# **Farm Biosecurity Planner**

## For the Chestnut Industry











Plant Health



#### Farm Biosecurity Planner for the Chestnut Industry

First published March 2022

#### More information

This document was prepared by Chestnuts Australia Inc.

#### Acknowledgments

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**Disclaimer:** The information contained in this publication is based on knowledge and understanding at the time of writing (March 2022). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent adviser.

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Your General Biosecurity Duty or General Biosecurity Obligation

If you are a grower in the Chestnut industry you have a responsibility to protect your industry from biosecurity risks you may come across in your day-to-day activities.

General biosecurity duties or obligations (GBD) emphasise shared responsibilities with Government, industry and the community working together to maintain a strong state and national biosecurity system.

GBD's are legislated obligations that require growers to understand and manage, or minimise, to the best of their ability, the biosecurity risks that apply to their industries, businesses, workplaces and our natural environment.

GBD's highlight that everyone has a role to play in protecting primary industries, and our unique environment, from biosecurity risks.

While not every State and Territory has adopted general biosecurity obligations, many have implemented strategies for shared biosecurity responsibility.

For further information on your General Biosecurity Duty or Obligation please refer to your relevant State Government Department website.

It is vital that the Australian Chestnut industry minimises the risks posed by exotic pests and diseases. The cost to the Chestnut industry of these plant pest threats will not only be in eradication or containment, but also in the loss of access to valuable international markets.

#### Preparing an On-farm Biosecurity Plan

#### The best defence against pests and diseases is to implement sound biosecurity practices on your farm. Quick and simple measures built into everyday practice will help protect your farm and your future.

This farm biosecurity planner will help assess the biosecurity risks on your farm and illustrate steps to address them. Refer to the planner periodically to check on progress and prioritise actions.

A biosecurity action plan will help you identify and prioritise the implementation of biosecurity practices relevant to your property. When devising a plan for your farm, the biosecurity essentials are a good place to start. The essentials are:

- Farm inputs
- Farm outputs
- People, vehicles and equipment
- Production practices
- Pests & weeds
- Train, plan & record

Completing a self-assessment checklist will also help you to identify biosecurity strengths and weaknesses on your property. It might be helpful to have a map of your property to consider the best places to locate biosecurity zones or 'check points'. This could include signs at entrances to the property, parking areas near the house or site office, where deliveries are picked-up or dropped-off in relation to storage facilities, vehicle wash down areas, existing roads or tracks for movement within the property.

Think about what you can do to minimise the risk of introducing diseases, pest and weed seeds at each of the checkpoints. If you build your plan around daily, monthly or yearly farm routines, then biosecurity should become a habit.

The actual management practices you choose to use will vary from site to site, depending on the size of your property, the physical facilities available, and the day-to-day management of operations.

With each action, set-out the steps needed to achieve the task. This is especially helpful if a group is working on the plan. A responsible person will need to be appointed to oversee the implementation of the actions.

Good practices need not be expensive, but they do need to be easy to follow. They may also take a little of your time, but they are beneficial in the long run.

After you have ranked your priorities, think about which ones you can achieve in the short and long term. Go back to the plan periodically and check progress towards your goals.

As a guide, short-term activities can:

- be planned and implemented within 12 months
- help your business comply with regulatory requirements
- · be financially feasible in the short-term
- fit in with the time commitments of your enterprise.

Long-term activities:

- · are planned and implemented over more than one year
- need additional financial or personnel resources that are not currently available
- enhance the overall quality of service, aesthetics or administrative procedures.



#### Risk Assessment Matrix

Use this risk assessment matrix to determine the level of risk an activity is likely to pose to your property and production. The risk assessment can be helpful in prioritising which biosecurity practices to implement first.

			Likelihood of occurrence	
		<b>Unlikely</b> Could happen sometimes	<b>Likely</b> Could happen most times	<b>Very likely</b> Could happen every time
oduction a if occurs	<b>Minor</b> May have little impact	Low risk	Medium risk	Medium risk
o property, pr rrounding are	<b>Moderate</b> Will have some impact	Low risk	Medium risk	High risk
Impact t and / or su	<b>Major</b> Will have great impact	Medium risk	High risk	High risk

Source: modified from Keep it Clean- Reducing costs and losses in the management of pests and diseases in greenhouse, NSW DPI

### Farm Inputs

Almost anything introduced to your property can be a potential source of pests, pathogens and weeds. Monitor and record details of plant materials that enter the property, as well as sources of water and fertiliser.



Chestnut orchard © CAI

Farm Inputs	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
New plants         Image: Stress of the str	New plants introduced to your property could be carrying unwanted diseases and pests.	Purchase new trees from a reputable source, and thoroughly check them for pests and diseases upon arrival. Maintain records of purchase dates and sources of new trees. New varieties should be planted in a quarantine area, distant from their permanent location and observed for 12 to 20 months before being planted in an orchard. Tools and equipment should not be transferred between the quarantine area and main orchard. Record planting locations, patterns and details.		

Farm Inputs	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
Water sources         Image: Second system         Water source @ CAI	Water is a potential carrier of unwanted pests; it can carry weed seeds and soil or waterborne pests such as fungi or bacteria. Many pest and disease-causing organisms can survive for a long time in water until they find a host.	Inspect water inlets and storages for rubbish, weeds or pests that could cause contamination. Consider the implications of recycled irrigation water.		
Fertiliser Fertiliser Fickr (CC BY 2.0)	If not composted thoroughly, organic fertilisers such as manure and compost can be sources of weeds, pests and pathogens.	Ensure that organic fertilisers are thoroughly composted to destroy weed seeds, pests and disease-causing organisms. Maintain a record of the source of organic fertilisers, the application dates and where applied.		

### Farm Outputs

Responsibility for biosecurity doesn't end when chestnuts are harvested, processed and leave the farm gate. The biosecurity measures you put in place support not only protection of your own property, but also support biosecurity in your region.



Stored chestnuts © CAI

Farm Outputs	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
Chestnut bins & containers	Bins and containers can contain chemical residues, and can transfer insect pests, pathogens and weed seeds. Contamination may result where containers have not been adequately cleaned out after carrying another commodity such as treated fertiliser.	Ensure that bins and containers used to handle harvested chestnuts are cleaned down before and after use.		
<section-header>Processing chestnutsImage: Strain of the strain of t</section-header>	Soil and plant material adhering to nuts can carry insect pests and disease organisms.	Remove as much excess plant material as possible from harvested crops. Only use clean new packaging for packing and consigning nuts.		

Farm Outputs	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
Moving plants off the propertyState	Transporting produce can spread diseases, pests and weeds from your property and can put other growing areas at risk.	Ensure that nuts are free of pests and diseases, your records are up-to-date and that the transport vehicle is cleaned down before and after transportation. Provide copies of supporting paperwork such as certification requirements.		
Chestnut waste <i> </i>	Waste materials and unharvested nuts can spread diseases and pests on your property, or be the source of new infections the following season.	Collection and disposal of waste materials after pruning is commonly done by chipping, mulching or burning. The removal and disposal of unharvested nuts also reduces vermin populations in the orchard as well as the risk of contamination of subsequent harvests with inferior old nuts.		

Thoroughly cleaning your harvest equipment prior to each season will reduce contamination of your crop, and the spreading of pests, diseases and weeds. Most on-farm food safety risks occur during harvest, but a responsible attitude around the farm all year can reduce some risks.

### People

If it can move, it can carry pathogens, pests and weeds. For this reason, visitors, workers and contractors, either walking or operating vehicles and equipment, pose a high biosecurity risk and should be managed accordingly.



Farm walk © CAI

People	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
Property access         Image: State of the state of	Multiple entry points to your property make it difficult to control visitor access and manage high risk visitors such as those who visit several properties each day.	Limit the number of access points to your property - lock unused gates. Use signs to direct visitors to designated parking or reception areas. Access to production areas, including orchards and sheds, should be restricted to a limited number of identified personnel only.		
Signage VISITORS PLEASE RESPECT FARM BIOSECURITY Please phone or visit the office before entering Please phone or visit the office before ent	Never assume that people know what to do when they arrive at your property. Without signage, visitors and staff may be unaware of the biosecurity procedures enforced on your property.	Erect signs to instruct visitors and staff. Use clear instructions and provide relevant contact details. Have a script of risk assessment questions ready to ask when you are called and instructions to be given to visitors.		

People	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
Visitor risk assessment         Image: State of the system of the syste	Visitors can unknowingly carry pathogens, pests and weeds on their clothes and personal items. The risk is greatest if they've been in contact with other nut crops or properties in Australia, or have recently traveled from overseas.	Conduct a risk assessment before you allow a visitor onto your property. If required, provide cleaning equipment or a change of clothing or footwear to reduce the risk. If you cannot reduce the risk, refuse entry to high-risk visitors.		
Visitor tracingImage: State of the s	If you don't know where visitors have come from or what they have been doing, it will be difficult to trace back or trace forward in the event of an incursion or disease outbreak.	Direct all visitors to a designated parking area away from crops and ask them to sign a visitor register. Limit access to and contact with crops, and eliminate any unnecessary contact altogether. Ideally visitors should be moved around an orchard in the farm's vehicles, rather than their own.		

People	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
General hygiene         Bio-Security	Pests, disease-causing organisms and weed seeds can be present on hands, clothing, footwear and personal items.	Provide hand washing facilities, foot baths and/or alternative clothing and footwear for visitors to use while on-farm.		
Field days or farm walksImage: State of the state	Holding field days or farm walks on a property introduces risks from a wider region with people potentially carrying pests, pathogens or weed seeds from their own properties, on their vehicles and shoes or clothing.	<ul> <li>If you are holding a field day or farm walk on your property, make sure you:</li> <li>provide a designated parking area away from production areas</li> <li>use signage to direct visitors to a sign in area with a visitor register</li> <li>provide shoe covers or boots where necessary</li> <li>outline a designated route through the orchard</li> <li>put in place general hygiene measures such as foot baths to minimise risk</li> <li>limit contact with growing and processing areas and use only main roadways and tracks.</li> </ul>		

Warning signs tell visitors to your property that you have biosecurity measures in place that minimise the spread of pests and diseases.

### Vehicles, Equipment & Machinery

Diseases, pests and weeds can enter a farm and be spread by equipment and vehicles, either directly or in plant material or soil. You should maintain equipment hygiene and ensure all vehicles that visit your property are clean and well maintained.



Vehicle washdown, PHA (CC BY 3.0)

Vehicles, equipment & machinery	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
Equipment hygiene	Tools and equipment can carry diseases, pests and weeds seeds. The risk for disease spread is higher when equipment is borrowed, lent or bought second-hand from other properties. Harvest machinery and equipment can transfer insect pests and diseases to harvested crops.	Clean and disinfect tools and equipment before and after use on crops. Clean and disinfect second-hand, borrowed or lent equipment before and after use. Have clear instructions and standards documented for contractors to meet if they are to carry out work on your property. Ensure no soil, plant material including weed seeds, or pests are left on or in machinery or transport equipment by removing any contaminants and disinfecting.		
Dedicated tools & equipment	Separate tools, clothing and footwear, used on crops affected by pests or diseases, from clean tools, clothing and footwear. Don't use contaminated tools or clothing in clean areas of your property.	Have dedicated tools, clothing and footwear available for use in production areas affected by pests or disease. Always work with sick plants last. That is, work from clean to dirty.		

Vehicles, equipment & machinery	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
Storage areas Storage areas	Some pests and diseases can survive in sheds and buildings without a host, for months or years.	Clean and disinfect equipment and storage areas regularly.		
Harvest machinery & equipment	Unclean harvest machinery and containers increase the risk of contamination of the nuts. Incorrectly maintained harvesting machinery can cause cracking of the shell which increases the risk of mould, microbial contamination and bruising of the kernels. Unclean harvest equipment also presents a risk of spreading diseases and weeds when moving between orchards.	Maintain harvesting machinery in a sound, clean condition. Inspect harvest containers before use, and clean if necessary. Clean harvesting machinery and equipment before moving between orchards. Thoroughly clean and sanitise harvesting machinery and equipment before and after harvesting other crops. This will reduce the risk of spreading allergens.		
Vehicle entry points PLEASE USE MAIN ENTRANCE	Multiple, unsecured entry points to your property make it difficult to control access and manage high risk visitors such as contractors and utility providers who might visit several properties every day.	Encourage visitors to enter the property via one or two routes only. Use signs to inform visitors about property access points.		

Vehicles, equipment & machinery	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
Vehicle movement & parking         Image: Comparison of the system of t	By restricting parking and vehicle movements within the property, it is easier to control and monitor the spread of diseases, pests and weeds.	Restrict visitor vehicles to designated parking areas. Where possible have designated vehicles that are for use on-farm or use your own farm vehicles to transport visitors around the property.		
Wash-down areas         Image: State of the state of	Vehicles and equipment can carry disease-causing organisms, pests and weed seeds.	A wash-down facility allows orchard employees, contractors and visitors to clean their vehicle and equipment (including hand tools) in an easily managed area where wash water is contained. For maximum protection, it is recom- mended that you also disinfect after washing.		

Vehicles, equipment & machinery	Potential risk	Actions to reduce the risk	Action(s) to take	√/×
Run-off from wash areas         Image: state of the	Run-off from vehicle washing can contain diseases, pests and weed seeds.	Collect run-off from vehicle wash areas in a sump, or direct it away from production areas. Monitor areas around cleaning facilities for signs of pests and diseases, and treat weeds before they set seed or become established.		
Roads & tracks	There is an increased risk of introducing diseases, pests and weeds when vehicles travel off or divert from established roads and tracks. Some areas of your property may have known pest, disease or weed problems that other areas do not.	Have a supply of property maps on hand to give to visitors and farm workers. Ask visitors to stay on established roads or tracks. Check areas next to roads and tracks for signs of diseases, pests and weeds, and treat before becoming established.		

#### **Production Practices**

Good on-farm hygiene reduces the risk of spreading pests and diseases. Implement simple hygiene practices for orchard irrigation, pruning, planting activities, harvesting and packaging, storage facilities and disposal of waste materials.



Chestnut harvester © CAI

Production practices	Explanation of risk	Actions to reduce the risk	Action(s) to take	√/×
Crop & pruning residues	Crop and pruning residues can attract or harbour pests and diseases. This can lead to over-seasoning of pests, and increased pest loads in the following season.	Collection and removal of pruned material as well as unharvested nuts and the chipping, mulching or hot composting of this material are common methods of disposal. The removal of unharvested nuts reduces vermin populations in the orchard as well as the risk of contamination of future harvests.		
Honitoring & surveillance	Early detection of pests and diseases gives you the best chance of preventing pests or diseases from establishing on your property and ongoing additional expenses for their control. Recording the absence of pests or diseases is just as important as recording what you do see.	Good record keeping and regular crop monitoring is also part of good orchard hygiene. If a pest incursion occurs, good records and photos will assist in determining where it came from and where it may have spread to. Display posters showing common pests and diseases to help staff with identification.		

Production practices	Explanation of risk	Actions to reduce the risk	Action(s) to take	√/×
Post-harvest orchard sanitation         Image: second sec	Insects and pathogens can overwinter in unharvested nuts remaining on the tree (mummies) or on the ground, and on diseased branches and leaves. Infested plant materials can spread diseases and pests on your property, or be the source of new infections in the following season.	When the trees are fully dormant, and preferably after pruning, mummies, nuts on the ground, and diseased and loose branches, should be collected and safely disposed of. This will reduce the populations of pathogens and pests (including <i>Carpophilus</i> beetle) in the orchard.		
Stored machinery & equipment Simak, E. 2011, <i>Tractor shed</i> , Geograph (CC BY-SA 2.0)	Sheds storing machinery and equipment can attract or harbour pests and diseases. Soil and plant materials adhering to machinery and equipment can carry insect pests and disease organisms.	Clean equipment before storage. Equipment should be stored securely to avoid attracting pests. Weeds and vegetation around shed should be cleared so that it doesn't harbour pests and diseases.		

Production practices	Explanation of risk	Actions to reduce the risk	Action(s) to take	√/×
Agvet chemicalsImage: Second stateImage: Second state <td< th=""><th>Chemical residues on chestnuts may result in rejection from domestic and international markets, and can pose a risk to human health. The misuse of chemicals can also lead to the development of resistance by pests, potentially creating new biosecurity risks and management challenges.</th><th>Be aware and comply with harvest withholding periods (WHPs) when applying agricultural chemicals. Undertake training in appropriate use of agvet chemicals.</th><th></th><th></th></td<>	Chemical residues on chestnuts may result in rejection from domestic and international markets, and can pose a risk to human health. The misuse of chemicals can also lead to the development of resistance by pests, potentially creating new biosecurity risks and management challenges.	Be aware and comply with harvest withholding periods (WHPs) when applying agricultural chemicals. Undertake training in appropriate use of agvet chemicals.		
Resistance to chemicals         Image: splication of the splica	Inappropriate use of chemicals can cause insects, pathogens or weeds to develop resistance, making control difficult. This can cause more widespread and ongoing biosecurity problems.	Rotate chemistry and adopt other resistance management practices to reduce the development of resistance in weeds, insects and pathogens. Apply at speeds and water volumes that ensure good coverage.		

### Weeds

Weeds are a widespread nuisance that can also cause harm to your business, so they need to be actively controlled.



Craven, S. 2009, Weeds in orchard, Wikimedia (CC BY-SA 2.0)

Weeds	Explanation of risk	Actions to reduce the risk	Action(s) to take	√/×
Weed control         Image: Second contro         Image: Se	Weed species are significant biosecurity problems in their own right, as well as being alternative hosts of some agricultural and horticultural pests. Weeds consume water and fertiliser that should be going to the crop. You may have a legal obligation to control certain weeds in your region.	Establish a weed management plan for your property, including plans for eradicating, containing or managing current weeds on your property, and preventing the introduction of new species. Control weeds along orchard rows by spraying and/or planting a cover crop. Look for outbreaks of weeds, especially after drought, fire and flood.		

Weeds	Explanation of risk	Actions to reduce the risk	Action(s) to take	√/×
Volunteer plants         Image: State of the state o	Volunteer plants that have escaped from production areas can create a habitat to harbour pests or diseases between growing seasons.	Control volunteers including, where necessary, plants external to the orchard (e.g. along roadways, around sheds, or in drainage swales).		
Soil & vegetation disturbance	Soil and vegetation disturbance often result from excavation work, fire, flood or storms, and provides an opportunity for pests and weeds to become established.	Control weeds in fields and orchards after flooding, drought or fire. Inspect any areas where soil has been recently disturbed such as flooded creek lines, new roads, dams or fencing, and treat weeds before they have a chance to set seed and become established.		

### Train, Plan & Record

Ensure staff are well trained and that your records allow tracing of plant movement such as where plants have come from, and where they have moved on- and off-farm. Keep accurate records of purchases, health status if known, sales and movement of all products entering or leaving the property.



Grower on ipad, 123rf.com

Train, plan & record	Explanation	Actions to reduce the risk	Action(s) to take	√/×
Biosecurity planning	An on-farm biosecurity plan will help you prioritise the implementation of biosecurity practices relevant to your property.	Devise a plan for your property, prioritise actions, and update the implementation table as you achieve goals.		
Record keeping <b>Figure 1</b> <b>Figure 1</b> <b>F</b>	A property owner or manager should to be able to 'trace back' and 'trace forward' if there is a disease, pest or weed incursion, and in situations where planting material has not performed as expected on their property.	Keep records of purchases and sales, health certificates and declarations, and pest and disease monitoring activities. Keeping a record of problem areas (e.g. weeds, diseases) can also help with orchard management.		

Train, plan & record	Explanation	Actions to reduce the risk	Action(s) to take	√/×
Staff training	Anyone working on the property (including friends and family) may not know how easily diseases, pests and weeds can spread and how to prevent this from happening.	Inform staff of the biosecurity standards required on site. Provide biosecurity training or information sessions for staff. Have posters to remind staff of the importance of farm biosecurity. (Check out <u>planthealthaustralia.com.au</u> for Fact Sheets and other information regarding pests and diseases of hazelnuts.)		
Monitoring & surveillance With the survey of	Active monitoring and surveillance can provide early warning of potential or emerging problems with pests and diseases.	Keep a record of all crop monitoring, even if you don't see anything. Recording the absence of pests or diseases is just as important as recording what you do see. Monitoring data can be used to support continued access to domestic and international markets.		
Suspect diseases, pests & weeds EXOTIC PLANT PEST HOTLINE 1800 084 881	The risk of incursions by exotic pests and diseases continues with increasing globalisation of trade. Invasive exotic and endemic diseases, pests and weeds present an on-going threat to horticultural businesses and the industry as a whole.	Keep details of state DPIs, agronomists and the Exotic Plant Pest Hotline number at hand. You have a responsibility to report unusual diseases, pests or weeds to an agronomist, state DPI or the Exotic Plant Pest Hotline on 1800 084 881.		

An effective monitoring and management plan will minimise the impact of pests and diseases on your crop. Thank you for taking the time to develop your farm biosecurity plan. Every action you put in place is helping to protect your property, your region, your industry and Australia. Remember to revisit this plan to record your progress and explore future actions.

#### Further Resources

The Farm Biosecurity website has resources for all Australian producers, including:

- crop specific information
- templates for records and signs
- biosecurity manuals
- checklists
- personal biosecurity toolkits
- information on exotic plant pests
- videos
- links to useful sites
- biosecurity action planner.

Find out more at farmbiosecurity.com.au

#### Contact

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