygiene and housekeeping

- **Good husbandry – healthy, vigorous plants**

- **Good resource management – as these may harbour and/or transmit harmful organisms**

4.6.1 Growing media and soil
4.6.2 Weed management
4.6.3 Water usage
4.6.4 Cleaning and sterilisation – pots, trays, vehicles, machinery and equipment
4.6.5 Waste management – treatment and disposal
4.6.6 Wider environment
4.6.7 Visitors

- **Good hygiene – cleaning and sterilisation**

4.7 Plant Health Controls

4.7.1 Goods in

- Checking procedure and responsibility
- Sampling systems
- Isolation and reporting of concerns

4.7.2 Traceability (chain of custody)

- Trace back and trace forward

4.7.3 Treatment and mitigation

- Integrated pest management (IPM) programs – routine or responsive (to a P or D problem)

4.7.4 Dispatch

- Checking procedure
- Sampling rationale and methodology

4.7.5 Complaints, issues and returns

- Management procedure for recording and troubleshooting
- Escalation to plant health authority

4.8 Monitoring and ongoing plant health assessment

Risk-based dependent on:

- Plant species
- Origin
- Type of business supplying material
- Type of customer receiving material
- Ongoing plant health risks on site

Precautionary principle - unless a pest can be immediately and definitely identified as a non-quarantine organism it should be treated as if it is a quarantine pest

Should be based on:

- Good record-keeping – outbreaks, interceptions, complaints
- Review effectiveness of any treatments and corrective actions
- Regular review and update based on any new guidance (e.g. UK risk register) or from plant health authorities

4.3 PHMS Summary

Aim: to develop ways to reduce pest risk to a business, supply chain and the wider environment

Based on 9 elements:

- 4.1 Plant health legislation (see Module 1)
- 4.2 Plant health policy (for your business)
- 4.3 Plant Health Responsibility (see Module 5)
- 4.4 Pest risk analysis (see Module 2)
- 4.5 Supply chain management
- 4.6 Plant health hygiene and housekeeping
- 4.7 Plant health controls
- 4.8 Monitoring and ongoing plant health assessment
- 4.9 Training and recognition (see Module 5)

Additional Resources

- Defra Plant Health Information Portal
- AHDB
- HTA
- RHS
- Forestry Commission and Forest Research
- Observatree

- Animal and Plant Health Agency – PHSI in England & Wales

- FC Tree Health Officers

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