



NEW ZEALAND

PLANT PRODUCTION
BIOSECURITY SCHEME

PPBS DOC #04

PPBS Hazard Management Checklists

V1.0 - February 2020

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February 2020

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Updates

The Plant Production Biosecurity Scheme (PPBS) is a science-based framework to help producers identify, control, manage and avoid biosecurity risk. The scheme and standards are based on work undertaken early in 2018 following experience early in the myrtle rust response that underscored the crucial role that plant producers play in early detection of pests, their containment and slowing their spread following a pest incursion. Subsequent discussions identified the opportunity to develop a systematic approach to plant production industry biosecurity risk management.

Revisions will be ongoing as PPBS experience and/or new science inform the need for change. Revisions published on the Scheme's website [to follow] and participants advised of the changes and new documents, so they can ensure that they are referring to the most recent documents.

Those wishing to provide recommendations for change should send these in writing to PPBS or by email to [in the interim office@nzppi.co.nz].

Acknowledgements

The PPBS acknowledges and is appreciative of the support of many industry members and stakeholders who assisted in the development of the scheme; funding from the Ministry for Primary Industry, Department of Conservation, Auckland Council and forestry and horticultural industry bodies, the guidance of project Steering and Working Groups, feedback and advice from industry members and stakeholders, and Kiwifruit Vine Health's generously allowing the PPBS to extract from and draw heavily upon their work and the Kiwifruit Plant Certification Scheme.

Disclaimer

While the PPBS's objective is to allow certification of plant producers and confidence that the plants they produce have been grown under conditions of high biosecurity risk and hazard management, there remains the possibility a proportion of plants may contain biosecurity pests. PPBS accepts no liability for claims regarding the presence of pests in any plants produced by registered and/or certified producers. While the objective of the PPBS standards and guidance is to minimise the potential risk pest, no party can guarantee that adherence to these standards and guidance will reduce such risk to zero.

PPBS Hazard Management Checklists

Core Standard Checklist (Sections 6 – 11)

This checklist is divided into three parts:

- **Part A – Nursery Essentials – Section 6**
This section describes the nursery and general operating practices. It is applicable to all plant producers.
- **Part B – Biosecurity Fundamentals – Section 7**
This section identifies key components of a biosecurity risk management system. It is applicable to all plant producers.
- **Part C – Hazard Management**
This section identifies specific hazards and measures nurseries shall implement to mitigate the risk that these hazards present.

This part is split into three sections:

- **Part C1 - All Plant Production (Section 8)** - issues that relate to all plant producers and their nursery(s)
- **Part C2 - Container Production (Section 9)** – issues that relate only where production steps include the use of containers (pots, bags, trays ...).
- **Part C3 - Bare Root and Field Production (Section 10)** – issues that relate only where production steps include growing plants in the field, that is, part of the production cycle includes plants being grown directly in soil.

These sections should be considered in association with the PPBS Core Standard, and for ease of reference section header numbering intentionally begins at 6 to align with the Core Standard.

Myrtle Rust Specific Module Checklist (Section 20)

Criteria that apply only to producers who grow plants from the *Myrtaceae* family. They should be considered in association with the PPBS Myrtle Rust Specific Module.

Kauri Dieback Specific Schedule Checklist (Section 21)

Criteria that apply only to producers who grow *Agathis australis* (Kauri) and other identified alternate hosts of the pathogen *Phytophthora agathidicida* (kauri dieback)¹. They should be considered in association with the PPBS Phytophthora Specific Module and the Kauri Dieback Specific Schedule.

¹ Alternate hosts – at date of writing (9 October 2019) no alternate hosts have been identified.

6. NURSERY ESSENTIALS						
SEQ	Issue	Y	N	NA	Level	Reference ² / Notes
Nursery details						6.1
6.1.	Are nursery details recorded to enable rapid identification?				Major	
6.2.	Does the nursery description provide an overview of the operation?				Minor	
6.3.	Are all water sources used by the nursery identified?				Major	
6.4.	Is a list of all nursery sites recorded?				Minor	
6.5.	Do nursery maps show location of key areas?				Minor	
Management responsibility						6.2
6.6.	Is there a designated person responsible for implementing this Scheme?				Major	
6.7.	Does this function have a role description?				Minor	
6.8.	Can this person demonstrate an understanding of biosecurity risk management practice?				Major	
6.9.	Is a register of authorised persons maintained?				Minor	
Worker Training						6.3
6.10.	Are procedures in place to ensure appropriate training in biosecurity risk management?				Major	
6.11.	Are records of worker training and competency maintained and up to date?				Minor	
Signage						6.4
6.12.	Are appropriate signs posted at nursery entrances?				Major	
Visitors						6.5
6.13.	Are visitors made aware of biosecurity requirements?				Major	
6.14.	Does the nursery have procedures to manage risks posed by visitors?				Major	
6.15.	Is a visitor register maintained?				Minor	

² References in section 6-11 refer to sections in the PPBS Core Standard and PPBS Guidance documents.

7. BIOSECURITY MANAGEMENT FUNDAMENTALS						
SEQ	Issue	Y	N	NA	Level	Reference / Notes
	Systems Approach					7.1
7.1.	Has the nursery implemented a systematic approach biosecurity risk management?				Major	
7.2.	Does the nursery have an up-to-date and active Nursery Manual and/or body of evidence to support biosecurity risk management?				Major	
7.3.	Has the nursery completed at least one internal Scheme self-assessment in the past 12 months and documented any non-conformances and actions for improvement?				Major	
7.4.	Is an internal biosecurity risk assessment undertaken annually?				Minor	
7.5.	Are biosecurity risk management records maintained as required by the Standard? (That is, traceability records for 7 years, other records for 3 years)				Major	See also Appendix 1
	Hygiene					7.2
7.6.	Does the nursery have documented hygiene procedures and evidence to show they are used?				Critical	
	Nursery site					
7.7.	Are growing areas adequately managed to mitigate the risk of weeds and weed seeds being transferred through the nursery and with dispatched plants?				Critical	
	Access					
7.8.	Is access to work and growing areas appropriately managed?				Major	
7.9.	Are vehicles that enter work and growing areas monitored for pests, soil or plant debris?				Major	
	Personnel					
7.10.	Is there adequate supervision of nursery hygiene practices?				Major	
7.11.	Are instructions provided for hygiene requirements - written notices, signs and/or pictures that are displayed in the appropriate areas?				Minor	

SEQ	Issue	Y	N	NA	Level	Reference / Notes
7.12.	Do workers undertake appropriate hygiene management between batches, meal breaks, and start and end of days?				Minor	
	Equip cleaning					
7.13.	Are cutting and pruning tools and equipment cleaned and sanitised appropriately?				Major	
7.14.	Are tools and equipment used in the collection of propagation materials cleaned and sanitised appropriately?				Major	
7.15.	Are vehicles, equipment, machinery and tools cleaned appropriately?				Major	
7.16.	Are vehicles, equipment and machinery inspected appropriately upon arrival and prior to moving into or between work and/or growing areas?				Major	
	Waste					
7.17.	Is plant and other organic waste disposed of and/or treated adequately?				Major	
	Work areas					
7.18.	Are propagation work areas and surfaces kept clean and tidy, and sanitised where appropriate?				Major	
7.19.	Are other work areas and surfaces kept clean and tidy, and sanitised where appropriate?				Major	
	Multiple sites					
7.20.	Are measures in place to manage transfer risk between multiple sites?				Major	
	Crop Monitoring					7.3
7.21.	Does the nursery have documented crop monitoring procedures and evidence to show they are used?				Critical	
7.22.	Are records kept of crop monitoring activities, outcomes and corrective actions?				Major	
7.23.	Are records maintained of any pests and symptoms that were not able to be identified, subsequently sent for diagnostics and any resulting corrective action?				Major	
7.24.	Where practicable, are infested plants isolated until the detected pests are identified and corrective action undertaken?				Minor	

SEQ	Issue	Y	N	NA	Level	Reference / Notes
7.25.	Are records maintained of biosecurity issues raised by workers, customers and/or others and subsequent investigation and corrective action?				Minor	
7.26.	Is the producer aware of the National Pest Plant Accord and their region's Regional Pest Management Plan?				Major	
	Traceability					7.4
7.27.	Are records maintained to identify the source of all plant materials?				Critical	
7.28.	Are records maintained to identify the immediate source of other production inputs?				Major	
7.29.	Are records maintained to trace production batches through the production process?				Major	
7.30.	Are dispatch records maintained to identify the immediate distribution of all nursery outputs? (Noting that where a producer sells plants directly to the public, names and addresses of purchasers are not required to be recorded)				Critical	
7.31.	Is there a procedure in place in case of the need to react to a biosecurity crisis?				Minor	
	Trusted Suppliers & Inwards Supplies					7.5
7.32.	Are trusted suppliers established for all production inputs?				Major	
7.33.	Are appropriate visual inspections in place to mitigate the risk of pests being introduced on inwards production supplies, their packaging and/or their transport upon arrival and prior to use?				Major	
7.34.	Are inspection records kept for incoming shipments of nursery production materials?				Minor	
7.35.	Are nursery production materials stored off the ground, free of pests and protected from plant debris and run-off water?				Minor	
7.36.	Does the nursery manage the risk from returned stock appropriately?				Major	

8. HAZARD MANAGEMENT - PART C1: ALL PRODUCTION TYPES/PROCESSES						
Section 8 criteria apply to all plant producers and their nursery(s) irrespective of the methods they use to grow their plants.						
SEQ	Issue	Y	N	NA	Level	Reference / Notes
	Transplant					8.1
	Plant Stock for Planting					8.1.1
8.1.	Are plant materials sourced from off-site isolated and inspected prior to introduction to nursery stock areas?				Critical	
8.2.	Are bought-in plant materials sourced from trusted suppliers?				Major	
8.3.	Are plant materials sourced off-site isolated for a period to ensure freedom from pests?				Minor	
8.4.	Are inspection records maintained for plant materials sourced from off-site?				Major	
8.5.	Are corrective action records are maintained?				Minor	
8.6.	Does the nursery have a procedure to manage risks associated with the collection of plant propagation materials?				Major	
8.7.	Does the nursery have accurate records of mother stock plant location to the extent that it could be relocated if need be?				Critical	
8.8.	Does the nursery have procedures to inspect mother stock plants prior to taking propagation material?				Critical	
8.9.	Are records maintained of mother stock plant inspections and any corrective action outcomes?				Major	
	Growing media					8.1.2
8.10.	Does the nursery have records of where growing media and/or its components come from?				Critical	
8.11.	Are growing media and/or component materials are sourced from trusted suppliers?				Major	
8.12.	Are inspection records are maintained of incoming shipments?				Major	
8.13.	Are growing media preparation processes, equipment and areas constructed to prevent contamination?				Major	

SEQ	Issue	Y	N	NA	Level	Reference / Notes
8.14.	Are growing media storage areas constructed to avoid contact with soil, and exclude ingress of plant debris, weeds and run-off water?				Major	
8.15.	If soilless growing media or components are recycled, are measures in place to manage pest contamination risk?				Major	
	Fertilisers					8.1.3
8.16.	If organic manures are used, has a risk analysis been undertaken, and any necessary measures put in place to manage any identified risk?				Major	
	Containers (pots, bag, trays ...)					8.1.4
8.17.	If containers are reused, does the nursery have documented hygiene procedures to address contamination risk and evidence to show they are used?				Critical	
	Propagation					8.1.5
8.18.	Does the nursery have documented hygiene procedures to manage contamination risk at propagation and evidence to show they are used?				Critical	
8.19.	Are tools and work surfaces cleaned and sanitised at the start and end of each day, and between batches?				Major	
8.20.	Are spilled growing media and waste organic materials collected and disposed of an appropriate fashion?				Major	
	Potting and re-potting					8.1.6
8.21.	Does the nursery have measures in place to avoid contamination during potting?				Major	
	Growing					8.2
	Growing areas – all types					8.2.1
8.22.	Are growing areas constructed to prevent contamination?				Critical	
8.23.	Does the nursery have measures in place to avoid contamination during transport to and between growing areas?				Major	
8.24.	Are greenhouse facilities cleaned and disinfected as appropriate?				Major	
8.25.	Are boundary risks well managed through a mix of controls and boundary zone monitoring?				Minor	

SEQ	Issue	Y	N	NA	Level	Reference / Notes
8.26.	Do growing areas drain well?				Minor	
8.27.	Is run-off and wastewater deflected from work and growing areas?				Minor	
8.28.	Are growing areas and paths constructed to prevent the build-up of standing water?				Minor	
	Nutrition Amendment					8.2.2
8.29.	Does the nursery have measures in place to avoid contamination while top dressing or fertigating?				Minor	
	Crop protection					8.2.3
8.30.	Does the nursery have a crop protection management programme describing pests of concern and management actions?				Critical	
8.31.	Does the nursery have a person designated to manage crop protection and prepare crop protection plans?				Major	
8.32.	If agrichemicals are used, are procedures in place to minimise the risk of resistance build-up using effective agrichemicals and appropriate product rotation?				Major	
8.33.	Do all agrichemical users hold appropriate certification?				Minor	
8.34.	Is an agrichemical usage diary maintained?				Minor	
	Dispatch					8.3
8.35.	Is the dispatch area kept clean and tidy and waste material collected and disposed of in a timely and safe fashion?				Major	
8.36.	Does the nursery have a procedure for dispatch inspection and management of any potentially contaminated plants?				Major	
8.37.	Are records maintained of pre-dispatch plant inspection, any pests detected and corrective action?				Minor	
8.38.	Are packaging materials (pallets, crates, trolleys, cartons ...) free from contamination and risk materials?				Minor	
	Plant Distribution and Transport					8.4
8.39.	Is contamination risk during transport appropriately managed?				Minor	

9. HAZARD MANAGEMENT - PART C2: CONTAINER PRODUCTION PROCESSES						
	Section 9 criteria apply only to plant producers who undertake all or part of their production using containers (pots, bags, trays ...)					
SEQ	Issue	Y	N	NA	Level	Reference / Notes
	Transport – Container Production					9.1.1
9.1.	Does the nursery have measures in place to avoid contamination during transport to and placement in the growing area?				Major	
	Growing areas – Container Production					9.2.1
9.2.	Are ground level growing areas suitably surfaced to aid drainage and prevent container contact with soil?				Major	
9.3.	Is the growing area cleaned and sanitised between batches?				Major	
	Plant Handling – Container Production					9.2.2
9.4.	Does the nursery have measures in place to avoid contamination while handling plants in the growing area?				Major	
	Irrigation – Container Production					9.2.3
9.5.	If water is sourced from at-risk supplies (example: surface features including rivers, ponds, dams), is it tested at least annually for pathogens, and if needed, treated appropriately?				Major	
9.6.	If water recycled, is it tested for pathogens at least annually and treated prior to reuse?				Major	
	Waste – Container Production					
9.7.	Are waste storage areas isolated from work and growing areas and managed to prevent pest spread?				Major	

10. HAZARD MANAGEMENT - PART C3: BARE ROOT / FIELD PRODUCTION PROCESSES						
	Section 10 criteria apply only to plant producers who undertake production steps that include growing plants in the field, that is, part of the production cycle includes plants being grown directly in soil.					
SEQ	Issue	Y	N	NA	Level	Reference / Notes
	Transport to and planting in field					10.1.1
10.1.	Is the growing area cleaned and treated appropriately between crops?				Major	
10.2.	Are pathways and roads adjacent to growing areas constructed to reduce contamination from water splash?				Minor	
	Growing areas – Bare Root / Field Production					10.2.1
10.3.	Is appropriate testing undertaken for soil and water borne pathogens?				Major	
10.4.	Where fields are used repeatedly for cropping is appropriate soil disinfestation undertaken and records kept?				Major	
	Waste – Bare Root / Field Production					10.2.2
10.5.	Is the risk of pest contamination arising from organic waste managed appropriately?				Major	
	Harvest from field					10.2.3
10.6.	Are appropriate measures in place to prevent pest contamination through handling and evidence to show they are used?				Critical	
10.7.	Are appropriate measures in place to prevent pest contamination through transport to store and evidence to show they are used?				Major	

SEQ	Issue	Y	N	NA	Level	Reference / Notes
	Storage Prior to Processing – Bare Root / Field Production					10.3.1
10.8.	Are appropriate measures in place to prevent pest contamination through transport to processing and evidence to show they are used?				Major	
10.9.	Are appropriate measures in place to prevent contamination during receipt and storage prior to processing? (For within the unprocessed product, and prevention of cross contamination to other product in store)				Critical	
	Processing – Bare Root / Field Production					10.3.2
10.10.	Does the nursery have systems in place to avoid contamination during processing?				Critical	
10.11.	Are processing facilities and equipment cleaned and sanitised on a regular basis?				Major	
10.12.	Is the processing area kept clean and tidy and waste material collected and disposed of in a timely and safe fashion?				Minor	
10.13.	Are tools and surfaces sanitised at the start and end of each day, and between batches?				Major	
10.14.	Are checks in place during processing to monitor for pests and diseases?				Major	
10.15.	Is there clear separation between unprocessed and processed product to avoid cross contamination?				Major	
10.16.	Is the product protected from risk of contamination post processing?				Critical	
10.17.	Are appropriate measures in place to prevent pest contamination through transport to dispatch store and evidence to show they are used?				Major	
	Storage – Bare Root / Field Production					10.3.3
10.18.	Are appropriate measures in place to prevent contamination during storage and is there evidence to show they are effective				Critical	
10.19.	Are checks in place during cool storage to monitor pests and diseases?				Critical	
11.	DOCUMENTS AND CLAIMS					
11.1.	Are Scheme identification requirements being adhered to? (Nursery ID, printed material claims)				Minor	11

20. MYRTLE RUST SPECIFIC MODULE						
	<p>The following criteria apply only to producers who grow plants from the <i>Myrtaceae</i> family.</p> <p>They should be considered in association with the PPBS Myrtle Rust Specific Module.</p>					References are to materials on NZPPI's myrtle rust webpage nzppi.org.nz/biosecurity
SEQ	Issue	Y	N	NA	Level	Reference / Notes
	Management and workers					
20.1.	Are workers aware of any MPI mandated or other regulatory requirements?				Critical	
20.2.	Are workers aware of what signs and symptoms of myrtle rust and what to do if they find anything suspicious?				Critical	
20.3.	Is this document and the Myrtle Rust identification guide made available to workers?				Major	MR ID guide
20.4.	Does the workers training programme adequately cover myrtle rust risk management?				Major	
20.5.	Has the nursery got a documented myrtle rust corrective action and response procedures?				Major	
	Site Management					
20.6.	Are myrtaceous species aggregated within a defined area of the nursery and ideally away from other locally growing native Myrtaceous species?				Minor	
20.7.	Are growing areas treated with an appropriate disinfectant upon the completion of the crop growing cycle and before placing a new crop down on growing beds or benches?				Minor	
20.8.	If it is practicable, have myrtle rust host species been removed from boundary and nearby plantings?				Minor	
	Hygiene					
20.9.	Are workers aware that spores can be carried on clothing. Contaminated clothing is a considerable risk - are measures in place to manage this?				Minor	
20.10.	Is machinery moved into the nursery production area from off-site inspected and cleaned to sterilise it?				Minor	
20.11.	Is all nursery waste, including sweepings from trucks, disposed of an appropriate manner – example, bag and dispose of via bulk waste, (thorough) composting or deep burial?				Minor	

SEQ	Issue	Y	N	NA	Level	Reference / Notes
	Sourcing plants and plant materials					
20.12.	Are stock plants rigorously inspected for the presence of myrtle rust before cuttings are taken or seed collected?				Critical	MR plant survey procedures
20.13.	Is all myrtaceous plant stock sourced from off-site isolated upon arrival and inspected before transferring it into the nursery production area?				Critical	
20.14.	Is all myrtaceous plant stock sourced from other nurseries accompanied by a Myrtle Rust Biosecurity Declaration provided by the supplier?				Major	MR Biosecurity Declaration
20.15.	Are stringent hygiene measures applied by workers, and to machinery, vehicles and packaging when they return from collecting myrtaceous plant material (cuttings or seed) from off-site?				Major	
	Monitoring and Crop Protection					
20.16.	Are surveys conducted (at no more than 14-day intervals) of all myrtaceous species on-site - this includes production stock and plants along boundaries and roadways.				Critical	MR plant survey procedures
20.17.	Are appropriate myrtle rust fungicide treatments undertaken?				Critical	NZPPI MR fungicide guidance
	Plant dispatch					
20.18.	Is a Myrtle Rust Biosecurity Declaration provided to the customer?				Major	
20.19.	Have you (or your third-party transporter) adopted Myrtle Rust Plant Transport Procedures to manage the risk of your spreading myrtle rust?				Minor	

22. KAURI DIEBACK SPECIFIC SCHEDULE						
	<p>The following criteria apply only to producers who grow <i>Agathis australis</i> (Kauri) and other identified alternate hosts of the pathogen <i>Phytophthora agathidicida</i> (kauri dieback)³.</p> <p>They should be considered in association with the PPBS Phytophthora Specific Module and the Kauri Dieback Specific Schedule.</p>					
SEQ	Issue	Y	N	NA	Level	Reference / Notes
22.1.	<p>Unwanted Organism: Is management aware that <i>Phytophthora agathidicida</i> is an unwanted organism under the Biosecurity Act and that it is an offence to sell or propagate plants that one suspects contain an unwanted organism?</p>				Critical	
22.2.	<p>Management and worker awareness: Are workers aware of signs and symptoms of kauri dieback and what to do if they find anything suspicious?</p>				Critical	
22.3.	<p>Forest risk management: Has the nursery documented procedures to manage the risk associated with visiting kauri forests?</p>				Critical	
22.4.	<p>Crop Monitoring: Has the nursery documented procedures for monthly kauri crop monitoring and evidence to show they are used?</p>				Critical	
22.5.	<p>Traceability: Are batches established for kauri production and able to be followed through the production cycle?</p>				Critical	
22.6.	<p>Crisis readiness: Has the nursery a documented response procedure in case of signs and symptoms of kauri dieback being suspected?</p>				Critical	
22.7.	<p>Growing Media: Is growing media new and free of soil or materials sourced from kauri forests?</p>				Critical	
22.8.	<p>Seed collection: Has the nursery documented procedures to manage the risk associated with collecting seed?</p>				Critical	
22.9.	<p>Containers (pots, bags, trays ...): If reused, are containers first cleaned and then sanitised?</p>				Critical	

³ Alternate hosts – at date of writing (9 October 2019) no alternate hosts have been identified.

SEQ	Issue	Y	N	NA	Level	Reference / Notes
22.10.	Crop Protection: Is the use of fungicides for the control of <i>Phytophthora</i> avoided?				Critical	
22.11.	Site Management: If applicable, is the risk of wild animal incursion managed?				Major	
22.12.	Holding Period: Has the nursery a documented pre-dispatch holding and monitoring procedure and evidence to show it is used?				Critical	
22.13.	Testing: While not yet included it is envisaged that future editions of this <i>Phytophthora agathidicida</i> Schedule will require diagnostic testing prior to distributing kauri from nurseries. Work is needed to establish effective and cost-efficient tests and this Checklist will be updated when these are available and a requirement for diagnostic testing prior to distributing kauri from nurseries is established					