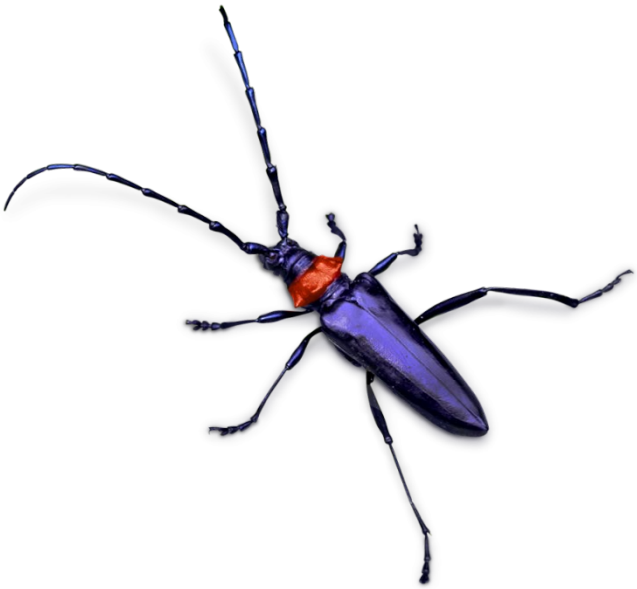
Plant Healthy

Certification Scheme



Plant Health Management Standard

Version 1.2

1st July 2022

How the Plant Health Management Standard works

The Standard is broken down into sections. At the top of each section you will find the 'purpose' of that section. The requirements are then detailed into two columns, followed by an outline on how the requirement will be assessed. You will find more guidance after some requirements regarding their specific purpose and where to find more help in meeting them.

Some requirements are outlined as 'Critical'. This means that a non-conformance can be raised as either 'major' or 'minor'. If a requirement is not marked as 'Critical' any non-conformance will be considered 'minor'. A non-conformance will be considered major against a critical requirement if no or little effort has been made to meet the requirement e.g. if there is no Site and Operations Pest Risk Analysis completed for the site. A minor non-conformance against the same requirement would be where efforts had been made to meet the requirement but there are still minor elements outstanding, e.g. key pest pathways are missing from the analysis.

Plant Health Management Standard – the Requirements

*Note: In the following requirements and guidance and in line with the International Plant Protection Convention's (IPPC) definitions, the term **pest** includes **pathogens** (i.e. **plant diseases**) and the term **infest** includes **infect**.*

1. Regulatory Requirements

REQUIREMENTS		HOW THIS IS ASSESSED
PURPOSE: To ensure the business/organisation complies with all relevant (or applicable) plant health regulations		
1.1 Plant Passports Plant Passport legislative requirements must be followed **CRITICAL**	• GB Plant Passports are required when plant material is traded between GB businesses	▪ Plant Passports kept for three years
	• GB Plant Passports are required when plant material is sold via distance contract to final users	
	• Plant Passports are required when receiving traded plant material from Northern Ireland	
	• EU Plant Passports are required when plant material is traded between businesses in the EU	
GUIDANCE Factsheet: The post-transition period and plant passports - UK Plant Health Information Portal (defra.gov.uk) https://planthealthportal.defra.gov.uk/plant-passports/		

1.2 Phytosanitary Certificates Legislation with respect to Phytosanitary Certificates must be followed **CRITICAL**	• Phytosanitary certificates are required if plant material is imported from or exported to third countries	▪ Phytosanitary Certificates kept for three years
	• Phytosanitary certificates are required when sending traded plant material to Northern Ireland from GB	
GUIDANCE For the purposes of UK businesses, EU member states are considered third countries https://www.gov.uk/guidance/apply-for-plant-export-certificates-and-inspections		

1.3 Forest Reproductive Material (FRM) FRM legislation must be complied with for the marketing of seed and planting material for forestry purposes **CRITICAL**	• Supplier is registered with the Forestry Commission	▪ Inclusion on the online supplier list (FRM Supplier Search (arcgis.com)) ▪ Master certificates ▪ Suppliers' documentation ▪ OECD certificates
	• Master certificates are available for all FRM collections	
	• Suppliers' documentation accompanies all material marketed for forestry purposes	
	• OECD certificates are required if plant material is imported from or exported to OECD countries	
GUIDANCE The Forest Reproductive Material (Great Britain) Regulations 2002 apply in Great Britain. Outside of GB, where similar legislation or regulation exists this should be followed. For the species covered by FRM legislation, the rules relating to OECD Forest Seed and Plant Scheme are complied with for the marketing of seed and planting material for forestry purposes.		

1.4 Notifiable Pest Interceptions or Outbreaks There must be a procedure in place to identify and manage any suspected notifiable pest interceptions or outbreaks **CRITICAL**	• The procedure includes (as a minimum)	▪ Notifiable Pest Interceptions or Outbreaks Procedure
	○ Informing the relevant authority immediately if a notifiable pest is suspected	
	○ Isolating and containing the affected plants	
	○ Clearly marking the affected product to ensure that it is not inadvertently moved or sold	
	○ Acting on the instructions of the relevant authority; no treatment or disposal actions to take place without the authorisation of the relevant authority	
GUIDANCE Contact the appropriate authority in your region as determined by the National Plant Protection Organisation		

1.5 Other Statutory Requirements All Statutory Plant Health Notices and Special Conditions must be complied with **CRITICAL**	• When importing trees and plants from third countries, The Plant Health (Phytosanitary Conditions) (Amendment) (EU Exit) Regulations 2020 are reviewed to assess if special conditions are required to be met	▪ Evidence that imported plant material has been assessed against Schedule 7 of The Plant Health (Phytosanitary Conditions) (Amendment) (EU Exit) Regulations 2020
	• All Statutory Plant Health Notices are complied with	
GUIDANCE https://www.legislation.gov.uk/uksi/2020/1527/schedule/7/made		

1.6 - Wood Packaging Material The import or export any goods using WPM or supply of WPM to businesses must follow the rules to meet ISPM15 international standards. This applies to the movement of WPM between Great Britain (GB) – England, Scotland and Wales – and other countries, including EU member states and Switzerland **CRITICAL**	• Pallets with plant material which is imported from or exported to third countries comply with ISPM15	▪ Evidence of imports supplied with ISPM15 pallets ▪ Evidence of exports supplied with ISPM15 pallets ▪
	• Accompanying pallets comply with ISPM15 when sending traded plant material to Northern Ireland from GB	
GUIDANCE ISPM15 applies to imports into GB as to goods exported from GB. Ensure ISPM15 marking is present, clear and not damaged. If unsure, do not use the pallet or WPM for export, just use for internal GB movement.		

2. Plant Biosecurity Policy

REQUIREMENTS		HOW THIS IS ASSESSED
PURPOSE: Demonstrating the business or organisation's awareness of the threat posed by notifiable pests and their commitment to plant biosecurity		
2.1 Plant Biosecurity Policy A plant biosecurity policy must be in place and communicated to all relevant personnel **CRITICAL**	• The plant biosecurity policy includes:	▪ Plant Biosecurity Policy in place ▪ Personnel awareness of the rules and implementation of the management processes
	○ a statement recognising the threat from notifiable pests to the business/organisation and the wider environment	
	○ The business/organisation's approach to plant health and biosecurity	
	○ a commitment to conducting and maintaining an up-to-date Site and Operations Pest Risk Analysis to minimise the plant biosecurity risks to an appropriate level	
	○ a commitment to keep up to date with plant health legislation and best practice guidance	
	○ a commitment to training personnel in plant biosecurity procedures	
	○ the designated person(s) for plant health and their responsibilities	
	• The plant biosecurity policy is communicated internally to all relevant personnel	
	• The plant biosecurity policy and relevant procedures are communicated to all relevant external parties	
	• The plant biosecurity policy is signed and dated by a senior manager within the business	

2.2 Plant Biosecurity Policy Review The Plant Biosecurity Policy must be reviewed at least annually as part of a continuous improvement process	• The review is signed and dated by a senior manager within the business as part of the process of continuous improvement	▪ Evidence that the Plant Biosecurity Policy is reviewed at least annually

GUIDANCE

'Relevant personnel' are, as a minimum, those people engaged with the growing, husbandry, treatment, packing and despatch of plants including administration of issuing and attaching plant passports. One way of demonstrating that relevant personnel are aware of the Plant Biosecurity Policy is for the Policy to be signed and dated e.g. as part of an induction process.

'Designated person(s)' are those who have specific responsibilities within the business/organisation for plant health and biosecurity (see Section 3).

One of the most common pathways for notifiable pests to be introduced into a new area is by the movement of live plant material. In recent years there have been numerous examples from around the world of exotic pests being introduced into new areas and causing considerable damage to industry, communities and the natural environment.

Most live plants are moved through supply chains which can include an array of businesses and organisations that grow, handle and / or manage live plant material. A policy statement is a document that enables a business or organisation to demonstrate that they are aware of the threats from notifiable pests and that they acknowledge their responsibility for the plants they source, grow, manage and supply.

The structure and content of the document will depend on the type of business/organisation, however the requirements above provide the key aspects that must be covered.

An example of other items that a Plant Biosecurity Policy could include can be found on page 44 of the Arboricultural Association's Application of Biosecurity in Arboriculture. A few of the bullet points covered relate to arboriculture, however the majority are generic and can apply to any business or organisation within the supply chain.

3. Plant Health Responsibility

REQUIREMENTS		HOW THIS IS ASSESSED
PURPOSE: There is a clear understanding within the business/organisation of where plant health responsibilities lie		
3.1 Plant Health Responsibility Plant health responsibility within the business/organisation must be clearly defined and designated to named personnel **CRITICAL**	• The roles of personnel with plant health management responsibilities are clearly defined, including delivering the requirements of this Standard throughout the business/organisation	▪ Evidence of plant health management responsibilities outlined in job descriptions/organisational structure charts/detailed responsibility in the plant health policy
GUIDANCE The roles and responsibilities of any personnel designated with plant health management are clearly defined and include delivering the requirements of this standard throughout the business. This could be a single person, or more than one, designated with the responsibility to manage the plant biosecurity systems within the business or organisation. In small businesses or organisations, the plant health manager duties can be an additional responsibility of existing personnel. A contractor/consultant may be used to assist/advise on keeping up to date with changes associated to plant health e.g., recent threats, treatments, etc. In larger or group businesses or organisations, it may be appropriate to have a senior member of staff with overall responsibility, who may designate specific responsibilities to site managers and/or other personnel. In the event of personnel absence, there should be provision for a trained deputy to be in place to ensure all responsibilities are met.		

4. Site and Operations Pest Risk Analysis (SOPRA)

REQUIREMENTS		HOW THIS IS ASSESSED
PURPOSE: To ensure an Appropriate Level of Protection for a business/organisation's site(s) and related operations is in place by analysing and identifying the relevant notifiable plant pest pathways and implementing control measures.		
4.1 Site and Operations Pest Risk Analysis Areas of plant health risk must be identified and assessed, and specific plans in place to minimise these risks to an Appropriate Level of Protection (ALOP) **CRITICAL**	• The plans shall detail: ○ Site and operations - the site(s) boundaries and relevant operations are defined ○ Susceptible host plants - A list of host plants that are grown or managed and susceptible materials ○ Notifiable pests – A framework that details the relevant notifiable pests ○ Pest Pathways - An assessment of relevant pathways for pests to potentially arrive, move around or leave the site(s) ○ Establishment of risk levels - A systematic risk assessment method for the plants and other relevant materials handled that commences with the highest risk notifiable pests ○ Controls - Measures are implemented that aim to mitigate the specific pest risks identified ○ Managed risk – How the controls minimise the levels of risk ○ Appropriate Level of Protection (ALOP) - Justification of how ALOP is comprehensively achieved and maintained for all aspects of the site(s) and operations ○ Monitoring of the site - A monitoring regime is in place that is linked to the SOPRA	▪ A current site and operational pest risk analysis framework (spreadsheet or document)
GUIDANCE See Appendix for information on how to produce a Site and Operations Pest Risk Analysis (SOPRA)		

4.2 Site and Operations Pest Risk Analysis Review Reviews of the Site and Operations Pest Risk Analysis must be conducted annually as a minimum or more frequently as required, e.g., when new plant species are grown / stocked, or a new notifiable pest risk becomes evident.	• Reviews are recorded, dated and signed by the person responsible for plant health	▪ A record of the versions with additions and adjustments to the notifiable pest framework (spreadsheet or document)

5. Supply Chain Management

REQUIREMENTS		HOW THIS IS ASSESSED
PURPOSE: To reduce the risk of new plant pests being introduced onto a site by checking that all suppliers' plant biosecurity systems minimise risk to an appropriate level		
5.1 Supply Chain Management The business/organisation must risk-assess all their suppliers and approve only those that meet their plant health requirements **CRITICAL**	• There is a supplier risk assessment checklist that is completed by all new suppliers and details any specific compliance requirements and any control measures that are applicable	▪ Supplier risk assessment checklist ▪ A list of all approved suppliers
	• A list of all approved suppliers is in place	
GUIDANCE The supply chain can include any plant material (living or dead), growing media and other items that may harbour pests such as wood packaging material, reusable packaging or boxes; timber boxes; plastic trays and transport containers.		

6. Plant Health Hygiene and Housekeeping

REQUIREMENTS		HOW THIS IS ASSESSED
PURPOSE: To reduce the risk of plant pests spreading by implementing effective housekeeping and hygiene practices		
6.1 Plant health hygiene and housekeeping Plant hygiene and housekeeping rules and practices, that have been assessed and developed through the Site and Operations Pest Risk Analysis processes, must be in place and communicated to all relevant personnel	• There are plant hygiene and housekeeping rules in place that are informed by the Site and Operations Pest Risk Analysis • The rules are communicated to relevant personnel	▪ Fit-for-purpose plant hygiene and housekeeping rules ▪ Personnel awareness of the rules and implementation of the management processes
GUIDANCE Site cleaning, maintenance and disinfection regimes, such as steam cleaning, brushing, wash down and end of season or post crop cleaning can be recorded to demonstrate housekeeping rules are in place and being implemented		

6.2 Growing media and soil In the production or procurement of plants, the use of growing media, soil and organic manures must be assessed for the potential to harbour and transmit plant pests	• There are systems in place to reduce the risk of plant pests being transmitted via brought in bagged and bulk growing media, soils and organic manures • There are management processes in place to minimise the risk of plant pests being harboured or spread on the site via growing media, soils and organic manures	▪ Product specifications and list of all approved suppliers of growing media, soils and organic manures ▪ Personnel awareness and implementation of the management processes
GUIDANCE Supplied growing media has the potential to contain plant pests. The aim of an assessment is to minimise this risk to an appropriate level. This can be by means of various treatments in the production process by the growing media supplier. Ask the supplier to provide evidence that the growing media ingredients have been produced and handled in a biosecure manner. On-site management procedures must be in place to ensure that growing media, soil and organic manures are stored and handled in a biosecure manner. This can include the use of designated storage areas for holding substrates and organics manures. Segregating areas where new substrate is used from waste areas will help ensure cross-contamination does not occur.		

6.3 Weed management Weeds and volunteer plants must be assessed for their potential to harbour and transmit plant pests	• There are management processes in place to minimise the risk of plant pests being harboured or spread on the site via weeds and volunteer crops	▪ Personnel awareness and implementation of the management processes
GUIDANCE Weed species or volunteer crops (plants that persist beyond the crop lifecycle) can harbour pests and diseases. These plants should be managed so as to minimise the risk of spreading plant pests and diseases on and from the site.		

6.4 Water usage Water sources, irrigation and drainage systems used in the cultivation and management of plants must be assessed for the potential to harbour and transmit plant pests	• The management processes in place minimise the risk of plant pests being harboured or transmitted from water sources	▪ Evidence that an assessment has been conducted and where necessary controls have been implemented.
	• The management processes in place minimise the risk of plant pests being harboured or transmitted via irrigation systems	
	• The management processes in place minimise the risk of plant pests being spread on the site and off the site via drainage systems	
GUIDANCE Water is an effective carrier of many pathogens. Mains or borehole water supplies tend to be low risk. Sourcing water from open reservoirs, ponds, rainfall butts or extracting from rivers can carry a higher risk, unless the water is treated using a method proven to kill damaging microorganisms. Puddles and excess run-off can spread waterborne pathogens. Containerised plants should be grown on a free-draining surface, preferably raised above ground. Persistent puddles in areas where plants are grown, sold or stored can assist the spread of some damaging microorganisms**.**		

6.5 Cleaning and sterilisation Plant cultivation and management processes must be assessed, and safe cleaning and sterilisation practices are implemented.	• Cleaning and sterilisation procedures are in place where assessed to be required	▪ Personnel awareness and implementation of the management processes
	• Any effluent or debris that is produced as part of cleaning and sterilisation procedures is suitably managed	
GUIDANCE Plant pests can be spread from one plant to another via personnel, tools and equipment. This can be directly, e.g. on pruning equipment, or indirectly, e.g. on water or soil carried on machinery. Routine cleaning and sterilisation of footwear, tools, machinery and other items used in the production or management of plants will reduce the spread of pests.		

6.6 Waste treatment and disposal All residues or waste materials must be assessed for the potential to host, harbour and transmit pests	• There are management processes in place to minimise the risk of plant pests being harboured or spread from the site via residues and waste material	▪ Personnel awareness and implementation of the management processes
	• There are management processes in place to minimise the risk of plant pests being spread via onsite composting systems	
GUIDANCE Plant pests and diseases can be transmitted onto, around or from a site on live plant material and other media that have come into contact with plant pests. Many of these pests (e.g. microorganisms) are not visible to the naked eye. All plant residues (e.g. clippings and prunings) and other waste materials (e.g. spent substrates, used pots and packaging material) should be assessed and managed accordingly. There is increasing evidence that waste heaps (e.g. growing media and plant material) can spread plant pests if not well designed and managed. Reusing or spreading residues such as spent growing media that has not been appropriately treated is a high-risk practice as it can spread pests on the site and the into wider environment. There are several viable options for plant waste disposal, with the cost, ease of use and efficacy of pest-kill differing between them. Some can be employed on-site e.g composting or incineration (with relevant permits in place). Others involve collection by a registered waste carrier followed by landfilling or treatment by waste management companies. While incineration on the nursery can be effective in killing pathogens, it can also be difficult with relatively wet wastes and can create smoke which is unacceptable to nursery workers and those living and working in surrounding areas.		

On-site composting is only effective where the process is well understood, well managed and results in all parts of the waste pile being subjected to high temperatures, at an appropriate moisture content for a sufficient length of time. Collection and treatment of horticultural wastes by a registered waste carrier followed by appropriate treatment by specialist waste management companies (through PAS100 accredited composting or incineration) is likely to prove the most effective way of removing disease threats from the site and its environs.

6.7 Wider environment (including landscape plantings within the site) The wider environment and its potential impact on the health of plants on the site must be assessed.	• An assessment of plant species planted on (non-cropped vegetation) and surrounding the site's boundary (including new and transient sites) is conducted periodically for pests and diseases	▪ Record of assessments
GUIDANCE Plant pests can be transmitted to or from nearby vegetation. Plant pests can inadvertently be transmitted from plant material that has been cultivated on or is moved onto a site for growing on or planting. Knowing the pest threats to plants and trees growing on or in the immediate proximity to a site provides an opportunity to identify notifiable pests quickly and potentially control them before they spread further.		

6.8 Visitors The relevant rules related to plant health hygiene and housekeeping must be communicated to and complied with by visitors	• Proportionate measures, based on the level of risk, are in place to minimise the risk of spreading pests on, around and off the site by visitors	▪ Appropriate measures such as signage, disinfection footbaths (where practicable) or prior information to visitors about the site rules are communicated in advance (e.g. website, contracts etc.)
	• Areas that are restricted for plant health reasons are clearly delineated and signposted	
GUIDANCE It is well known that visitors can bring plant pests onto a site. This can occur, for example, by visitors bringing plant material onto the site, on their footwear or on the vehicles they arrive in. The plant health rules for the site, where practicable, must be communicated to visitors before they reach the site, or when they arrive on site. Other proportionate measures must be implemented as required.		

7. Plant Health Controls

REQUIREMENTS		HOW THIS IS ASSESSED
PURPOSE: To prevent or identify and control quickly the spread of pests on a site or within supply chains with the aim of eradication		
7.1 Goods in There must be a procedure in place to ensure that incoming goods that have the potential to be infested or harbour pests are checked upon receipt **CRITICAL**	• There is a procedure that details how a consignment or consignment in transit is checked upon receipt (on a main site or satellite sites)	▪ Personnel awareness and implementation of the procedure ▪ Sampling system methodology
	• If a sampling system is used, the rationale and methodology is documented	
	• A procedure is in place to ensure that, where deemed necessary, plant material is quarantined in an isolated area and monitored	
GUIDANCE Where it is not practical or feasible to check every plant/product then a sampling system must outline and ensure the method is fit-for-purpose as to which plants/products are checked. Quarantine areas can be used (where deemed necessary) to ensure externally sourced plant material is well separated from other plants and monitored for a suitable time. The monitoring period will be determined by plant pest lifecycles, i.e. the time required for either tests to be conducted or for symptoms to emerge.		

7.2 Traceability (chain of custody) Traceability must be provided for all plant material sourced, grown and handled **CRITICAL**	• The traceability system provides details and sources of all plant material	▪ Records available to identify where plant material has originated ▪ Records available to identify the commercial party the plant material has been supplied to
	• The traceability system allows a consignment or consignment in transit to be traced back to the original source to identify all commercial parties that have handled the plant material	
	• The traceability system allows a consignment or consignment in transit to be traced forward to identify all commercial parties to which the plant material has been supplied	

GUIDANCE The traceability system in place should enable the business/organisation to identify key data in a timely manner in the event that infested plant material has been identified within the supply chain. In Great Britain there is a GB Plant Passporting E-learning modules that provides traceability guidance: https://planthealthy.org.uk/resources/plant-passporting-elearning-module

7.3 Plant Protection Treatments Records of all plant protection treatments, whether routine or following an interception or outbreak, must be kept	• Records outline all treatments that may either suppress or kill a notifiable pest	▪ Plant protection treatment records
GUIDANCE Ensure records of all plant protection treatments are available to assist with any investigation regarding potential detections and spread of notifiable pests on a site. Records of all treatments, such as pesticides, bio controls for native pests & diseases are useful as they help Defra Outbreak advisors understand what's been used, methods of application, frequency, concentration, if EMAUs used, physical control methods. It can also help delimiting the area of statutory control.		

7.4 Dispatch Plant material must be checked prior to dispatch for plant health issues **CRITICAL**	• There is a procedure that details how a consignment is checked prior to dispatch	▪ Personnel awareness and implementation of the procedure ▪ Sampling system methodology (if used)
	• If a sampling system is used, the rationale and methodology is documented	

7.5 Complaints, issues and returns There must be a complaints management procedure for plant health issues.	• There is a record of complaints related to plant health issues and if it relates to a notifiable pest	▪ Complaints Management Procedure ▪ Complaints record
	• The complaints record details any withdrawal/recall/disposal procedures	
	• Records of any complaints and actions taken are reviewed at least annually	

8. Monitoring and Ongoing Plant Health Assessment

REQUIREMENTS		HOW THIS IS ASSESSED
PURPOSE: To identify and assist with the timely control and containment of notifiable pests		
8.1 Monitoring Plant material must be regularly monitored for plant health issues	• Monitoring records are kept	▪ Monitoring records
GUIDANCE The monitoring regime and recording should be informed by the Site and Operations Pest Risk Analysis. This will help personnel understand what notifiable plant pest symptoms are being monitored for on individual species.		

PURPOSE: To internally assess the business/organisation's plant health and biosecurity		
8.2 Self-assessment A self-assessment against the Plant Health Management Standard must be completed at least annually	• A record of the self-assessment is kept and details any non-conformances and corrective actions	▪ Self-assessment report
GUIDANCE There is a self-assessment tool available at: www.planthealthy.org.uk		

8.3 Continual Improvement Areas for continual improvement must be identified and acted upon	• Details of identified improvements are recorded and implemented	▪ Evidence of implementation of improvements
GUIDANCE A commitment to continual improvement is part of the Site and Operations Pest Risk Analysis. As the threat posed by plant pests and diseases evolves, awareness and pro-action are necessary to help keep the risk of introducing or spreading infested plant material to a low and appropriate level.		

9. Training and Recognition

<table>
<tr><th colspan="2">REQUIREMENTS</th><th>HOW THIS IS ASSESSED</th></tr>
<tr><td colspan="3">PURPOSE: To ensure suitably informed personnel are in place to manage the business/organisation's plant biosecurity systems</td></tr>
<tr><td>9.1 Plant health competencies
Training records of internal and external training must be maintained</td><td>• In the absence of formal qualifications, training is carried out to ensure all relevant personnel understand the principles of the Plant Health Management Standard</td><td rowspan="2">▪ Training records
▪ Certificates of relevant courses</td></tr>
<tr><td></td><td>• Continuing professional development (CPD) to maintain awareness of current plant health issues is undertaken and recorded for relevant personnel</td></tr>
<tr><td colspan="3">GUIDANCE
https://planthealthy.org.uk/resources/plant-healthy-e-learning-modules

Plant Passporting e-learning module - UK Plant Health Information Portal (defra.gov.uk)

Royal Society of Biology plant health professionals Plant health register (rsb.org.uk)</td></tr>
</table>

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<tr><td>9.2 Legislation and keeping up to date
The relevant person(s) responsible for plant health must demonstrate how they keep up to date with legislation and the latest plant health risks</td><td>• The relevant person stays up to date through National Plant Protection Organisation (NPPO) updates or similar</td><td>▪ Evidence that new plant pest information is accessed and acted upon</td></tr>
<tr><td colspan="3">GUIDANCE
If available, register for phytosanitary updates from the NPPO or access their website on a regular basis to ensure all new legislation is understood and implemented.</td></tr>
</table>

9.3 Information sharing Information and knowledge must be shared within the business to ensure all relevant personnel are aware of plant health issues and their management	• The person(s) responsible for plant health are responsible for disseminating key information on plant health throughout the business/organisation	▪ Personnel awareness of plant health and how to report suspected issues
	• There are processes in place for any suspected plant health issues to be reported to the appropriate member of personnel	
GUIDANCE Information sharing may include use of reference material from the Plant Health Portal, induction checklist, personnel handbook, noticeboards, shared drives, team meetings, training workshops, end of season review.		

Appendix - Guidance for conducting a SOPRA – PHMS 4.1

Site and Operations Pest Risk Analysis (SOPRA)

This guidance supports a business or organisation to proactively and systematically analyse the risk of introducing and/or spreading notifiable plant pests and diseases. The aim is to protect the business's or organisation's site(s) and operations, the businesses and organisations they trade with and to prevent the spread of pests and diseases into the wider environment. The goal is to reduce the risk to an appropriate level, where the risk of introducing and spreading notifiable plant pests and diseases is minimised by implementing effective controls.

The term 'pests' includes plant diseases and the term 'infest' includes infect. Notifiable pests are:

Quarantine Pests (and Protected Zone Quarantine Pests): A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled [FAO, 1990; revised FAO, 1995; IPPC 1997]

Non-Quarantine Regulated Pests: A non-quarantine pest whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated within the territory of the importing contracting party [IPPC, 1997]

The SOPRA process is based on two key risk management concepts that are applied to plant health and biosecurity:

Appropriate Level of Protection (ALOP) – World Trade Organisation.

Pest Risk Analysis (PRA) – International Plant Protection Convention.

These concepts are normally applied nationally, and in the case of PRA to a specific plant pest. The Plant Health Management Standard has adapted the principles of ALOP and PRA and applied these concepts to a business or organisation's site or sites and its operations. A site can be permanent or temporary, e.g. in the case of a rented field or in the immediate area where landscaping or arboricultural operations are being carried out on a client's site.

The aim of a SOPRA is to primarily identify the notifiable pests that could potentially be introduced onto, spread within, or moved from a business or organisations site(s). Potential pathways for plant pests to move on include, for example, the movement of: live plants, people, machinery, vehicles, packaging material. These pathways are common to the operations a variety of businesses and organisations that grow, handle or manage plant material.

Significant pests are considered, as a minimum, to be (i) all notifiable pests and (ii) other pests specific to your business. The Plant Health Management Standard is primarily focussed on notifiable pests and it is that category of pests that will be assessed in the audit. If there are 'other pests' present then this will be covered by the plant health hygiene and housekeeping requirements as the presence of such pests may indicate that requirements are not being met. However, this analysis is can be used as a basis for understanding and preventing the occurrence all categories of plant pest.

A SOPRA should take an evidence-based, proactive approach and thereby reduce the risk to an Appropriate Level of Protection of moving notifiable plant pests through plant supply chains. See the UK Plant Health Risk Register for up-to-date plant pest and host information. The National Plant Protection Organisations (NPPOs) in other regions may have similar databases of plant pests and associated risks and these should assist with a SOPRA.

Implementation of a Site and Operational Pest Risk Assessment (SOPRA)

The SOPRA can be applied to any size of site where live plants are moved onto, grown on or despatched from. In terms of the existing scopes of the Plant Healthy Certification Scheme this includes: plant nurseries, retail businesses that sell live plants, landscaper's yards and client sites, arborist's yards and client sites and gardens. Some of the principles may also apply to other situations such as plant shows where many plants from different sources are brought together onto a single site for a period of time and then dispersed. Once the SOPRA has been produced, reviewing and maintaining it should be a quick process.

Analysis process

Step 1: Define the boundaries of the site(s) concerned and related operations. This may be a permanent site, for example, the perimeter of a nursery or a transient site e.g. a rented field of a client's garden. In terms of operations, this will include people, substances, materials and equipment moving on and between sites. Maps showing the infrastructure and boundaries of the site(s) are useful as are operational process flow charts. This will assist in the identification of critical points where pests can be introduced and spread.

Step 2: A list of host plants should be compiled with, as a minimum, the riskiest candidate of a species selected to represent each genus. The riskiest candidate is likely to be the largest specimen that a plant is grown or traded as, and /or based on the rooting format (e.g. bare root is generally less risky than roots with growing media or soil attached, although there are exceptions). In certain cases, it may require more than one species from a genus, for example where a notifiable pest is unique to a single or subset of species within a genus. Materials that pests can travel on should also be listed and analysed.

The primary focus should be on plants, equipment and materials that are moved onto and off the site. For example, in terms of conducting a SOPRA on an established garden, it is the plants that are brought onto the site or moved from the site that should be considered for this analysis. Plants and trees that are already growing on a site, e.g. within the garden or as part of a nursery or garden centre's landscaping scheme will be considered in section 6.7 - Wider environment (including landscape plantings within the site).

Step 3: Based on the list of plants and materials compiled in step 2, use either the UK Plant Health Risk Register (UKPHRR) or the Pest and Disease Index (PDI) to identify the notifiable pests with the highest mitigated risk ratings relevant to the business or organisation. By using the UKPHRR this can be done by sorting in descending order the highest mitigated risk of the relevant notifiable pests. By taking this approach the riskiest, and therefore potentially the most damaging pests, are likely to be analysed early on.

Step 4: Coupled with the identification of notifiable pests are the pathways on which plant pests can potentially arrive, be spread around or from a site. These pathways can include, for example: the movement of water, growing medium and soil, wood packaging material or footwear as well as on infested plants (this list not exhaustive). This step requires a systematic mapping process and analysis of all potential pathways to transmit plant pests.

Step 5: Informed by the risk ratings, a framework (which may include risk matrices) should be set out that cross-relates the plant species / materials handled and the pathways with the highest-risk pests to the site(s) and operations. If the risk ratings from the UKPHRR or PDI have been used then these

should be adjusted to consider the business or organisations unique situation. That is, if a particular host plant is grown in large quantities then the risk rating for a pest may be increased as the impact on the site(s) and operations would be relatively higher. This step is key as it enables each pest risk to be understood and establishes the basis for what systems can effectively be implemented to protect the site(s) and operations.

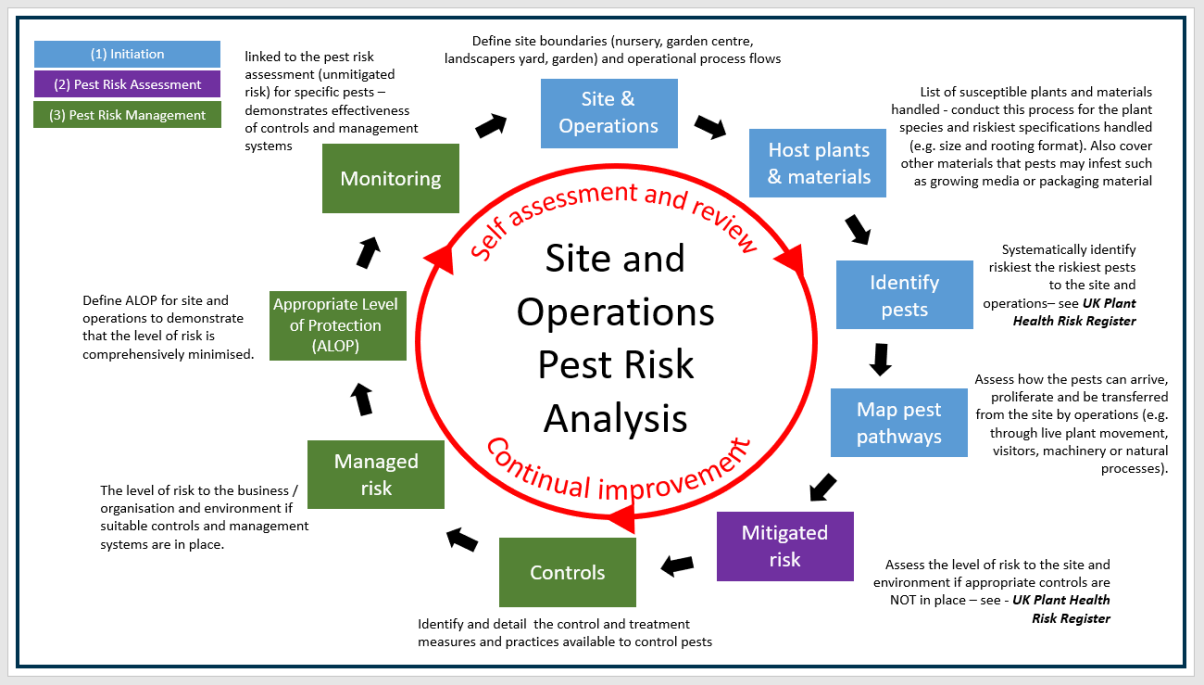
Step 6: The pests and pathways are understood and associated risks categorised. The pest risk management phase involves identifying existing or putting additional control measures in place to minimise the risk to an appropriate level. The controls can be, for example, as simple as not sourcing high-risk plants from regions where a pest is present or quarantine areas and periods, depending on the life-cycle of the types of plant pests that have been identified.

Step 7: Assess and demonstrate (quantify and/or qualify) the effectiveness of the implemented control measures in minimising the risk of introducing or spreading plants pests.

Step 8: Based on the above steps, establish that an Appropriate Level of Protection for the site and related operations has been reached. The use of mitigated risk ratings (adjusted to the specific site and operations – see step 5) can be used to demonstrate that all risks have been minimised. This demonstrates that all of the controls implemented when combined lead to an Appropriate Level of Protection (ALOP) for the business or organisation's site(s) and related operations. Step 8 aims to ensure that with all factors and measures considered, a comprehensive approach is taken to reach ALOP.

Step 9: Check that the monitoring regime (PHMS section 8) is linked to the SOPRA. I.e. So that relevant staff know the symptoms of the notifiable pests that are in the analysis.

SOPRA – Diagram of process flow



The use of risk assessment matrices in a SOPRA

The process of a risk assessment is to examine the level of risk based on the data collection and the consequence of a biosecurity failure related to the specific pest pathway. One way of making this assessment is to use risk management matrices.

Examples of risk matrices are demonstrated below in Table 1 and Table 2.

Table 1: Risk matrix - likelihood and consequences

Likelihood		Highly Likely	Likely	Unlikely	Highly Unlikely
Consequences/impacts of pest entry establishment and spread	High	High	High	High	Medium
	Medium	High	High	Medium	Low
	Low	Medium	Medium	Low	Low

Table 2: Risk matrix - risk situation and level of risk

Risk situation	Level of Risk		
	Low	Medium	High
Potential of a pest being introduced from geographical areas (national and international). Awareness of location of suppliers and the pests present in their locality.			
Links in the supply chain – understanding the stages of involved in plant production, e.g. and the trade and movement of material and the number of businesses involved in their production.			
Have the plant health management procedures of your suppliers been assessed? Low = all suppliers can demonstrate an appropriate level of protection Medium = some suppliers can demonstrate an appropriate level of protection High = No suppliers can demonstrate an appropriate level of protection			

The matrices are based on two criteria:

1. Likelihood: the probability of a risk
2. Consequences: the severity of the impact or the extent of damage caused by the risk

Using the first matrix as an example, based on the likelihood of the occurrence of the risk, the risk could be classified under one of four categories – highly likely, likely, unlikely, or highly unlikely. The consequences of a risk can again be ranked and classified into one of three categories, based on how severe the consequences could be.

Once the risks have been evaluated using the matrix, in cells corresponding to the appropriate likelihood and consequences, it becomes visibly clear as to which risks are high. Each of the risks placed in the table will fall under one of the categories, for which different colours have been used in the example above. Those in red are the most critical they are the most likely to occur and have the most severe consequences, and as such should receive higher priority, orange are medium and yellow lowest priority. This provides the basis for implementing controls that minimise all risks to an appropriate level.

Following the risk assessment, the next step in the SOPRA is to detail how the identified risks have been mitigated through controls.

The information produced can then be used to produce a full suite of risk assessments. The way in which they are integrated to demonstrate that ALOP has been comprehensively established for the site(s) and operations is based on adapting these matrices to individual situations.