

Prepared by



Biosecurity Planning Manual

Five Steps to Strengthen Biosecurity



If you grow potatoes this Biosecurity Planning Manual is designed for you and your staff, as well as contractors, researchers and consultants working in the industry.

This document outlines simple procedures that can be used to minimise the risk of introducing and spreading pests, diseases or weeds on farm.

You have an important role to play in protecting your farm, your region and the New Zealand potato industry from biosecurity threats.

Biosecurity threats could affect revenue, jobs and community. The next big threat could be here, undetected and spreading. It might already be on your doorstep. You have the power to protect your livelihood and investment with the five easy interventions covered in this on farm biosecurity plan.

New Zealand's biosecurity system comprises many parts to manage risks offshore, at the border, and within New Zealand. Those parts include people, tools, technology, processes, and rules.

While New Zealand's system is working well, biosecurity threats are growing in scale and complexity. Risk pathways (the ways new and unwanted pests and diseases can get here), along with climate, are changing.

There is increasing pressure from both new and established pests and diseases.

The following information is designed to provide guidance to help you identify biosecurity risks, and how to address them. By completing an on farm biosecurity plan you will be identifying and prioritising biosecurity practices relevant to your operation and property. The plan you develop will be unique to your business, staff, and surrounding environment.



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Protect your investment. Better biosecurity every day.

Why is on farm biosecurity so important for the potato industry?

Growers with strong on farm biosecurity practices give themselves the best chance of preventing new pests and diseases entering their potato operation. This helps reduce the impacts that unwanted organisms can bring, including:

-  - reduction in productivity
 - reduced quality and value of potato crops
 - lower market access and reduced return for potato growers
-  - increased control costs it often costs more time and money to control an unwanted organism than to prevent it.

Better biosecurity on potato farms also strengthens New Zealand's resilience to pest and disease incursions. Good day to day practices help to reduce the likelihood of spread before a problem is detected, protect market access, and support the long term sustainability of the potato industry

How do pests and diseases spread within and between potato farms?

Pests and disease causing pathogens can spread between potato farms through a range pathways, depending on the organism. Common pathways include:

-  **Seed potatoes and planting material**
Infected seed potatoes, tubers, or other planting material present a high risk of spreading pests and pathogens over long distances and introducing them into new growing areas.
-  **Tools**
Tools used on infected plants, tubers, or contaminated material can spread pests and diseases to other crops within and between potato farms.
-  **Soil on footwear, machinery, or equipment**
Soil borne pests and pathogens can be moved in even very small amounts of soil carried on boots, vehicles, machinery, crates, and unclean equipment.
-  **Windborne**
Some pests can move by wind or on airborne material, making them difficult to control once established.

What can you do to improve biosecurity on your potato farm?

A wide range of practical measures can be used to strengthen on farm biosecurity for potato production. Growers should discuss these measures with staff, contractors, and visitors as well as maintain a written on farm biosecurity plan. The following general biosecurity guidance applies to most potato growers.

-  **1. Understand your risks**
 - What pests and diseases could affect my potato crop?
 - What is happening in my local area?
 - How might these enter my farm? (Who and what comes onto the property, and what could bring pests or disease in?)
-  **2. Agree what must happen onsite**
 - Share knowledge with staff and contractors.
 - Agree requirements and ensure that they are met.
-  **3. Source and trace clean plant material**
 - Use certified, traceable seed potatoes.
 - Keep supplier and movement records so material can be traced if a biosecurity issue arises.
 - Know where your planting material comes from and ensure suppliers follow strong hygiene and biosecurity requirements.
-  **4. Check and clean**
 - Consider the risk from tools, vehicles and machinery, harvest bins, people and clothing.
 - Do not allow dirty machinery or equipment to enter the farm.
 - Clean machinery between production sites, clean grading equipment regularly.
-  **5. Report the unusual**
 - Be alert for anything unusual. Record what you see, take clear photos if safe to do so, and report suspected pests and diseases promptly. Report concerns to Potatoes New Zealand 0800 399 674 or contact Biosecurity New Zealand hotline on 0800 809 966.



STEP 1

Understand your risks

Only by understanding the risk can we act to protect our investment.

50% crop loss

In severe cases of crops infected by *Clavibacter michiganensis subsp. sepedonicus*.

Bacteria can survive for years

Clavibacter michiganensis subsp. Sepodonicus, the pathogen that causes ring rot, can survive on surfaces for long periods of time making it difficult to eradicate.

For a complete list of Potato Sector Risk Organisms visit <https://potatoesnz.co.nz/industry/biosecurity/sector-risk-organisms/>

Potatoes' most unwanted	How does this affect my business?	How might this enter my crop?
 Colorado Potato Beetle	Market access restrictions	Tubers, plants, and soil
 <i>Clavibacter michiganensis subsp. sepedonicus</i>	Production impacts - up to 50% crop loss	- Tools (cutting seed) - Plant material - Infected seed - Soil on people or vehicles and equipment
 Potato Flea Beetle	Production impacts – crop value loss, control costs and issues for markets	- Imported vehicles and machinery - Shipping containers
 <i>Ralstonia Solanacearum</i>	Production impacts – loss of yields, tubers rotting in storage	- Soil-borne - Infected seed potatoes - Contaminated water - Shipping containers
 Potato Spindle Tuber Viroid (PSTVd)	Impacts yield and quality. Loss of crop value.	- Tools - Plant material

Understand your risks	Actions and considerations to reduce risk	Actions I have taken to protect my farm
Offshore	Keep informed about biosecurity threats to the potato industry and how they spread: • read – PNZ newsletters and our list of sector risk organisms • talk to people - PNZ staff, regional biosecurity champions, post-harvest • listen - industry roadshows, field days and webinars Is there any additional information that changes how I operate?	What I am doing to understand offshore risk:
My local region	Keep informed about what is happening in your region: • read - know your growing region and status. Understand and follow relevant controls which are designed to protect you • talk to people - create a network of people you trust and check-in with them • listen - are any farms that you are closely connected to experiencing pest or pathogen problems? Is there any additional information that changes how I operate?	What I am doing to understand local risk:
Farm border	If a new biosecurity threat entered New Zealand or my growing region, how could it enter my farm or crop? What can I do to reduce the risk? Do I understand all the potential pathways and am I managing the risks associated with these? This will include: • vehicles • plant material • people • imported goods that may harbour pests or soil e.g. vehicles, online purchases, construction materials etc • vectors of pests/diseases e.g. bees, insects, soil, imported plants, other plant species • associations with farms in other regions • anything stored on the farm, leased premises, bins etc	What are the ways in which biosecurity threats may enter my farm or crop? Write them down in order of likelihood:



STEP 2

Agree what must happen on site

Make sure that staff, regular visitors, and anyone else entering your property knows about your biosecurity requirements.

Signs at the main entrance to your property alert visitors to the need to comply with the measures you have in place. Other signs can show visitors where to park and where to clean down their vehicle or equipment, if needed.

When new staff or groups of people arrive, hold an induction session to explain biosecurity measures in place on the farm. This can include workplace health and safety as well as biosecurity requirements, including specific detail relating to the areas of the farm they will access.

Make sure workers know about any biosecurity risks in the region or issues on the property.

They should also be familiar with pests commonly found on the property and know how to report anything unusual.

If you hold events on your farm, such as field days, equipment demonstrations or research trials, clearly indicate any entry requirements and be especially vigilant in checking for new pests and diseases afterwards.

Truck drivers may not be aware of the risks associated with their load or with the movement of their vehicles into different areas. Signage and registers can help everyone to be more informed about the risks.

Agree what must happen on site	Actions and considerations to reduce risk	Actions I have taken to protect my farm
Set expectations with post-harvest, contractors and staff	Set your expectations with post-harvest, contractors and managers. They play a key role in biosecurity risk management. You may wish to formalise expectations in their contracts. You have the right to ask contractors to clean machinery before entering (and leaving) your farm. Another alternative is to only engage contractors who are signatories to an industry recommended hygiene protocol or program.	Who are the post-harvest operators, contractors and staff I have established my biosecurity expectations with?
Train your people so they understand the risk, your expectations and stay engaged	Train your staff so they can achieve the agreed biosecurity expectations. Remember to use language they understand. Training opportunities may include: • induction training • refresher training • updates, when change in risk requires it. Understanding risk, and how practices reduce risk, is helpful in achieving uptake	What is my training plan to ensure staff understand our biosecurity expectations?
Communicate your requirements to visitors	Make visitors aware of your biosecurity requirements to prevent them unintentionally introducing biosecurity threats to your crop. This could be achieved with: • signage that has clear instructions and contact details • a visitor register explaining requirements and instructions • consideration of language difficulties	How I communicate biosecurity requirements to visitors:
Check your expectations and requirements are being met	Verify that expectations are being met and risk is being managed. If not, review: • expectations with post-harvest, contractors and managers • training • communication	How I check that my biosecurity expectations are being met:





STEP 3

Source and trace clean plant material

Anything moved onto your property can be a potential source of weeds, pests and diseases.

Monitor the sources of everything that comes onto your farm including deliveries and water, as these can also bring weeds, pests and diseases.

Infected seed potatoes can spread many pests and diseases, especially viruses, but potentially also late blight and other pests.

In most cases, you will not be able to assess the quality of seed just by looking at it. It pays to source certified seed potatoes from accredited suppliers.

Source and trace clean plant material	Actions and considerations to reduce risk	Actions I have taken to protect my farm
New seed potatoes	- It is not safe to cut seed potatoes as there is a risk that you may spread a disease like bacterial wilt or PSTVd if your knife or cutter is contaminated. - Once planted, regularly monitor growing plants for signs of pests or disease and report any potential seed borne issues to the certifying authority of your seed potatoes for established pests and notify MPI for potential exotic pests	New seed potato source and records: Records updated ☐ (tick when completed)
Compost and organic fertilisers	May contain plant material which hasn't been composted thoroughly and poses a risk of disease transference: Fertilisers are another input that can potentially introduce diseases, pests and weeds to your farm when applied to a crop as part of your rotations. In particular, organic fertilisers such as manure and compost can be a source of pests such as root knot nematode as well as weed seeds. - use reputable suppliers - It is best practice to ask suppliers of compost for a testing history or other assurance of quality.	Compost and organic fertiliser source and how I ensure it is clean: Records updated ☐ (tick when completed)
Other plant material	Diseases or pests may be introduced through other plants e.g. shelter plants and other crops. Assess risk of incoming plant material and ensure suppliers provide verification of freedom from biosecurity threats. Keep records of this.	Plant material of other species, where I source these and how I ensure they are clean: Records updated ☐ (tick when completed)



STEP 4

Check and clean

Any machinery coming onto your property poses a risk of spreading pests and weed seeds. This is particularly the case with contractors involved in harvesting, planting or fertilising who have travelled from farms where potatoes are grown. Don't forget about machinery that is being used for other activities such as sowing, spraying or harvesting other crops as part of a rotation.

Assess the risks that each visitor poses. Get into the habit of asking visitors where they have been recently and take actions appropriate to the risk, as explained on the following pages.

If you cannot reduce the risk presented by a visitor by implementing some of the suggestions outlined in this manual, you can refuse access to your property.

Check and clean	Actions and considerations to reduce risk	Actions I have taken to protect my farm
Property access	Manage access to property: • limit the number of access points • put signage up to communicate biosecurity expectations • have a designated parking area • have a visitor's register	How I manage access to my farm/production site:
Tools and equipment	• Sanitise all tools coming into the production site (dedicated tools where possible) using effective and recommended sanitisers • Don't take risks by creating wounds in wet weather • Clean tools (such as forks) at breaks when rogueing	How I manage the risk of tools and equipment entering my production site and keep them clean:
Vehicles and machinery	Vehicles and machinery free of soil and plant material: • high-risk vehicles and machinery sanitised • use signage at access points to direct vehicles to designated parking/hygiene control areas • allow only essential vehicles into the production site • limit access to established roads and tracks • provide a wash-down area for high-risk vehicles	How I manage the risk of vehicles and machinery entering my farm or production site:
Harvest bins	• Ensure only clean and sanitised bins come on to the production site and check to see they don't contain any leaf/plant material • Clear loadout areas of weeds before harvest • Follow movement controls in place	How I manage the risk of harvest bins entering my production site:

Check and clean	Actions and considerations to reduce risk	Actions I have taken to protect my farm
Visitors and staff	All footwear cleaned and sanitised prior to entry: - provide handwashing facilities, footwear cleaning and sanitising options (footbath, sanitiser spray) - alternatively, provide clothing and footwear for visitors/staff to wear on orchard	How I manage the risk of visitors and staff entering my production site:
Crop protection	- Keep on top of crop protection - Chemicals applied according to the label - Resistance management strategy in place for herbicides, insecticides and fungicides. Records kept of pest populations before and after treatments - Crop monitoring undertaken and observations of pest presence and absence recorded in order to control pests at critical points or thresholds	How I keep on top of crop protection:
Remove and dispose of infected material	- Identify and rogue-out infected material regularly - Dispose of rogued plant material well away from water sources, nurseries and production sites - Follow any protocols in place for disposal - Follow any movement controls in place for plant material	How I remove and dispose of infected material:
Packing shed management	- Sorting/packing shed cleaned routinely and waste disposed of in a pit away from production areas - Regularly clean and disinfect grading machine	How I manage packing shed cleaning, machinery disinfecting and disposal of waste





STEP 5

Report the unusual

If not detected early, chances of eradication or effective control of a pest or disease is severely reduced. Anything unusual should be reported immediately so we are able to minimise the impacts on orchards, businesses, and livelihoods.

Records provide validation that an activity has occurred. In an incursion, the ability to trace backwards and forwards from a property makes it much easier to identify the extent of the problem.

Catch it, snap it, report it	Actions and considerations to reduce risk	Actions I have taken to protect my investment
Catch	Routine monitoring, targeting high-risk: • periods when risk of infection is greater • post-harvest storage • pest and diseases (know what to look for and ensure your staff do too) Comply with specific monitoring requirements If an unusual pest is found contain it and take a photo. Take good photos of any foliar symptoms.	How I look for biosecurity threats in my crop or packing shed:
Report	• Report unusual pests you've caught or plant material symptoms to PNZ (0800 399 674) or the Biosecurity New Zealand hotline (0800 80 99 66) within 48 hours • Bug photos can also be reported online using the free Find-A-Pest app • Unusual plant symptoms (including tubers)	Reports made in the past 12 months:
Record	Keep a record of: • all monitoring activities including unusual pests and plant health issues (record locations on farm map) • new seed potatoes and harvested material (source and location) • all plant movements on and off the property to retain traceability	Where my records can be found for: • Monitoring: • New seed potatoes: • All plant material movements across boundary:



What happens next?

Taking action and reporting an unusual pest or plant material symptom is a good thing. The potential benefit of this action to our industry cannot be overestimated, but what happens next and how will your operation be affected? There can be implications for biosecurity champions that do the right thing and make reports, but it's worth it because the earlier something is reported the greater chance we have of eradicating it.

There is a process for what happens next (it's generic and each response may differ slightly) and how you can get more information.

After reporting	Description	Actions I can take to ensure smooth-running
Identification, assessment and response	- The suspicious find is identified. In most instances it is found to not be of concern and no further action is required. - If further action is required, the pest/pathogen is assessed to determine if a response is needed. Biosecurity New Zealand will contain the pest/pathogen to understand more about it and the impact it may have. - Biosecurity New Zealand, PNZ and any other affected groups then work together to decide whether to formally respond and if so, set goals such as eradication or containment. Sometimes a response then moves into long-term management.	New seed potato source and records: Timeframes from notification to a response decision vary. For pests with serious impacts that we know a lot about it can be immediate, but for others it may take weeks. After reporting I: - Access and provide records and information when requested (traceability information of plant material movements on and off the property is critical for a successful response) - Follow directions to manage the pest/pathogen - Respect confidentiality to avoid unnecessary market reaction.
Effect on farming operation	Most reports of unusual symptoms turn out to not be a biosecurity threat and there are no implications for growers. However, if a response is activated and losses are incurred because of response activities, you will be eligible for compensation under the Biosecurity Act (there are conditions).	Losses must be verifiable, so good production and business records are essential for compensation claims. Where my records can be found:
Who to talk to	- Biosecurity New Zealand provides regular information advice about managing identified pests/pathogens and how a response is unfolding. - PNZ provides advice and support information to growers. - Post-harvest operators help with operations and advice.	Where I store phone numbers/contact details for PNZ and Biosecurity New Zealand:





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