Notes - PHMS - Site and Operations Pest Risk Analysis - version 1.0 - 27th Feb 2023	
	Links
This template has been set up to assist with section 4 of the Plant Health Management Standard. The requirements can be found on page 14 of the Plant Health Certification Scheme Manual, with guidance in appendix 1 (page 25)	https://planthealthy.org.uk/assets/images/Plant-Healthy-Certification-Scheme-Manual-V1.2-1.pdf
The template focuses on the plants and associated materials that are moved onto, around or off a site of horticultural operations in any one year. Plants that have been planted previously and are growing on or around a site (e.g. public gardens or landscaped areas) are covered under section 6.7 of the PHMS (page 19 of the Manual).	
From a plant trading perspective, this template, once completed for a horticultural site, will detail information on the priority and highest risk notifiable pests that could affect the plants, plant products and other object concerned and demonstrate that best practice measures and other actions required to prevent the presence and spread of notifiable pests are in place. This relates to **article 89 of Regulation (EU) 2016/2031** - Authorisation of professional operators to issue plant passports - see the link for more information.	https://www.legislation.gov.uk/eur/2016/2031/article/89
The approach that this template takes is to start with the **22 priority pests on Schedule 1** of the New Annex to Commission Implementing Regulation (EU) 2019/1702. These are highlighted in purple on tab 4 - *Hosts (2) vs Pests (3)* - of this spreadsheet.	https://www.legislation.gov.uk/ukdsi/2020/9780348213775/schedule/1
Following on from the priority pests is a list of **17 notifiable pests with a UK Plant Health Risk Register (UKPHRR) mitigated risk rating of 60 or above**. These pests are highlighted in red.	https://planthealthportal.defra.gov.uk/pests-and-diseases/uk-plant-health-risk-register/
A business or organisation can then look at other notifiable pests and diseases on the UKPHRR that are relevant to their site and operations and that have a mitigated risk rating of below 60.	
This template effectively presents a framework to identify and monitor the points of plant production or management processes, and the points concerning the movement of plants, plant products and other objects that are considered critical. This relates to **article 91 of Regulation (EU) 2016/2031** - pest risk management plans - see the link for more information.	https://www.legislation.gov.uk/eur/2016/2031/article/91
This SOPRA is a process flow, meaning that the steps are intended to follow a sequence. The SOPRA is also an ongoing process, thereby providing a framework for continual improvement - **this template is intended as a starting point to enable you to adapt the SOPRA process to your site and related operations.**	

Rating	**Colour & score**				
	Blue	**Green**	**Yellow**	**Orange**	**Red**
Likelihood, spread, impact, value at risk, etc.	**1**	**2**	**3**	**4**	**5**
Likelihood x impact	**1-4**	**5-9**	**10-14**	**15-19**	**20-25**
Overall UK risk rating	**1-14**	**15-29**	**30-44**	**45-59**	**60-125**

If you are viewing this document as a PDF - please contact us using this link to request a Excel version of this document

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Checklist against Plant Healthy Certification Scheme Manual – PHMS 4.1 and PHMS 4.2

Item	PHMS 4.1 Sub – requirements	Location in spreadsheet	Notes for updates to SOPRA PHMS 4.2	Date of update
1	*Site and operations - the site(s) boundaries and relevant operations are defined*	See tab 3 of this spreadsheet	Update this document as the production area expands and additional operations are implemented	
2	*Susceptible host plants - A list of host plants that are grown or managed and susceptible materials*	See tab 4 of this spreadsheet, column A	Update spreadsheet with new plant genera	
3	*Notifiable pests – A framework that details the relevant notifiable pests*	See tab 4 of this spreadsheet, row 6	Update spreadsheet with new information on notifiable pests of the plant genera grown.	
4	*Pest Pathways - An assessment of relevant pathways for pests to potentially arrive, move around or leave the site*	See tab 5 of this spreadsheet	Check through the list of pathways and operational areas and add any new areas of operation.	
5	*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*	See tab 4 & 5 of this spreadsheet	Review risk levels each year	
6	*Controls - Measures are implemented that aim to mitigate the specific pest risks identified*	See tab 4 & 5 of this spreadsheet	Review the effectiveness of the controls each year	
7	*Managed risk – How the controls minimise the levels of risk*	See tab 4 & 5 of this spreadsheet	Review the effectiveness of the controls each year	
8	*Appropriate Level of Protection (ALOP) - Justification of how ALOP is comprehensively achieved and maintained for all aspects of the site(s) and operations*	See tab 6 of this spreadsheet	Assess systematically each year	
9	*Monitoring of the site - A monitoring regime is in place that is linked to the SOPRA*	See tab 6 of this spreadsheet	Ensure any monitoring procedure is updated to include any new host plants or pests	

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Description of the site and operations:

Insert plan of site here

Map that shows the extent of the site and the various component parts / infrastructure - e.g. glasshouses, fields, packhouses etc.

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©Plant Healthy Limited 2023_V 1.1	The Plant Health (Amendment etc.) (EU Exit) Regulations 2020 - SCHEDULE 1 ^Annex List of priority pests																				
SOPRA [3] - Pest name (Row 1)	*Bactericera cockerelli*	*Agrilus planipennis*	*Thaumetopoea pityocampa*	*Agrilus anxius*	*Thaumetopoea processionea*	*Anoplophora glabripennis*	*Ceratocystis platani*	*Clavibacter sepedonicus*	*Ips typographus*	*Aromia bungii*	*Anoplophora chinensis*	*Epitrix cucumeris*	*Epitrix papa*	*Epitrix subcrinita*	*Epitrix tuberis*	*Fusarium circinatum*	*Xylella fastidiosa*	*Rose Rosette virus and Phyllocoptes fructiphilus*	*Thrips palmi*	*Leptinotarsa decemlineata*	*Ips amitinus*	*Ips duplicatus*
Common name	Potato psyllid Tomato psyllid	Emerald Ash Borer	Pine processionary moth	Bronze birch borer	Oak processionary moth	Asian longhorn beetle	plane wilt	Bacterial ring rot of potato	Larger eight-toothed European spruce bark beetle	Red-necked longhorn beetle	Citrus longhorn beetle	Potato flea beetle	Epitrix papa	Western potato flea beetle	Tuber flea beetle	Pitch canker of pine	Xylella	Rose Rosette virus	melon thrips; oriental thrips; southern yellow thrips	Colorado beetle	Eight-toothed spruce bark beetle; Small spruce bark beetle	Double-spined bark beetle; Northern bark beetle
Type of Pest	Insect	Beetle	Moth	Beetle	Moth	Beetle	Fungus	Bacterium	Beetle	Beetle	Beetle	Insect	Insect	Insect	Insect	Fungus	Bacteria	Virus	Insect	Beetle	Insect	Insect
UK	Absent	Absent	Absent	Absent	Present	Absent	Absent	Absent	Under Eradication	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Hosts - click on cell to read the full list of host plants in the cell (see the text box above the column letters)	Capsicum annuum; Ipomoea batatas; Lycium; Solanum lycopersicum; Mentha; Micromeria;	Fraxinus; Fraxinus americana; Fraxinus angustifolia ssp. oxycarpa; Fraxinus excelsior; Fraxinus	Cedrus; Cedrus atlantica; Larix decidua; Pinus; Pinus canariensis; Pinus halepensis;	Betula; Betula albo-sinensis; Betula alleghaniensis; Betula ermanii; Betula jacquemontii;	Quercus; Quercus calliprinos; Quercus cerris; Quercus petraea; Quercus pubescens; Quercus	Acer; Acer platanoides; Acer pseudoplatanus; Acer saccharinum; Acer saccharum;	Platanus; Platanus occidentalis; Platanus orientalis; Platanus x acerifolia	Solanum; Solanum tuberosum; Plants (general)	Abies; Coniferous trees; Larix; Picea; Picea abies; Pinus; Pseudotsuga	Bambusa; Castanea mollissima; Diospyros kaki; Diospyros lotus; Diospyros virginiana;	Acer; Acer palmatum; Acer saccharinum; Aesculus hippocastanum;	Capsicum annuum; Solanum lycopersicum; Nicotiana tabacum; Petunia x hybrida;	Capsicum annuum; Solanum lycopersicum; Nicotiana tabacum; Solanum melongena;	Capsicum annuum; Lycium; Solanum lycopersicum; Nicotiana alata; Physalis alkekengi	Capsicum frutescens; Lycium; Solanum lycopersicum; Nicotiana alata;	Pinus; Pinus contorta; Pinus densiflora; Pinus elliottii; Pinus greggii; Pinus halepensis;	Acacia dealbata; Acer pseudoplatanus; Acer rubrum; Amaranthus	Rosa; Rosa arkansana var. suffulta; Rosa banksiae; Rosa bracteata; Rosa	Benincasa hispida; Capsicum annuum; Citrullus lanatus; Cucumis melo; Cucumis sativus;	Hyoscyamus niger; Solanum lycopersicum; Nicotiana tabacum; Solanum; Solanum	Abies; Coniferous trees; Larix; Picea; Picea abies; Pinus; Pinus cembra; Pinus mugo ssp. mugo;	Abies; Coniferous trees; Larix; Picea; Picea abies; Picea jezoensis var. jezoensis; Picea
UK Relative Risk Rating (mitigated) [5]	75	75	60	50	45	40	40	40	40	36	30	30	30	30	30	30	30	24	24	20	20	20
Mitigation action [6]																						
Risk assessed after mitigation established [7]																						
NOTES																						
SOPRA [2] - Insert list of host plants below (column A)																						
Plants received and / or dispatched at NAME OF BUSINESS																						
Key																						

Name of applicant – Site and Operations Pest Risk Analysis

Notifiable pests with risk rating of 60 and above																Examples of notifiable pests with risk rating lower than 60		
Agrilus bilineatus	*Phytophthora ramorum*	*Prodiplosis longifila*	*Acute oak decline*	*Agrilus biguttatus*	*Candidatus Liberibacter solanacearum*	*Phytophthora infestans*	*Candidatus 'Phytoplasma solani'*	*Corythucha arcuata*	*Dendroctonus valens*	Globodera pallida European Strains	*Heterobasidion irregulare*	*Hylastes obsoletus*	*Lonsdalea populi*	*Platynota stultana*	*Sirococcus tsugae*	*Xylosandrus germanus*	Bretziella fagacearum	Pissodes punctatus	Candidatus Phytoplasma mali'
Two-lined chestnut borer	Ramorum disease	Prodiplosis longifila	Acute Oak Decline	Oak jewel beetle; Oak splendour beetle; Two -spot woodborer	zebra chip	Downy mildew; potato; Late blight; potato; Late blight; tomato	Black wood of grapevine	Oak lace bug	Red turpentine beetle	Cyst nematode	Heterobasidion irregulare	Hylastes obsoletus	Lonsdalea populi	Omnivorous leafroller	Shoot Blight on Cedar; Tip blight on Eastern Hemlocks	Black timber bark beetle; Smaller alnus bark beetle; tea root borer	Oak wilt; Wilt of oak	Armand pine bark weevil	Phytoplasma mali; Proliferation of apple; Witches broom of apple
Insect	Oomycete	Insect	Other	Insect	Bacterium	Oomycete	Phytoplasma	Insect	Insect	Nematode	Fungus	Insect	Bacterium	Moth	Fungus	Insect	Fungus	Insect	Insect
Absent	Present	Absent	Present (Limited)	Present (Limited)	Absent	Present	Absent	Absent	Absent	Present (Widespread)	Absent	Absent	Absent	Absent	Present (Unknown Distribution)	Present (Limited)	Absent	Absent	Absent
Castanea dentata; Quercus alba; Quercus coccinea; Quercus ellipsoidalis; Quercus lyrata;	Acer circinatum; Acer davidii; Acer laevigatum; Acer macrophyllum; Acer pseudoplatanus;	Allium cepa; Asparagus officinalis; Capsicum annuum; Capsicum frutescens; Citrullus	Quercus; Quercus cerris; Quercus ilex; Quercus petraea; Quercus pyrenaica; Quercus robur	Quercus; Quercus petraea; Quercus robur	Apium graveolens; Capsicum annuum; Capsicum frutescens; Daucus carota; Foeniculum	Solanum lycopersicum; Solanum tuberosum	Arethum graveolens; Apium graveolens; Capsicum annuum; Cichorium intybus; Convolvulus	Castanea dentata; Castanea sativa; Quercus; Quercus alba; Quercus alleni; Quercus cerris;	Larix; Picea; Pinus; Pinus armandii; Pinus ayacahuite; Pinus bungeana; Pinus cembroides;	Allium cepa; Allium cepa var. aggregatum; Allium porrum; Asparagus officinalis; Beta	Abies; Abies balsamea; Calocedrus decurrens; Juniperus; Juniperus	Ambrosia artemisiifolia; Artemisia vulgaris; Calystegia sepium; Cardaria draba;	Populus; Populus x canadensis; Salix matsudana	Apium graveolens; Capsicum annuum; Chrysanthemum; Cyclamen; Dianthus; Gossypium;	Cedrus; Cedrus atlantica; Cedrus deodara; Tsuga; Tsuga canadensis; Tsuga heterophylla;	Abies; Acer; Alnus; Betula; Camellia sinensis; Carpinus betulus; Carya; Castanea; Cornus;	Quercus; Quercus alba; Quercus coccinea; Quercus ellipsoidalis; Quercus falcata; Quercus	Coniferous trees; Pinus; Pinus armandi; Pinus massoniana; Pinus yunnanensis	Dahlia; Forsythia suspensa var. suspensa; Lilium hybrids; Malus; Malus domestica;
100	80	80	75	75	75	75	60	60	60	60	60	60	60	60	60	60	50	50	48

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The risk assessment matrix on page 28 of the PHCS manual had been used to assess the risk [5] for each pathway / operational area.

Pathway / operation [4] - examples below to assist with a SOPRA (i.e. add or remove pathways as necessary)	Likelihood	Consequences of pest entry establishment and spread	Description and assessment of risk based on likelihood X consequences [5]	Control [6] [examples]	Risk re-assessed with control in place [7]
Seeds	Unlikely	Medium	Medium risk -some plant pests and diseases can be transferred on seeds	Seeds will either be sourced from pathogen-free areas or treated in a way which is known to eliminate the risk. Name of applicant sources from XXXXXXX, all who have provided a plant biosecurity policy statement.	Low
Cuttings	Unlikely	Medium	Medium risk -Some plant pests and diseases can be transferred on vegetative cutting material	Cuttings are taken from stock plants are grown on site and are periodically monitored for the presence of pests and diseases.	Low
Imported plants	Likely	High	High risk - it is widely acknowledged that a high risk pathway for plant pests to moved from one region to another is via live plant supply chains.	Name of applicant only sources plants from UK businesses, all of which have been assessed as per section 5 of the Plant Health Management Standard. Or Name of applicant ensures that all special requirements for the species of plants which are being imported are met and all suppliers have been assessed as per section 5 of the PHMS.	Low
Growing Media - includes all growing media constituents e.g. sand, perlite, bark, soil.	Likely	High	High risk - some plant pests can be transferred on the ingredients of growing media.	Suppliers of growing media have provided statements relating to their biosecurity policies. Records are kept for each batch of growing media, and samples of each batch are kept at the nursery in case of the need for future testing. Suppliers have demonstrated that they have a testing regime in place and provide results to name of applicant.	Low
Wood Packaging Material (WPM)	Highly unlikely	High	Medium risk - certain notifiable plant pests can be transmitted on untreated WPM.	Check that all WPM from international sources is ISPM 15 compliant. Name of applicant buys goods in for both resale and nursery use. These goods are routinely delivered on pallets. All pallets should be heat treated (stamped HT) or be GKN blue pallets which are treated and routinely inspected. Pallets delivered to site should be visually inspected for evidence of pests/boring and that inspection recorded on the Goods In Record Sheet.	Low
Stakes	Highly unlikely	Medium	Medium - certain notifiable plant pests can be transmitted on untreated timber stakes.	name of applicant has reviewed the suppliers biosecurity policy and deliveries should be routinely inspected as a precaution and inspections recorded on the Goods In Record Sheet.	Low
Other packaging material	Highly unlikely	Medium	Low risk - Be aware of plant pests and diseases on packaging material	Checks conducted as required.	Low
Tools, equipment and machinery	Unlikely	Medium	Medium - risk of transmitting pests on tools, equipment and machinery from other sites	The manager has responsibility for ensuring that all equipment is periodically cleaned from a biosecurity perspective. Staff clean their clothing and boots and drivers clean their vehicles.	Low
People and vehicles	Unlikely	Medium	Medium - risk of transmitting pests on people and vehicles from other sites	The manager has responsibility for ensuring that all staff are briefed on the threat of transmitting plant pests on clothing and footwear and that facilities and checks are in place for staff to clean their footwear and outer clothing. Vehicles and drivers from medium to high risk sites (i.e. other nurseries or planting sites) are made aware of the risks and asked to clean their vehicles if required - checks will be carried out and staff will remain vigilant.	Low
Staff - General	Unlikely	Medium	Medium risk - plant pests carried on from on footwear and clothing from other sites (e.g. other nurseries, gardens and woodlands)	Staff can control their biosecurity risk in two ways: either by having dedicated 'nursery' footwear which never leave the nursery so cannot introduce pathogens; or by cleaning footwear and clothing regularly and certainly after any visits or work on other nurseries, gardens, farms or woodlands.	Low
Staff - conducting high-risk activities	Likely	Medium	High risk - Where staff may be required to visit other nurseries or planting sites	Staff must carry a biosecurity kit in their car containing water, scrubbing brushes and disinfectant which should be used before and after every visit. FC guidance on washing should be followed. All vehicles should be washed down, preferably before returning to the nursery.	Low
Visitors	Likely	Medium	Medium risk - plant pests carried on from on footwear and clothing from other sites (e.g. other nurseries, gardens and woodlands)	All visitors must report to reception upon arrival where they will receive a biosecurity and site safety brief. They will be required to wash all footwear using the water/disinfectant facilities provided IF they have recently visited another nursery or been near a forest in an area suspected of harbouring a plant pest harmful to the trees grown at NAME OF APPLICANT. They will also be required to wash if their footwear or clothing is noticeably holding a mud. The movement of all visitors' cars will be restricted to the car park so they do not move into production areas. However, any vehicle which moves into production areas will need to have all mud and debris washed off the wheels, arches and underbodies using the vehicle washbay.	Low
Surrounding Environment.	Likely	High	High risk - from spread of pests and diseases across landscapes (e.g. Ash dieback, Phytophthora ramorum and Oak Processionary Moth)	The Nursery Manager will carry out inspections of plants surrounding the site (as per PHMS requirement 6.7). An inspection record will be created and recorded. Where a specific plant species is known to harbour a plant pest harmful to species being grown at NAME OF APPLICANT, a plan will be drawn up to control that threat.	MEDIUM / LOW
Water (irrigation)	Highly unlikely	Low/medium	Low / medium risk - depending on the source of water	Water tests for both pathogens and water quality, trace elements etc are periodically carried out if the results of the risk assessment indicate that water tests are a suitable monitoring measure.	Low
Water (drainage)	Unlikely	Medium	Medium risk - pests and diseases (particularly oomycetes e.g. *Phytophthora* species)	Monitor the site for wet areas over the course of the first growing season and assess if any changes need to be made to cultivation techniques etc. for year 2.	Low
Waste material - growing media, plant material	Likely	Medium	High risk - plant pests can proliferate and be spread in contaminated waste material	Assess waste storage and management systems for potential to harbour and proliferate plant pests - ensure that suspect waste plant material, growing media and packaging are suitably stored and disposed of (there is a licence to burn infected material on the site).	Low
Waste pots, packaging material and other items	Unlikely	Medium	Medium risk - pests and diseases can spread from the sites on waster material as eggs or resting spores.	Very limited other types of packaging material used - assess waste storage and management systems for potential to harbour plant pests - ensure that any waste materials are suitably stored and disposed of.	Low

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[8] Appropriate Level of Protection (ALOP) - statement of how ALOP is comprehensively achieved and maintained for all aspects of the site(s) and operations

Preventing the spread of notifiable pests
The primary control method for harmful pests and diseases is to prevent their movement onto the nursery in the first place, i.e. through precautionary measures.

ALOP – **EXAMPLE** STATEMENT
Name of applicant have established a system that aims to identify high risk notifiable pests relevant to name of applicant. This aligns with regulations regarding the knowledge required for professional operators to issue plant passports see: Article 89 1. (a) of regulation 2016/2031 on protective measures against pests of plants. I.e. professional operators are required to possess the necessary knowledge to carry out the examinations concerning quarantine pests or protected zone quarantine pests and regulated non-quarantine pests that could affect the plants, plant products and other objects concerned, and concerning the signs of the presence of those pests and the symptoms caused by them.

The SOPRA for name of applicant has systematically assessed the site and all associated operations with the site – plant pest identified as high risk have been assessed and minimised to appropriate levels. All Annex 1 Priority Pests and pests with a UK Plant Health Risk Register (UKPHRR) mitigated risk rating of 60 and above relevant name of applicant have been assessed.

The controls and monitoring processes (as per the PHMS requirements) will assist in picking up observable symptoms of pests in the lower mitigated risk rating categories or pests that are (as of yet) not on the UKPHRR.

Name of applicant staff will remain vigilant and continually assess the site and operations especially when new species are handled and grown, or new operational pest pathways are identified. This will be a process of continual improvement that will lead to periodic (at least annual) updates to this SOPRA framework.

The person responsible XXXXXX is confident that all pest risks have been identified and all risks have been minimised to a LOW level where possible. The pests that have not been assessed as LOW level risks are considered as such due to either: (i) aspects of their control being beyond the control of name of applicant or (ii) the need for better information (which will be sought as part of the continual improvement process).

(9) The host pests and diseases that have been identified are monitored for on a regular basis.

Monitoring - **EXAMPLE TEXT** : A member of the name of applicant management team has the additional role of Biosecurity Supervisor with specific responsibility for monitoring all crops for signs of pests and diseases. However, all relevant staff are appropriately trained and have continual monitoring obligations.

name of applicant management team ensures that a weekly walk around of the site to observe any pest and diseases so that I can action quickly to avoid any unnecessary spread.