



DEPOPULATION

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 euthanasia 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 depopulate adult birds, chicks, and embryonated eggs 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 depopulate all poultry within five to ten days of disease confirmation (for farmers/operators, refer to Appendix A for a checklist).

In this document, "you" can refer to either an 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 depopulation 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 an exotic disease outbreak 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

Depopulation during a disease outbreak isn't business-as-usual. You'll need to act fast, make tough decisions, and change how things are normally done on the site. You'll need to know the requirements and the options available.

Ask yourself: *What order would I depopulate the sheds? What risks need to be managed? What depopulation method best suits the operation? What help will be needed (materials, machinery and personnel)?*

Start with what is already done for depopulation 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 on-site Plan. These aren't just technical requirements, they're the foundation for making smart, safe, and effective decisions under pressure.

4.1 Risk-based

Ask yourself: *Am I making decisions based on a 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. Make sure the depopulation plan lines up with the disposal plan as they need to work together smoothly. You should have the disposal plan completed before you start depopulating. That way, there are no delays once the process begins. 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?*

Depopulation can be physically and emotionally 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 Animal welfare

Ask yourself: *Will this process avoid unnecessary pain or distress for the birds?*

Birds are sentient and protected under the Animal Welfare Act. Methods must be humane, and the team must know how to handle birds calmly, use equipment correctly, and confirm death properly. Meeting welfare obligations towards animals isn't optional, it's a legal and ethical requirement.

You are legally responsible for your animals' welfare. If you own, or are in charge of animals, the Animal Welfare Act (1999) requires you to protect them from illness and to act if they are suffering. If animals become seriously ill, you must relieve their pain or distress. This means treating them where recovery is possible or humanely euthanising them if recovery is unlikely. For diseases like H5N1, treatment is not

effective. Infected poultry suffer severe distress and usually do not recover.

4.4 Effective

Ask yourself: Will this method stop the disease from spreading?

You'll need to use methods that are proven to work. This isn't the time to experiment. Think about whether the current setup can deliver the outcome needed, or if you'll need to bring in additional equipment, people, or processes to get the job done properly.

Know where the dirty and clean zones are and how you are going to control movement of people, materials and machinery by ensuring one-way flows and transition of people, equipment and vehicles across the boundary between the two – the biosecurity 'red line'! Treat the boundary between the infected or suspect premises and the outside world as another biosecurity '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.

4.5 Timely

Ask yourself: *Can this be done within five to ten days of confirmation?*

Speed matters. The longer it takes, the greater the risk of disease spreading. Look at the current capacity. How many birds can be depopulated and disposed of in a day? What would need to change to meet the five-to-ten-day target for the whole flock? If it can't be done with the current resources, who can help?

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

Depopulation during a disease outbreak is a high-risk, high-pressure operation that must be coordinated, humane, safe, and fast. The plan needs to cover how depopulation 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 take control, the farmer/operator may receive:

- movement restrictions to contain the disease;
- a Notice of Direction (NOD) that outlines how and by when depopulation must occur.

Once an exotic disease outbreak 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 an exotic disease outbreak 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 depopulation programme also supports the elimination of the disease from the property, to ensure a safe return to production after a disease outbreak. Flocks may need to be depopulated to ensure compliance with the Animal Welfare Act if there are very sick birds.

How farmers/operators can be ready:

- Develop a Standard Operating Procedure (SOP) that outlines the chosen depopulation method(s) applicable to the site. 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.
- Prepare a disposal plan for carcasses and eggs before depopulation begins.
- As a Person Conducting a Business or Undertaking (PCBU), you need to document and know how monitoring of personnel health and safety will be carried out throughout operations.

Key questions to consider:

- Can current procedures be scaled up for depopulating the entire flock within five to ten days?
- Are the right personnel available?
- What equipment is already available, and is it transportable and fit for purpose? What else is needed?
- Is the depopulation area suitable and the depopulation method safe and compliant? How will monitoring occur?
- Have the logistics been organised and a disposal plan for carcasses and eggs developed ahead of depopulation?
- What help do you need from your industry body or companies you have supply contracts with?

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

Ensure no animal experiences unreasonable or unnecessary pain or distress during depopulation. The Animal Welfare Act 1999 recognises birds, including embryonated eggs over 50% development, as sentient

beings capable of experiencing emotional states. Maintaining high welfare standards during depopulation is essential and legally required (see Appendix C).

When planning the prioritisation for depopulation, note that for animal welfare considerations, young animals should be depopulated before older animals; for biosecurity considerations, infected animals should be depopulated first, followed by in-contact animals, and then the remaining animals.

Consider the best time of day to conduct depopulation activities. For instance, beginning depopulation after free-range birds return to housing overnight or taking a break in the middle of the day in hot weather.

When planning the depopulation method, you need to ensure you can achieve the following so as not to cause unreasonable or unnecessary pain or distress:

- Handle birds calmly and quietly throughout the procedure.
- Ensure all personnel are skilled with the appropriate training, qualification or experience in species-specific handling and equipment use.
- Confirm personnel are competent to identify signs of life and death to verify depopulation method effectiveness.
- Check all equipment before use to ensure it is fit for purpose.
- Use methods that ensure rapid death.
- Maintain unconsciousness until death is confirmed.
- Comply with the Animal Welfare Act and relevant Codes of Welfare: Layer Hens (Minimum Standard 17) or Meat Chickens (Minimum Standard 15). See Appendix B.

Also consider the risk of disease spread during depopulation, particularly from feathers and dust originating from bedding. Keep doors closed, shield the area from wind as much as possible, and spray carcasses with disinfectant to dampen feathers and reduce the disease load.

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 Depopulation team considerations

Depopulation operations require personnel (new personnel require oversight and on the job training) who:

- are skilled with the appropriate training, qualification or experience in humane depopulation methods;
- can accurately identify death;
- handle birds calmly and carefully.

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

- Supervisor or Site Manager: oversees operations and ensures compliance;
- Catching team: required for bird handling and movement;
- Depopulation and disposal personnel: numbers vary by method and animal count;
- Animal Welfare Inspector (where possible): monitors and upholds welfare standards.

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);
- depopulation equipment: confirm method-specific tools (e.g. bolt gun, gassing unit) are functional and meet minimum standards;
- machinery: for moving birds to disposal vessels e.g. front loaders, or telehandlers. If you are hiring machinery, make sure you are familiar with the equipment you are asking for and there is someone skilled with the appropriate training, qualification or experience to operate it. Contract growers can check if their livestock manager is able to supply;
- Documentation tools: pens, clipboards etc.

5.2 Depopulation methods: overview and safety

Choosing the right depopulation method depends on the flock type, available resources, site conditions, and legal requirements. All methods must be humane, effective, and safe for people and animals. Use this section to understand the options and what's required to carry them out safely. People undertaking humane depopulation must be appropriately trained and must ensure rapid death (which is confirmed by inspection).

Table 1 Depopulation methods

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

Method	Used For	Description
Cervical dislocation	Birds, chicks	Quick and effective for small birds.
Containerised gassing	Adult birds, chicks	Use sealed crates/modules in a chamber, with gas mixtures to reduce stress if using carbon dioxide (CO ₂).
Whole-house gassing	Chicks (e.g. growing broilers), Adult birds	CO ₂ commonly used but supplies limited. Requires multiple injection points and monitoring. Gas mixtures preferred. Nitrogen under investigation. Internationally acceptable but not currently available in New Zealand.
Captive bolt	Adult birds	Poultry-specific device. Causes instant unconsciousness and death. Rotate devices to prevent overheating.
Free bullet firearm	Large birds (e.g. emus, ostriches)	Licensed firearm holder required. Used only for large birds.
Fragmentation / maceration	Fertile eggs, day-old chicks	Instant mechanical destruction. Suitable only for fertile eggs and day-old chicks. <i>[Remember, "fertile eggs" mean eggs >50% gestation].</i>
Chilling / freezing	Fertile eggs 50-80% gestation	Chill eggs below 4 °C for at least four hours. Confirm embryo death.

Methods not permitted or not recommended in New Zealand

The following methods are not approved or recommended for use in New Zealand:

- Ventilation shut down (VSD): does not meet the requirements of the Animal Welfare Act.
- Oiling, shaking, or puncturing eggs: not used in New Zealand.
- Process slaughter: birds may be sent to processing plants as a proactive management tool before any signs of disease, but they must not be processed if they are infected or suspected of infection.
- Whole-house foaming: no approved foaming agents are available as of November 2025.
- Blunt force trauma is not suitable for commercial use and poorly accepted by the public.
- Barbiturates are slow, costly, and impractical for large-scale poultry depopulation.

5.3 Personnel: overview and safety

This section helps you prepare the team and site for disease response operations. It covers who should 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.

Depopulation 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 famers/operators)

5.3.1 Activity-specific risks

Each depopulation method comes with its own risks. The plan should include safety measures to protect personnel and ensure compliance with the Health and Safety at Work Act.

Table 2 Activity-specific safety considerations

Activity Type	Examples	Key Risks	Safety Measures
Gas-based methods	Containerised/whole-house gassing	Inhalation, confined space, gas handling errors.	• Use in well-ventilated areas. • Monitor air quality. • Train personnel. • Use respiratory PPE.
Physical methods	Cervical dislocation, captive bolt, firearm	Injury, fatigue, misfire/ricochet.	• Provide humane handling training. • Provide eye/ear/hand PPE. • Use respiratory PPE. • Provide personnel rest and hydration breaks. • Have controlled zones.
Mechanical methods	Fragmentation, maceration	Equipment hazards, noise, biosecurity breaches	• Train operators. • Provide hearing protection. • Ensure equipment cleaning/disinfection. • Use respiratory PPE due to potential aerosolised bacterial or

			viral particles.
Environmental methods	Chilling/freezing	Cold stress, heavy lifting, disposal delays	• Use insulated PPE. • Monitor for cold stress. • Use safe lifting practices.

5.3.2 PPE considerations

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

- 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-sleeved 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. Where non-disposable overalls are laundered offsite, they should be placed in a plastic bag in a biosecure manner and sealed.

5.3.3 Wellbeing

Depopulation 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.

5.3 Timelines

Under the Animal Welfare Act 1999, there are requirements on owners and persons in charge of animals to attend properly to the welfare of those animals. This includes taking steps to alleviate pain or distress in sick or dying birds, which may involve depopulation if necessary to prevent further suffering.

If Biosecurity NZ issues a Notice of Direction (NOD) under the Biosecurity Act, the farmer/operator must follow the stipulated depopulation timelines, which are reflected in Table 3. These timelines vary depending on the property type and flock size, as outlined in Appendix E. Even without a NOD, it's strongly recommended farmers/operators follow these standards to reduce the risk of disease spread.

Table 3 outlines what actions to take and when, based on the property type:

- Infected Place¹ (IP): Start planning and depopulating sick birds within 24 hours. Complete depopulation within 7–10 days.

¹ Definition of IP: A property where the presence of a disease, such as bird flu, has been confirmed by testing.

- Suspected Place² (SP): Begin planning within 24-48 hours. Start depopulating high-risk sheds within 24 hours once test results confirm infection. Complete depopulation within 7–10 days.

Appendix E helps you understand how the flock size affects the ability to meet the timelines laid out in Table 3. It categorises production sites into:

- Category A: Large-scale operations - Require staged depopulation, starting with sick sheds, and may take the full 10 days.
- Category B: Medium-sized commercial flocks - May need up to 7–10 days, depending on shed layout and staffing.
- Category C: Small flocks (e.g. backyard or small commercial) - Easier to depopulate quickly, often within 5 days.

How to use both Appendix E and Table 3 together

- **Step 1:** Identify the property type (IP or SP) and flock size category using appendix E (A, B, or C).
- **Step 2:** Use Table 3 to see what actions are expected at each time point (24 hrs, 48 hrs, 5 days, 7–10 days) for the category of the production site.
- **Step 3:** Prioritise sheds with sick or dying birds first, then move to lower-risk areas.

Ensure there is a disposal plan in place, which may initially mean holding birds on-site e.g. in frozen storage or covered offal pits until suitable off-site disposal sites are confirmed.

Table 3 Timeline of depopulation activities

Type of property	24 hours	48 hours	5 days	7-10 days
Infected Place (IP)	(Category A, B, C) Planning in place for whole site. Depopulation of sick and dying birds in infected shed(s) started.	(Category A, B, C) Continue depopulating infected sheds. Begin depopulating remaining birds.	(Category A) Continue depopulating sheds. (Category B, C) Completed depopulation.	(Category A) Completed depopulation.
Suspected Place	(Category A, B, C) Most planning in place for whole site. Depopulation of sick and dying birds in infected shed(s) may	Planning in place for whole site. Depopulation of sick and dying birds in infected shed(s) started.	Continue depopulating sick birds. May begin depopulating remaining birds, ahead of disease	Completed depopulation.

² Definition of SP: A property showing signs of disease but not yet confirmed by testing.

	have started.		confirmation.	
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6. Assurance

Audits make sure the depopulation process is done right and keep the production site, team, and animals safe. Such checks give confidence that the law, including biosecurity, health and safety, and animal welfare standards have been met. During an exotic disease outbreak not managed by Biosecurity NZ, there is still an expectation that an Approved Person (a 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 visit the site to check everything has been done properly. Also expect Animal Welfare officers to conduct on-site inspections of depopulation activities.

6.1 What farmers/operators should have ready

- Movement control permits (where required).
- Permits under sections 52 and/or 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 depopulation SOP which is the go-to guide for how things should be done.

6.2 What farmers/operators should record

- Number of birds, chicks, or eggs depopulated;
- Personnel training, qualifications or experience and supervision details.
- Signed confirmation that checks were conducted to confirm animals were dead.
- gas procedure details:
 - how many animals per container;
 - start time and how long it took;
 - whether containers were cleaned;
 - any problems and how you fixed them;
- 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, checks will confirm:

- the right depopulation methods were used and welfare rules followed;
- transport followed strict biosecurity steps;
- records and documents are complete and easy to find;
- the site is clean, secure, and compliant.

An Approved Person may audit operations and record findings using a standard checklist which is available in the Work Instructions.

7. Appendices

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

Goal: Be fully prepared to depopulate all poultry on- site within 5-10 days of disease confirmation.

Task	Check
Documentation	
I've written a clear depopulation SOP that explains how we'll carry out the process. It meets legal and animal welfare rules.	
I've got a site map showing where depopulation will happen and how people, equipment and vehicles will move.	
I've created a disposal plan for carcasses and eggs, and I've confirmed where and how they'll be taken, and I understand movement permits may be required.	
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. numbers of birds, truck logs, gas use, cleaning logs).	
Operations	
I've arranged for contractors or extra help , and they know our SOP and safety rules.	
I've confirmed transport and disposal trucks are available and understand our biosecurity rules.	
I've made sure we have enough skilled personnel , and I've kept records of their training, qualifications 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 depopulation.	
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 in 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 4 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 HACCP³ 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)

³ HACCP = Hazard Analysis and Critical Control Points, is a systematic preventive approach to food (and feed) safety.

Appendix C: Chicken Codes of Welfare

Code of Welfare Layer Hens:

Part 9: Humane Destruction

Introduction

Humane destruction of hens and chicks may be carried out on individuals, such as culls, or when depopulation is required for disease outbreak or at end of lay.

Minimum Standard No. 17 – Humane Destruction

- (a) The method(s) used for the humane destruction of layer hens, including unhatched eggs in the last half of incubation and newly hatched chicks, must ensure rapid death, which is confirmed by inspection.
- (b) Persons undertaking humane destruction must be appropriately trained and must ensure that the hens are managed gently and calmly at all stages of the process.
- (c) Any equipment used to undertake humane destruction must be well maintained and not overloaded, so that it operates effectively and efficiently.
- (d) Maceration equipment used for humane destruction must be designed to cause very rapid and complete fragmentation of the egg or day-old chick into small particles.
- (e) When using gas, the procedure must ensure the collapse of every hen within 35 seconds of exposure to the gas. Layer hens must remain in the gas for at least a further two minutes following collapse and be inspected to ensure that they are dead upon removal from the gas.

Example Indicators for Minimum Standard No. 17 – Humane Destruction

- Humane destruction protocols are documented
- Acceptable methods are used. These include:
 - Electrical stunning followed by neck dislocation and exsanguination
 - Neck dislocation alone
 - Gas using a mixture of inert gases and/or carbon dioxide
 - Immediate fragmentation/ maceration for unhatched eggs and day-old chicks
- Any other methods used for humane destruction of hens (referred to in the OIE Terrestrial Animal Health Code (www.oie.int/standard-setting/terrestrial-code) are performed under veterinary supervision
- Persons performing humane destruction are appropriately trained and ensure that the hens are managed gently and calmly at all stages of the process
- Appropriate behaviour towards and handling of hens, including chicks, is observed and corrective action taken as required
- All hens killed are inspected following the procedure to confirm death
- Hens are confirmed unconscious within 35 seconds of exposure to gas
- Staff training and supervision is documented and monitored
- Equipment used to perform humane destruction is never overloaded and is well maintained to ensure that it operates efficiently and maintenance is documented

Recommended Best Practice

a) Layer hens should be humanely destroyed using a mixture of inert gases with a low concentration of carbon dioxide (i.e. up to 30%) to produce an atmosphere with less than 2% oxygen by volume.

Code of Welfare Meat Chickens:

7.2 Emergency Humane Destruction

Introduction

Humane destruction of chickens may be carried out on individuals, such as culls and runts, or on large numbers in the case of an emergency such as a disease outbreak. There are various methods of destruction, and which is used will depend on the situation. Acceptable methods for killing depend on whether individual chickens are being culled or whether large numbers are being culled in the event of an emergency.

Acceptable methods for killing include electrical stunning and exsanguination, stunning with an appropriate mixture of gases or neck dislocation.

Methods that are appropriate for humane destruction of day-old chicks are instantaneous fragmentation/maceration, or use of an appropriate mixture of gases.

Minimum Standard No. 15 – Emergency Humane Destruction

- (a) The method(s) used for the humane destruction of meat chickens, including unhatched eggs in the last half of incubation and day-old chicks, must ensure rapid death, which is confirmed by inspection.
- (b) People undertaking humane destruction must be appropriately trained and must ensure that chickens are handled gently and calmly at all stages of the process.
- (c) Any equipment used to undertake humane destruction must be well maintained and not overloaded, so that it operates effectively and efficiently.
- (d) Maceration equipment used for humane destruction must be designed to cause very rapid and complete fragmentation of the material into small particles.
- (e) When using gas, the procedure must ensure the collapse of every chicken within 35 seconds of exposure to the gas. Chickens must remain in the gas for at least a further two minutes following collapse and be inspected to ensure that they are dead upon removal from the gas.

Example Indicators

Example Indicators for Minimum Standard No. 15 – Emergency Humane Destruction

- Humane destruction protocols are documented
- Acceptable methods are used. These include:
 - Electrical stunning followed by neck dislocation and exsanguination
 - Neck dislocation alone
 - Gas using a mixture of inert gases and carbon dioxide
 - Immediate fragmentation/maceration for unhatched eggs and day-old chicks
- Appropriate behaviour and handling of chickens, including chicks, is observed

- All chickens killed are inspected following the procedure to confirm death
- Chickens are confirmed unconscious within 35 seconds of exposure to gas
- Any other methods used for humane destruction of chickens (referred to in the OIE Terrestrial Animal Health Code, which can be viewed at: www.oie.int/standard-setting/terrestrial-code, are performed under veterinary supervision
- Persons performing humane destruction are appropriately trained and ensure that the chickens are managed gently and calmly at all stages of the process
- Staff training and supervision is documented and monitored
- Equipment used to perform humane destruction is never overloaded and is well maintained to ensure that it operates efficiently and maintenance is documented.

Recommended Best Practice [*for gassing*]

a) Chickens should be humanely destroyed using a mixture of inert gases with a low concentration of carbon dioxide (i.e. up to 30%) to produce an atmosphere with less than 2% oxygen by volume.

Appendix D: Health and safety for depopulation (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.docx](#). (MPI access only)

[Health and Safety Standard](#). (MPI access only)

Table 5 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 accessways 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 staff should follow the health and safety guidelines and ensure they are familiar with the contents of the risk register and Health and Safety plan specific to the exotic disease outbreak.

Personnel health and safety and the application of the Health and Safety at Work Act 2015 (HSWA) legislation and regulations need to be in front of mind throughout all exotic disease outbreak operations, including implementing movement controls.

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 risk from the specific activity being carried out.

- For depopulation, special consideration needs to be given to the potential for contact with the HPAI virus on exposed skin and by inhalation. Appropriate PPE should be worn
- Attention needs to be paid to moving machinery involved in disposal
- Where gases are used, care needs to be taken to avoid inhalation
- Have emergency response planning for whole house and containerised gassing
- Whole house and container gassing must be tested using a CO₂ gas detector prior to entry
- Workers must be trained for any emergencies, in particular Confined Space emergency rescue where Whole house and container gassing is the treatment options.

Welfare

The welfare of responders and impacted people is an important consideration in all operational activities. For Biosecurity NZ personnel refer to the SOP for *Welfare & Support in a bird flu response* for full details of the welfare function and responsibilities.

Appendix E: Flock size

Table 6 Categories for flocks in the broiler industry

Categories	Definition
Large commercial flock (A)	Significant number of broiler chickens raised for meat production in a commercial setting (tens of thousands to hundreds of thousands of birds). Generally affiliated with key industry players and large commercial enterprises. Flocks are usually housed in large-scale poultry houses or barns designed to accommodate high densities of birds. This can be approximately 30K and above.
Small commercial flock (B)	Usually consist of a few thousand to tens of thousands of birds, often independent and not directly affiliated with the largest commercial industry players. Flocks are often housed in smaller, less industrialized poultry houses or barns compared to large commercial operations. These are flocks with 100 birds or more that must operate under a risk management programme. This can be up to approximately 30K.
Backyard flock (C)	Commonly, a backyard flock might have fewer than 100 birds. Housing is typically simple and designed to accommodate a small number of birds. This might include basic coops, sheds, or enclosures in a backyard or garden area.

Table 7 Categories for flocks in the egg layer industry

Categories	Definition
Large commercial flock (A)	Typically, tens of thousands to hundreds of thousands of hens focused on egg production. Generally, it is closely affiliated with industry representative bodies and large commercial enterprises. Flocks are housed in intensively production sited properties and areas, usually in large-scale poultry houses or barns designed to accommodate large numbers of birds. The birds may be free-range. This can be approximately 30K and above.
Small commercial flock (B)	Usually consist of a few thousand to tens of thousands of hens. These production sites are often independent commercial entities and may or may not be directly affiliated with the largest commercial industry players. Housing is often less intensive or available and may include smaller, less industrial-scale poultry houses or barns compared to large commercial operations. These are flocks with 100 birds or more that must operate under a risk management programme. This can be up to approximately 30K.
Backyard flock (C)	Commonly, a backyard flock might have anything fewer than 100 hens. Housing is typically simple and designed to accommodate a small number of birds. This might include basic coops, sheds, or enclosures in a backyard or garden area.