



DECONTAMINATION

Guidelines



Ministry for Primary Industries
Manatū Ahu Matua



Disclaimer

This publication is for the purpose of supporting the New Zealand poultry industry in responding to disease outbreaks, including Highly Pathogenic Avian Influenza (HPAI), Newcastle Disease (ND), Infectious Bursal Disease (IBD), and Salmonella Enteritidis (SE). While every effort has been made to ensure the accuracy of the information presented, the Poultry Industry Association of New Zealand (PIANZ), the Egg Producers Federation (EPF) and the Ministry for Primary Industries (MPI) accept no responsibility or liability for errors, omission, or opinion contained herein, nor for any consequences arising from decisions made based on this information.

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1. Introduction

Depopulation, Disposal and Decontamination (3Ds) and the auditing of these activities are the fundamental elements that make up a biosecurity response plan (the Plan).

Depopulation is the intentional culling and disposal of animals from a defined location to control or prevent the spread of a disease. Where infected or high-risk animals are depopulated to eliminate the risk of further transmission, it must be undertaken humanely in accordance with the Animal Welfare Act 1999.

Disposal is the removal of contaminated material such as carcasses, eggs, litter, wastewater, equipment, and Personal Protective Equipment (PPE), to control or prevent the spread of a disease. Disposal occurs throughout an exotic disease outbreak, alongside depopulation and decontamination.

Biosecure Transport (part of Disposal) is the safe removal of contaminated materials (risk goods) for disposal or testing. This activity must prevent disease spread during handling and transit. All transport activities must leave no residual infectious organism at any associated location.

Decontamination is the use of cleaning, disinfection, and stand-down periods to destroy or inactivate disease organisms. Methods include but are not limited to chemicals, heat, and physical cleaning. If full decontamination isn't possible, fallowing to allow natural organism die-off over time is used to reduce risk.

Objectives of the 3Ds:

- Eliminate disease from the affected location without causing further contamination or spread.
- Ensure the 3Ds activities pose minimal to no risk of disease transmission or spread.
- Leave all associated locations with negligible risk of residual infectious disease.

2. Purpose

These guidelines help you choose the right method(s) to decontaminate areas like sheds, equipment, and vehicles during a disease outbreak on a production site. These outbreaks will involve notifiable and/or unwanted organisms that are harmful to animals, people, or the environment, as defined under the Biosecurity Act 1993. Examples include Highly Pathogenic Avian Influenza (HPAI), Newcastle Disease (ND), Infectious Bursal Disease (IBD), and Salmonella enteritidis (SE).

For simplicity, this document will refer to notifiable and/or unwanted diseases collectively as 'diseases'.

By the end of this guide, you'll know how to scale up or adjust operations to fully decontaminate all areas on a production site, helping to remove the disease risk and get safely back to business (for farmers / operators, refer to Appendix A for a checklist).

In this document, "you" can refer to either a MPI (Biosecurity NZ) person or a farmer/operator, depending on who is leading the exotic disease outbreak activities.

3. Audience

This guidance supports national and regional biosecurity responses to a disease outbreak across New Zealand and its territories. It aligns with internationally recognised risk assessment and decontamination methods, making it applicable both within a Biosecurity NZ -led response under the Biosecurity Act, as well as situations where Biosecurity NZ is not directly involved in managing a disease outbreak.

It is intended for:

- poultry industries (breeding, rearing, broiler and layer flocks), including farmers and livestock managers;
- industry bodies (Poultry Industry Association of New Zealand and the Egg Producers Federation);
- poultry site operators, owners and managers, including those not associated with the industry bodies;
- contractors, including transporters;
- operational teams conducting depopulation, disposal, decontamination or audit functions;
- Biosecurity NZ place managers supporting affected individuals and locations in the circumstances where a response is managed by Biosecurity NZ under the Biosecurity Act.

Use this space if you would like to make notes as you go through this document.

4. Considerations

Decontamination during a disease outbreak isn't business-as-usual. A pathogen or bacteria can be lurking anywhere, not just in areas where there are chickens. You've therefore got to be thorough, make tough decisions, and change how things are normally done on the site. You'll need to know the requirements and the options available. Consider every part of the operation:

- **Buildings and indoor areas** e.g. poultry sheds, winter gardens, feed stores and any other outbuildings.
- **Equipment** e.g. feeders, drinkers, ventilation systems, belt systems.
- **Machinery** e.g. vehicles, tractors, and anything that moves.
- **Outdoor areas** e.g. ranges, surrounding paddocks and transition areas e.g. rock, sand, or bark.

Ask yourself: *What needs cleaning and disinfecting? What risks need to be managed? Can it be cleaned and disinfected properly? How will it be cleaned and disinfected? If it can't be cleaned, do you fallow it or dispose of it?*

Start with what is already done for decontamination at the site. Then use the principles below to guide your thinking on what extra needs to be done in an exotic disease outbreak situation which should be documented within the Plan.

4.1 Risk-Based

Ask yourself: *Am I making decisions based on risk assessment?*

Every step should reduce the chance of disease spread or persistence. Think about how people, gear, and vehicles move around the site, and lock down risky areas that could carry infection. Think about movement on and off the production site, how you'll contain the disease, and what biosecurity controls you'll need to put in place. Use the risk assessment framework (see Appendix B) to guide your planning. Protect clean zones and don't let dirty boots or tools undo the hard work. Line up the cleaning and disposal plans before you start. Discuss risks and how they'll be managed with all third-party contractors, such as cleaning crews. In an outbreak, it may be more than one site needing the services of local contractors, so be prepared for the wider impacts in the region.

4.2 Safe

Ask yourself: *Is everyone involved protected, including people, animals, and the environment?*

Decontamination work is physically demanding. Make sure the team is skilled with the appropriate training, qualification or experience, gear is appropriate for the task, and work areas are well-ventilated and monitored, with vehicle and people's movements being separated and controlled. Biosecurity NZ and farmers/operators will need to work together to ensure safety systems align. If you've got contractors on-site, keep communication clear to avoid mistakes and keep things running smoothly or ensure issues are rectified rapidly if they should occur.

4.3 Effective

Ask yourself: Will this method get the disease off the site?

You'll need to use methods that are proven to work. If using chemicals, stick to MPI-approved products (see Appendix C) and follow label instructions precisely. Ensure you are using approved products on food contact surfaces. Plan how you will verify that cleaning and disinfection have been effective. This may include visually inspecting areas after cleaning and carrying out testing (such as surface sampling) to check for any remaining disease organisms. Tailor the plan to each part of the site. Think about whether the current setup can deliver the outcome needed, or if there is a need to bring in additional equipment, people, or processes to get the job done properly.

Know where the dirty and clean zones are as decontamination progresses and how you are going to control movement of risk goods by ensuring one-way flows and transition of people, equipment and vehicles across the boundary between the two - the 'red line'! No contamination should cross this line. A red line can be created using physical barriers such as fences or natural features like waterways.

Plan to ensure depopulation, disposal and decontamination (3Ds) progress effectively and manage the risk of bottlenecks.

Most important: *clean first, then confirm it's dry and visibly free of dirt before disinfecting*. Dirt blocks disinfectant from doing its job, and wet surfaces dilute it.

4.4 Timely

Ask yourself: *Can this be done fast enough to stay ahead of the disease?*

Work quickly, but safely. Cleaning and disinfection must be *systematic*. Don't let clean areas get re-contaminated by people or gear moving through too soon. Plan the order, protect clean zones, and track progress. Timely means keeping things moving and building toward stand-down without undoing the hard work. Also remember all risk goods and vehicles must be cleaned and disinfected before leaving the site to minimise the further spread of disease.

5. Activity overview: planning, process choices, safety and timelines

Decontamination during a disease outbreak is a high-risk, high-pressure operation that must be done systematically, safely, and thoroughly. The plan needs to cover how decontamination will be done, who's involved, what equipment is needed, and when it must happen.

If Biosecurity NZ manage the on-site response under the Biosecurity Act and takes control, the farmer/operator may receive:

- Movement restrictions to contain the disease.
- A Notice of Direction (NOD) that outlines how and by when decontamination must occur.

Once a response is managed by Biosecurity NZ under the Biosecurity Act, Biosecurity NZ is in charge. The farmer/operator's role is to be ready to act within Biosecurity NZ's framework, not outside it.

Regardless of who is managing a response situation, all farmers/operators must adhere to the Biosecurity Act, most notably the obligation to prevent disease spread (sections 52 and 53 of the Biosecurity Act). A comprehensive decontamination programme also supports the elimination of the disease from the property, to ensure a safe return to production after a disease outbreak.

For detailed instructions, refer to the relevant Work Instruction for each method.

How farmers/operators can be ready:

- Develop a Standard Operating Procedure (SOP) that outlines the chosen decontamination method(s). SOPs should meet guideline requirements and will be used for audit purposes.
- Ensure sufficient skilled personnel with the appropriate training, qualification or experience are available.
- As a Person Conducting a Business or Undertaking (PCBU), you need to document and know how monitoring of health and safety will be carried out throughout operations.

Key questions to consider:

- Can current procedures be scaled up for decontamination activities in an exotic disease outbreak, to get back in business as soon as possible?
- What are the protocols for people, materials and vehicles entering as well as leaving the property?
- Are the right personnel available?
- What equipment is already available, and is it transportable and fit for purpose? What else is needed?
- Have all areas been assessed to ensure a systematic, planned approach, that is appropriate for all structures and locations, particularly challenging surfaces such as dirt floors, wooden material, cracked concrete or pitted surfaces?
- Have the logistics been organised and a decontamination plan developed for all areas?
- Do you know how good the water quality is? Hard water can inactivate chemicals. If you are not sure talk to the company that supplies the detergent and disinfectant for advice.

For farmers/operators: if you can't identify a way forward after going through these guidelines talk to your vet, the livestock manager, or your industry representative for help.

5.1 Planning

Tailor the plan to each part of the site. Expect a significantly tougher job than usual. Extra gear and skilled people with the appropriate training, qualifications or experience are likely to be needed.

As you plan your approach, remember, all decontamination activities must be carried out with the express intent to prevent the spread of disease, within the site, beyond the site, and to personnel involved. Align decontamination and disposal activities. Ensure that all wash water from decontamination activities is contained, treated, and disposed of appropriately.

When planning the decontamination methods, the following needs to be ensured, so as not to cause disease spread:

- All cleaning personnel must be signed in before beginning work to ensure accountability and traceability.
- Spraying methods that could aerosolise the disease must be avoided to prevent airborne transmission.
- Wastewater generated during cleaning must be securely contained and treated before being released into the environment or reused, as it poses significant biosecurity and public health risk.

5.1.1 *Expect extra people on site*

During an exotic disease outbreak, there will likely be more people on the production site than usual. This could include contractors, Biosecurity NZ staff or specialist service providers.

To keep things running smoothly and safely farmers/operators will need to:

- give site inductions to everyone who arrives;
- continue to keep a visitor log and control who enters the site;
- make sure everyone understands the risks and safety rules;
- ensure they (or a designated person) are available to carry out inductions at the start of each day and safety compliance checks as they work through and around the site.

For farmers/operators: expect media presence. Don't engage directly, instead refer them to the industry representative.

5.1.2 *Decontamination team considerations*

Decontamination operations require personnel (new personnel require oversight and on the job training) who are skilled with the appropriate training, qualifications or experience in the cleaning and disinfection methods being used.

Team composition should be adjusted based on production site type and housing to meet health and safety standards. Essential roles include:

- Supervisor or Site Manager: oversees operations and ensures compliance.
- Decontamination personnel: numbers vary by method and amount of contaminated material.

5.1.3 Before work starts

Make sure every person on site:

- wears PPE appropriate to their role;
- attends a site-specific health and safety briefing;
- keeps access clear for vehicles and people;
- follows all risk controls and reports any new hazards.

All activities must follow the Health and Safety at Work Act 2015 (HSWA). That includes movement controls and any operational work.

5.1.4 Materials

Always keep the following materials on-site (scale up as needed):

- PPE: Refer to section 4.3.2.
- Safety equipment: first aid kit, adequate lighting and personal gas monitors (if using gases).
- Decontamination equipment: confirm method-specific tools (e.g. sprayers, fogging units) are functional and meet minimum standards.
- Documentation tools: pens, clipboards etc.

5.2 Decontamination methods: overview and safety

Choosing the right decontamination method depends on the surface type, the contamination assessment, the risk of spread, available resources, site conditions, and legal requirements. All methods must be effective, and safe for people, animals and the environment. Use this section to understand your options and identify exactly what you need to plan for.

Table 1 Preparation to support the decontamination programme

Method	Considerations
Wash station for vehicles, equipment and personnel	Set up stations to clean vehicles, equipment, and personnel. These are essential at entry/exit points on production sites, hatcheries, and processing sites. Cleaning must be thorough before disinfection.

Product	Considerations
Detergents and disinfectants	Use detergents to clean and disinfectants to kill the disease organism. Choose products suited to the disease and surface. Follow label instructions. Wrong dilution or poor water quality can reduce effectiveness. Store and handle it safely. Use chemicals strictly according to manufacturers' recommendations. Do not mix chemicals as some mixtures will cause toxic gases such as chlorine to be produced.

Table 2 Decontamination methods for indoor areas

Method	Steps	Considerations
Cleaning & disinfecting	Step 1: dry clean	Remove visible dirt, manure, and debris using tools like brooms or scrapers. Get rid of anything that's easier to dispose of than clean (e.g. manure belts). Deciding whether to clean or dispose of an item often comes down to a cost-benefit analysis, which should be carried out when planning for a disease response. The goal is to reduce organic matter so disinfectants can do their job. Do not use compressed air blowers , as this risks spreading the disease. Vacuum brushes work well but remember to clean and disinfect them thoroughly after use.
	Step 2: wet clean	Use water (hot or cold), or detergent to wash down surfaces. This helps break down remaining organic matter. Only move to disinfection once surfaces are visibly clean. It is important to allow the surfaces to dry before disinfection to prevent dilution of the sanitiser. Hot water can bake material such as blood and egg content onto surfaces, so it is best to start with cold water.
	Make sure you verify surfaces are visibly clean and dry before moving to disinfection.	
	Step 3: wet disinfection or Step 3: fumigation	Spray, foam, or mist disinfectants onto cleaned surfaces. Works best on smooth, non-porous surfaces. Effectiveness depends on contact time, concentration, coverage, and environmental conditions (e.g. temperature, humidity). Use fogging with gases like formaldehyde or hydrogen peroxide vapour to disinfect enclosed spaces. Good for large or high-risk areas. Needs airtight containment, trained personnel, PPE, and downtime for ventilation.
Alternative (currently in the trial phase)	heating and drying	Currently not suitable as a standalone method, it requires enclosed buildings that can be heated, and risks damage to sensitive equipment or materials. Desiccation (removal of moisture) helps kill disease organisms, especially in hard-to-reach areas or uneven or holey surfaces. A standalone alternative method to traditional cleaning and disinfecting is being trialled. Contact industry bodies for up-to-date information.

Table 3 Decontamination methods for outdoor areas

Method	Options	Considerations
Liming	There are two main types of lime, the key difference is that quicklime is raw and highly reactive, while hydrated lime is processed and more stable: Quicklime (Calcium Oxide – CaO): A highly reactive substance made by heating limestone. It reacts vigorously with water, releasing heat. Hydrated Lime (Calcium Hydroxide – Ca(OH)₂): Produced by adding water to quicklime in a controlled process. It's less reactive and safer to handle.	Liming is a practical way to raise the pH of the soil and help kill off disease organisms in the environment. It's especially useful in places where you can't easily use chemicals or heat, like free-range paddocks or outdoor areas. But liming works best when you combine it with other steps like mowing grass short, tilling the soil or letting the area lie fallow (resting it). These actions help expose the pathogen to high pH, sunlight (UV), and heat, making it harder for the organism to survive. Conditions such as low temperature and rainfall can negatively impact this method of decontamination. Liming must not be used to cover carcasses or other organic material during burial, as it slows decomposition and can prolong the survival of disease organisms in the environment. The only exception is eggs, where liming can reduce odour and poses minimal risk of interfering with decomposition due to the nature of the material.

Table 4 Decontamination methods for areas that can't be adequately cleaned & disinfected

Method	Considerations
Fallowing	Fallowing means leaving areas or materials alone so the pathogen can die off naturally. Use it when you can't clean or disinfect properly like in free-range paddocks, compost, slurry, or mown grass. For example, the avian flu virus can hang around for a long time, especially in cool, damp spots or in organic matter. That's why fallowing is critical. What to do: • Identify areas you can't clean like soil, paddocks, or compost piles. • Keep people, birds, and gear out of these areas for a set time (up to 120 days if needed). Refer table 9. • Speed things up by mowing, tilling, composting, liming, or exposing the area to sun and heat. The better the conditions (warm, dry, sunny), the faster the pathogen breaks down. Using multiple treatments can shorten the fallow period.

Stand-down periods – let the disease organism die off

Regardless of the decontamination method used there will likely be a stand down period before the production site can be restocked. If an exotic disease outbreak is managed by Biosecurity NZ under the Biosecurity Act, this period will be stipulated in a Notice of Direction (NOD) issued to the farmer / operator of the infected property. Alternatively, good biosecurity practice still requires a 28 day stand down period after the completion of the cleaning and disinfection processes. This gives time for the disease organism to break down in the environment and reduces the risk of recontamination.

Additional points to consider:

- You can use extra steps like liming, fallowing, and thorough cleaning to boost effectiveness.
- Keep people, animals, and gear out of cleaned zones until the stand-down period is over.

How well this works depends on:

- Weather (heat and humidity help break the disease organisms down).
- How well you cleaned.
- How well everyone sticks to biosecurity rules.

5.3 Personnel: overview and safety

This section helps you prepare the team and site for exotic disease outbreak operations. It covers who needs to be involved, how to keep everyone safe, and how to support people through demanding tasks. Following these steps will help meet legal requirements and protect everyone working on the production site.

Everyone on site must put health, safety, and wellbeing first. Before any work starts, make sure there is a Health and Safety plan in place. This plan should include:

- clear instructions on PPE;
- a site-specific risk register;
- risk assessments for each activity, with steps to reduce those risks;
- a system for monitoring and reporting new hazards.

Decontamination during a disease outbreak that can infect humans comes with additional risk from exposure to disease through skin, ingestion or inhalation. Mitigate these risks by using the correct PPE, working in well-ventilated areas, and monitoring health. For workplace-specific advice, check the [Te Whatu Ora website](#).

For Biosecurity NZ staff-specific information, please refer to Appendix D.

(This also has practical value for farmers/operators)

5.3.1 Activity-specific risks

Each decontamination method comes with its own risks. The plan must include safety measures to protect personnel and ensure compliance with the Health and Safety at Work Act. The tables below give examples of activity specific safety requirements you should consider. However, you should conduct your own site-specific risk assessment.

Table 5 Activity-specific safety considerations for decontamination programme support elements

Activity	Examples	Risks	Safety measures
Wash station	Cleaning vehicles, equipment, PPE at entry/exit points,	Cross-contamination.	Clean thoroughly before disinfecting. Keep stations stocked, clearly marked, and monitored.

Products	Risks	Safety measures
Detergents and disinfectants	Chemical reactions, surface damage, reduced effectiveness.	Use the right product for the job. Follow label instructions. Store safely and avoid mixing chemicals.

Table 6 Activity-specific safety considerations for decontamination methods for indoor areas

Activity	Examples	Risks	Safety measures
Step 1: dry clean	Scraping, sweeping sheds or barns.	Dust and debris can spread disease and harm personnel if inhaled.	Minimise dust, reach all corners, and weigh up cost of cleaning vs disposal. Use PPE, and good ventilation. Train personnel and monitor work. Do not use compressed air blowers, consider using vacuum brushes to minimise dust.
Step 2: wet clean*	Washing down surfaces with water and detergent.	Water damage to sensitive areas, chemical runoff, disease spread via wash water, personnel exposure.	Avoid electrical areas, capture runoff, follow chemical safety data sheets, and stick to local rules. Use PPE. Train and supervise personnel. Avoid high-pressure hoses where possible.
Step 3: wet disinfection or Step 3: fumigation	Spraying disinfectant on cleaned surfaces. Gassing enclosed spaces.	Poor coverage, wrong concentration, reduced effectiveness. Health risks, sealing and ventilation issues, regulatory limits.	Clean first. Apply evenly. Follow product instructions. Monitor temperature and humidity. Use trained personnel with PPE. Follow legal requirements. Ventilate fully before re-entry.
Heating and drying (alternative method)	Using heaters or sunlight to dry areas.	Uneven heat, damage to gear.	Use sustained high heat. Don't rely on heat alone, combined with cleaning and disinfection. Monitor equipment.

* As many sheds are not built for wet cleaning, be aware that motors and machinery such as feed chains or belts may need to be replaced as they will not withstand the wet cleaning process. Consider disposal and replacement.

Table 7 Activity-specific safety considerations for decontamination methods for outdoor areas

Activity	Examples	Risks	Safety Measures
Liming	Quicklime	Reacts with water, generating intense heat (thermal burns and fire risks). Corrosive, capable of damaging skin, eyes, and respiratory tissues.	Strict PPE protocols must be followed: gloves, goggles, masks, boots, and coveralls are essential. Workers must be trained in safe handling and emergency response procedures.

5.3.2 PPE considerations

Each person must have their own PPE set, to protect them, and to prevent disease spread, sufficient for the full duration of site work. Minimum PPE should include:

- Coveralls (Disposable or non-disposable laundered on-site)
- N95/P2 face masks (there are options for full face masks)
- Disposable latex gloves
- Gumboots (cleaned and disinfected)
- Antiseptic wipes
- Full disposable coveralls
- Eye protection
- Long-sleeve non-disposable gloves
- Hearing protection
- Approved disinfectant and spray bottle

Cover all clothing and equipment where possible. Change non-disposable PPE according to decontamination protocols between areas and before leaving the site. Launder on-site or double bag to launder off-site any non-disposable coveralls.

5.3.3 Wellbeing

Decontamination tasks are physically and emotionally demanding. It is essential to:

- Monitor personnel wellbeing throughout operations.
- Provide access to support services.
- Encourage regular breaks and team check-ins.

Refer to [Managing psychosocial risks at work | WorkSafe](#) for further guidance.

5.4 Timelines

When using detergents or disinfectants, always follow the manufacturer's instructions. Table 8 gives an indication of the sequencing when planning timelines for and undertaking a decontamination process in response to a disease outbreak.

Table 8 Sequencing for decontamination plan depended on the type of risk

Type of Risk Good	Cleaning steps	Disinfection Option 1	Disinfection Option 2
Very high risk	N/A	N/A	N/A

High risk porous (e.g. rubber, plastics, wood)	Dry clean → detergent foam → cold then hot water (rinse) → dry → hot water blast again → dry	Sanitiser liquid spray (disinfectant) → rinse as needed → dry	Fumigation or heat (e.g. 7 days constant)
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Type of Risk Good	Cleaning steps	Disinfection Option 1	Disinfection Option 2
High risk non-porous (e.g. metal, glass)	Dry clean → detergent foam → cold then hot water rinse → dry → +/- hot water blast again → +/- dry	Sanitiser liquid spray (disinfectant) → rinse as needed → dry	Fumigation or heat (e.g. 7 days constant, surface flaming)
High risk electrical & special And Medium risk All non-electrical	Dry clean → detergent foam → cold then hot water (rinse) → dry → hot water blast again → dry <i>or</i> Dry clean → detergent liquid wipe → cold then hot water wipe → dry	Sanitiser liquid spray (disinfectant) → rinse as needed → dry <i>or</i> Sanitiser wipe → hot water wipe → dry	Fumigation or heat (e.g. 7 days constant)
Medium risk electrical & special	Dry clean → detergent foam → cold then hot Water (rinse) → dry <i>or</i> dry clean → detergent liquid wipe → cold then hot water wipe → dry	Sanitiser wipe → dry	Fumigation or heat (e.g. 7 days constant)
Low risk	Inspect Dry clean if needed Cold then hot water rinse or wipe if needed	Sanitiser liquid spray (disinfectant) → rinse as needed → dry <i>or</i> Sanitiser wipe → hot water wipe → dry	N/A
Very low risk	Inspect Dry or wet clean if needed	Sanitise (disinfectant) if needed	N/A

Table 9 Fallowing times for various places and mitigation options

Place/Equipment	Mitigation/Treatment	Indicative Fallowing Times
Ranges (fenced, grassed areas extending beyond the inner fenced area)	None	Up to 12 months
	Summer season	<120 days (>~10°C)
	pH (acid or alkali)	<90 days
	Physical (mowing, harrowing, top layer removal for disposal or fallowing as below) aim to increase the exposure of soil surfaces to ultraviolet (UV) light.	90-120 days
Adjacent areas (fenced, aggregate area immediately outside the shed wall)	None	Up to 12 months
	Summer season	<120 days (>~10°C)
	pH (acid or alkali)	60-90 days
	Physical (top layer removal for disposal or fallowing as below)	<90 days
Litter, compost, dry matter harvested from ranges, contaminated substrate adjacent areas (either bulk stored or applied to an area)	None	Up to 12 months
	Summer season	<120 days (>~10°C)
	pH by alkaline or acid or silage process	<90 days
	Physical (covering/containing, ploughing under, broadcast spread then treated, composting, etc)	60-120 days
Effluent and wastewater (ideally solids and liquids handled separately then either bulk stored or applied to an area)	None	Up to 12 months
	Summer season	<120 days (>~10°C)
	pH by alkaline or acid	60-90 days solid <90 days liquid
	Physical (covering/containing, ploughing under, broadcast spread then treated, disposal, etc)	90-120 days <90 days (with chemical x)

6. Assurance

Audits make sure the decontamination process is done right and keeps the production site, team, and industry safe. Such checks give confidence that the law, including biosecurity and health and safety standards have been met. During an exotic disease outbreak to a disease outbreak not managed by Biosecurity NZ, there is still an expectation that an Authorised Person may visit the site to check everything's been done properly.

6.1 What farmers/operators should have ready

- Movement control permits (where required).
- Permits, approvals or exceptions under s52 and 53 of the Biosecurity Act, to remove risk goods from infected premises.
- Health and Safety plans for both the team and any contractors.
- Site map and decontamination SOP which is the go-to guide for how things should be done.

6.2 What farmers/operators should record

- Personnel training, qualifications or experience and supervision details.
- Chemicals used and water and chemical containment checks.
- Signed confirmation that cleaning, disinfection and alternative methods such as liming, are completed and checks occurred.
- Truck and personnel arrival and departures as well as truck cleaning logs.
- End-of-day cleaning of all gear and equipment.
- Any issues and what was done to fix them.

6.3 What audit checks are likely

To keep the production site and the industry safe, audit checks may confirm:

- The right decontamination methods were used.
- Records and documents are complete and easy to find.
- The site is clean, secure, and compliant.

An Approved Person (Person appointed by a Chief Technical Officer (CTO) under section 103 of the Biosecurity Act 1993 for the purposes of administering and enforcing the provisions of the Act) may audit operations and record findings using a standard checklist which is available in the Work Instructions.

7. Appendices

Appendix A: Decontamination readiness checklist (farmers/operators-specific information)

Goal: Be fully prepared to decontaminate all areas on-site to prevent persistence or spread of the disease and enable a return to business as soon as possible.

☒ Task	Check
Documentation	
I've written a clear decontamination SOP that explains how we'll carry out the process. It meets legal requirements.	
I've got a site map showing where decontamination will happen and how people, equipment and vehicles will move.	
I've created a decontamination plan for each area of the production site, and I've confirmed how and when they'll be cleaned and disinfected.	
I've got a health & safety plan in place, including how we'll monitor personnel safety during the operation.	
I've got a communication plan including who to call, when, and how (Biosecurity NZ, contractors, personnel, etc.).	
Records	
I've got a plan for record-keeping during the operation (e.g. chemical concentrations, cleaning checks, water containment and treatment).	
Operations	
I've arranged for contractors or extra help , and they know our SOP and safety rules.	
I've made sure we have enough skilled personnel , and I've kept records of their training, qualification or experience.	
I've walked through the plan with my team and made sure everyone knows their role.	
I've briefed all personnel on what to expect and how we'll keep everyone safe and compliant.	
I've checked that we have safe, well-ventilated areas to carry out decontamination.	
I've checked that cleaning and disinfection supplies, and equipment are ready and working.	
I've got enough PPE and safety gear for all personnel and visitors.	

Appendix B: Risk matrix for infectious disease organisms (pathogens)

The ratings below are the relative likelihood of an infectious disease organism being present on or in the materials or objects. If not on the table, the risk is negligible, and any further risk is adequately managed as per existing regulatory systems.

Risk ratings can be assessed individually, or in groups/areas. It may be most effective to, at a large place, understand what the highest risk item(s) or areas are, and apply that standard across a whole group of items or the whole place.

Table 10 Risk ratings for pathogen presence/relative amount on Infected Places (IPs) And Suspect Places (SPs)

Very High (5)	High (4)	Medium (3)	Low (2)	Very Low (1)
-Live birds -Carcasses -Raw meat and meat raw by-products -Contaminated eggs and raw egg products and by-products -Other non/minimally processed (likely contaminated) by-products (hatchery waste, feathers, inedible offal) -Contaminated water and feed in contact with live birds and carcasses -Uncontained waste products and effluent (manure, litter, and wash water) -Free range areas in contact with live birds and carcasses (paddocks, orchards, etc)	-Slaughter and/or Processing equipment for eggs and meat -Surfaces within indoor spaces that have contact with live birds and carcasses -Animal husbandry equipment within indoor spaces that have contact with live birds and carcasses (e.g., feeders, waterers, roosts, nest boxes) -Unused daily water, litter and feed supplies -Used PPE (contaminated and direct contact with Very High and High category things) -Contained waste products and effluent (manure, litter, and wash water) -All disease management equipment -Animal health/veterinary equipment	-Vehicles used on-site or needing to move off-site with contact with anything in the Very High or High categories -Packaging and transport materials on site in contact with anything in the Very High or High categories -Products that have only had initial processing (e.g., cleaned/washed eggs, any HACCP¹ applied during processing) -Any stored feed or crops collected from paddocks on or around an IP/SP and/or in areas with active outbreaks -Other clothing and people in general (as conveyors) -Any waste that may have had indirect contact with anything in the Very High or High categories	-Vehicles visiting the premises from off-site or used on-site with no contact with live birds, carcasses, or any contaminated material (e.g., transport of processed products) -Other equipment on-site and not in direct contact with anything in the Very High or High categories but may have indirect contact via people or contaminated environments/areas -Products that have been further processed or rendered to a higher standard (e.g., eggs that have been washed to a food safety standard) -Edible product and by-product-associated packaging and transport -Feed and water brought onto a place and stored in a biosecure manner -Non-susceptible animals (to the circulating strain) including pests and predators	-Diagnostic samples (appropriately packaged) -General materials and goods brought onto a place and kept stored/packaged in an isolated/quarantined and biosecure manner. -General equipment not used with processing or animal husbandry -General waste not used with processing, animal husbandry, or disease management activities. -Cooked product (meat and eggs)

¹ HACCP = Hazard Analysis and Critical Control Points, is a systematic preventive approach to food (and feed) safety.

Appendix C: Suggested detergents & disinfectants

Suggested detergents that are considered safe, readily available in New Zealand, and recognised on the Agricultural Chemical and Veterinary Medicines (ACVM) register. Biosecurity NZ does not endorse or recommend any specific chemical brand.

NB: Please note that the chemicals referenced are suitable for HPAI. Should there be a different disease, please check with the chemical manufacturer or MPI for advice on the appropriate chemicals to use.

Table 11 Suggested detergents

Item	Detergents	Concentration/contact time
All surfaces and objects both porous and non-porous excluding PPE	Foamclean S Ecolab Optimum Any acid or alkali detergent	Use FoamClean S 1:50 dilution (2%), apply 1 L of FoamClean S diluted solution per 1 m ² area.
Vehicles	Foamclean S Ecolab Optimum Any acid or alkali detergent	Use as per label and will require rinsing due to product specific caustic effects.
Electrical and special	Any acid or alkali detergent (spray bottle and wipe)	Use as per label.
PPE	Virkon® S	PPE with gross contamination is a wet clean process to remove visible organic material, then surface disinfected and disposed. PPE is generally "cleaned" with a disinfectant such Virkon S which also has detergent properties.
Body and clothing	Biocil® Hibiclens® Household soaps and detergents (such as Persil)	Follow label instructions or sufficient to lather in warm water for at least 20 seconds. For laundry use with a hot water wash cycle (e.g., 40°C).

Suggested disinfectants that are considered safe, readily available in New Zealand, and recognised on the ACVM register. Biosecurity NZ does not endorse or recommend any specific chemical brand.

NB: Please note that the chemicals referenced are suitable for HPAI. Should there be a different disease, please check with the chemical manufacturer or MPI for advice on the appropriate chemicals to use.

Table 12 Suggested disinfectants

Item	Disinfectants	Concentration/contact time
All surfaces and objects both porous and non-porous excluding PPE	Sodium hypochlorite Calcium hypochlorite Sodium hydroxide Sodium carbonate anhydrous Glutaplus Glutachem	As recommended by manufacturers labelling and instruction, including the safety and data sheet.
Vehicles, machinery, plant & equipment	As above	As above
Electrical and special (wipe cleaning)	As above	As above
PPE	As above	As above
Body and clothing	Biocil® Hibiclens® Household soaps and detergents (such as Persil)	As above

Appendix D: Health and safety for decontamination (information for Biosecurity NZ with practical value for farmers/operators)

General information

There should be a verifiable Health and Safety plan in place, which includes clear guidance on the use of personal protective equipment (PPE). All personnel should follow the health and safety protocols relevant to their role and ensure they are familiar with both the Risk Register and the Health and Safety plan specific to their duties and location. Emergency procedures should be followed, roles and responsibilities clearly identified, and appropriate training provided to all involved.

Refer: [Avian influenza health and safety guidance for workplaces – Health New Zealand | Te Whatu Ora. MPI Response Readiness HPAI H&S Guidance for Op Work Activities](#). (MPI access only)
[Health and Safety Standard](#). (MPI access only)

Table 13 Health and safety process

Step	Action
1	Personnel to don required PPE for specific role.
2	Carry out health and safety briefing as per the site-specific health and safety plan.
3	Establish access-ways and always maintain safe and clear vehicle access.
4	Implement all agreed mitigation/s against identified risks as per the health and safety plan. Report and record any risks that arise during operations (<i>Step 3 is an example of this</i>).

Specific requirements

When visiting any property please follow the health and safety guidelines and ensure you are familiar with the contents of the Risk Register and the Health and Safety plan specific to the exotic disease outbreak.

The health and safety plan should include thorough consideration of all potential risks and mitigations for each risk. The health and safety plan should include considerations of the risk from the specific activity being carried out (Refer to the Appendix B: Health and safety for specific requirements).

Table 14 Health and safety considerations for decontamination

Hazards and risks	Recommended steps/mitigation
Hazard: Zoonotic diseases including the HPAI virus E. coli Campylobacter Salmonellosis fungal infections Listeriosis Chlamydiosis Risk: Illness, injury, death resulting from exposure to zoonotic diseases.	Where Biosecurity NZ directly engage contractors or works with other stakeholders to decontaminate the following risk mitigations are implemented: • Health and safety site inductions are mandatory for all workers and visitors. HPAI information provided to workers and visitors must include the virus symptoms, mandatory PPE, red zone areas. • Ensure the presence of trained and qualified personnel, provide information on HPAI symptoms, and implement strict PPE protocols, including proper donning and doffing of PPE and procedures, as well as access to showers and washing facilities when entering or exiting the red zone. • Ensure personal protective equipment (PPE) is laundered onsite using standard laundry detergent or PPE is to be laundered by a commercial laundry company and placed in marked double wrapped bio-secured plastic bags. • PPE is to be provided and is on hand: gloves nitrile (two layers of glove with gauntlet length). Protective eyewear (unvented safety glasses). Protective non-slip chemical resistant footwear (closed and waterproof); impermeable chemical resistant apron and/or weatherproof coat and leggings, Coveralls Type 5/6. Respiratory protection; half face, full face respirators and filters and hearing protection, P2 and P95. • Any worker presenting HPAI symptoms must report to the place manager, Health NZ, and the workers Medical Practitioner.
Hazard: Hazardous substances used for decontamination Risks: Exposure to toxic or corrosives resulting in acute or chronic toxicity, illness, injury, death, burns, respiratory sensitization and irritation, skin irritation.	Where Biosecurity NZ directly engage contractors or works with poultry farms to decontaminate the following risk mitigations are implemented: • Ensure compliance with the Health and Safety at Work Hazardous Substances Regulations 2017. • Mandate health and safety site inductions for all workers and visitors. • Ensure the presence of trained and qualified personnel, provide information on HPAI symptoms, and implement strict PPE protocols, including proper donning and doffing of PPE and procedures, as well as access to showers and washing facilities when entering or exiting the red zone.

Hazards and risks	Recommended steps/mitigation
	• Undertake H&S Dynamic Risk Assessments that aligns to the decontamination processes and procedures to ensure the safety of workers and others. • Ensure pre-entry survey of workers to check for pre-existing medical conditions that may be aggravated by the handling and use of chemicals that cause respiratory and dermal sensitisation. • Consider the requirement of substitution with the selection of the least hazardous chemicals for the decontamination processes required. only MPI-approved liquid detergents, published on. • Use chemicals strictly according to manufacturers' recommendations. Do not mix chemicals as some mixtures will cause toxic gases such as chlorine to be produced. • Register of Approved Maintenance Compounds or, Approved Maintenance Compounds (Manual Non-Dairy) • Ensure the donning and doffing of personal protective equipment (PPE) at the red zone access into and exiting the HPAI site. • PPE is provided and on hand: gloves nitrile (two layers of glove with gauntlet length); protective eyewear (unvented safety glasses); protective non-slip chemical resistant footwear (closed and waterproof); impermeable chemical resistant apron and/or weatherproof coat and leggings; re-usable and disposable coveralls. Head or hair cover of. Respiratory protection or half face, full face respirators, and filters; hearing protection. • Ensure personal protective equipment (PPE) is laundered onsite using standard laundry detergent or PPE is to be laundered by a commercial laundry company and placed in marked double wrapped bio-secured plastic bags. • Ensure there are emergency plans and spill kits are on site and readily available to use as a part of the HPAI operational plans. • Ensure hazardous chemical safety data sheets are on site and readily available, signage displayed for emergency services. • Ensure there is first aid equipment and an adequate number of workers who are trained to administer first aid at the workplace are required on site in all exotic disease outbreak operational activities.

Hazards and risks	Recommended steps/mitigation
Hazard: Machinery, plant & equipment Heavy trucks, trailers, vehicles, diggers, scissor lifts Knuckle booms, ladders. Industrial water blasters (hot and cold water). Water and vacuum suction pumps. Risks: Illness, injury, death.	Where Biosecurity NZ directly engage contractors or works with poultry farms to decontaminate machinery, plant & equipment the following risk mitigations are implemented: • Ensure the presence of trained, qualified, licenced, competent, and experienced workers and personnel in charge of any vehicles, diggers, scissor lifts knuckle booms, machinery, plant & equipment. • Undertake regular pre-operational checks and inspections of all vehicles, machinery, plant & equipment that are hired or owned to ensure they are maintained, certified, logbooks completed and fit for purpose. • Undertake toolbox talks to discuss and identify hazards and risk to all workers prior to accessing the site. Have all workers and visitors to complete site-specific inductions, sign in/out register. • Ensure PPE is provided and on hand: gloves nitrile (two layers of glove with gauntlet length); protective eyewear (unvented safety glasses). • Ensure protective non-slip chemical resistant footwear (closed and waterproof). • Ensure impermeable chemical resistant apron and/or weatherproof coat and leggings; re-usable and disposable coveralls. Head or hair to be covered. • Ensure respiratory protection or half face, full face respirators, and filters. • Ensure hearing protection. • Ensure a traffic management plan is in place with restricted access exclusion zones in areas where vehicles, mobile plant and machinery are operating, including warning signage and speed signs erected on site. • Exclude zones for pedestrian and other traffic moving in the area during loading and unloading. • Ensure roadways and bridges are safely constructed with weight load certifications known. • Implement a Breaking Ground plan to identify any; underground amenities (electrical, Gas or water) and utilities identified with minimum distances and the use of spotters in place. • Ensure personnel and visitors are escorted around the site by authorised, or poultry farm personnel.

Hazards and risks	Recommended steps/mitigation
	All excavation & trenching operational plans must meet the requirements in accordance with the Health and Safety in Employment Regulations 1995 (Sections 24: Excavations with face more than 1.5 metres high s25 Excavations of hazardous depth and s26 Notifications to Work Safe NZ), Ref; Work Safe NZ Excavation Guidance.
Hazard: Aviation helicopter/fixed wing/ unmanned aerial vehicles (drones). Risks: Aircraft accident/crash, injuries, fatalities. Off-target application of lime to 3rd party land.	Aerial application of lime and herbicides to the chicken ranges and the aerial surveillance using Drones. - Where Biosecurity NZ directly contract aerial operators it must be in compliance with MPIs Golden Rules for Aviation (MPI only). - Where Biosecurity NZ engages contractors and sub-contractors they must meet the MPI Helicopter Safety Policy, page 4 (MPI only). - Where Biosecurity NZ engages contractors and sub-contractors they must meet the MPI Standard operating procedure for drone use (MPI only). Contracted Agency Managers leading work being carried out using helicopters must ensure Biosecurity NZ's contractor procurement and management processes are used to procure and manage aviation services, if contracting these either directly or through a contractor by: - Selecting aviation companies who hold a current Civil Aviation Authority - Air Operator Certificate for carriage of passengers and Agricultural Air Operator Certificate for applications of agrichemicals and Lime; - ensuring aviation company have documented CAA Safety Management system and health and safety procedures within all contracts; - ensuring helicopters operators selected are on the MPI approved list (MPI only); - ensuring there has been an exchange information regularly with contractors about overlapping duties requirements, health, and safety performance of contractors, at work sites are monitored and assessed including accidents, injuries, and near misses are recorded, investigated, and reported; - ensuring that the pilot undertakes passenger training safety briefings prior to flights; - ensuring the contractor and aviation has a Drug and Alcohol policy implemented;

Hazards and risks	Recommended steps/mitigation
	- ensuring an independent verification process is conducted; - ensuring drone operators hold a CAA Pt102 certification for drone operators.
Hazard: Electrical high voltage Risks: Electrocution, injury, burns, death. Fire to property.	Where Biosecurity NZ directly engage contractors or works with poultry farms to decontaminate sheds and equipment using water and liquid solutions in electrical environments, the contractor must: - Engage with registered electrical contractors and mechanical engineers on-site to monitor work activities such as dismantling equipment and water blasting in high-risk electrical areas. - Engage with the local powerlines company for permitting, an approved service locator or the local contracted electrical company to locate and identify services electrical overhead or underground and cables, or underground gas line utility on site. - Obtain site electrical certificates and site plans. - Develop and implement of underground breaking ground procedures prior to any excavation work and dial before you dig plans obtained. - Consider non-destructive digging using a hydro water blasting equipment when digging underground areas such as electrical feeds, water lines, and other amenities. - Lock out tag out policy, procedures, signoffs and recording system in place. Lock out tag out of all mains electrical switch boards, switches, plugs, lighting, guarding, motors, machinery, and equipment. - Ensure site registered electricians have undertaken a pre and post check of electrical hardware and equipment within poultry sheds using thermal imaging of electrical hot spots (at 36°C no more than 50 to 60°C). - Ensure site registered electricians have undertaken pre and post checking of electrical hardware and equipment within poultry sheds to ensure electrical devices meet the international standard Ingress Protection Ratings IP57 protected from immersion in water or other ratings required for decontamination. - Have emergency plans in place for electrical high voltage accidents or injuries.

Hazards and risks	Recommended steps/mitigation
Hazard: Oxygen deficient atmospheres levels in poultry sheds Due to organic manure and inorganic and materials producing high levels of Carbon dioxide (CO₂) and ammonia. Risks: Suffocation, asphyxiation, unconsciousness, brain damage and death.	During the process of physically removing both organic manure and inorganic material from poultry sheds, the safe air breathing levels must be tested for high levels of ammonia and carbon dioxide (CO₂) prior to entry. • Ensure a gas detecting device is available and used to monitor and maintain safe oxygen levels, prior to entering and during work in poultry sheds; Work Safe NZ. • Safe levels of ammonia in poultry sheds are recommended below 25 ppm, ideally under 10 ppm). • Safe levels of carbon dioxide (CO₂) are recommended below Time Weighted Average (8 hours) 5000 ppm or STEL (Short term 15 minutes) 30000ppm). • If higher, there must be a minimum ventilation rate of 5 to 10 air changes per hour of ventilation. • ensure the donning and doffing of personal protective equipment (PPE) at the red zone access into and exiting the HPAI site • PPE is provided and on hand: gloves nitrile (two layers of glove with gauntlet length); protective eyewear (unvented safety glasses); protective non-slip chemical resistant footwear (closed and waterproof); impermeable chemical resistant apron and/or weatherproof coat and leggings; re-usable and disposable coveralls. Head or hair cover of. Respiratory protection or half face, full face respirators, and filters; hearing protection. • Have emergency plans in place for oxygen deficient atmospheres. • Ensure training and awareness of oxygen deficient atmospheres levels in poultry sheds.