National Farm Biosecurity Technical Manual for Egg Production

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The Manual is available in PDF format from Australian Eggs website www.australianeggs.org.au and on the Farm Biosecurity website www.farmbiosecurity.com.au/toolkit

Animal Health Australia (AHA) is an innovative partnership involving the Australian Government, state and territory governments, major livestock industries and other stakeholders. AHA works with its members and stakeholders to strengthen Australia's national animal health system and maximise confidence in the safety and quality of Australia's livestock products in domestic and overseas markets.

www.animalhealthaustralia.com.au

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www.australianeggs.org.au

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secure your farm: secure your future

The Farm Biosecurity program is a joint initiative of AHA and Plant Health Australia on behalf of their members. Its goal is to help producers reduce the risks posed by diseases, pests and weeds to crops and livestock. This national awareness campaign provides information about on-farm biosecurity measures which help prevent emergency animal disease outbreaks and exotic plant pest incursions. It encourages producers to identify risks to their livestock, crops and plant products, and to minimise those risks through good practices.

www.farmbiosecurity.com.au

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National farm biosecurity technical manual for egg production



1 Background

A National Farm Biosecurity Manual for Poultry Production was produced by a Biosecurity Consultative Group, established as a resolution of the 2007 Government – Industry Avian Influenza Forum. Membership of the group included representatives from each of the following organisations and poultry industry sectors:

- Commonwealth Department of Agriculture, Water and the Environment
- Animal Health Australia
- Australian Chicken Meat Federation Inc.
- Australian Chicken Growers' Council
- Australian Egg Limited (formerly known as Australian Egg Corporation Limited)
- Australasian Turkey Federation
- Free Range Egg and Poultry Australia
- Australian Duck Meat Association
- Emu Industry Federation of Australia
- Australian Ostrich Association
- Game bird industry
- NSW Department of Primary Industries
- Queensland Department of Agriculture and Fisheries

The purpose of the Manual was to establish a minimum set of biosecurity standards, applicable to all poultry producers (including ratites).

Supporting this manual is a formal agreement, known as the Emergency Animal Disease Response Agreement (EADRA). The EADRA binds the Australian, state and territory governments and livestock industries together to deal with Emergency Animal Disease (EAD) matters. It includes arrangements for joint funding when an industry is affected by an EAD outbreak.

Manual adapted for the commercial table egg industry

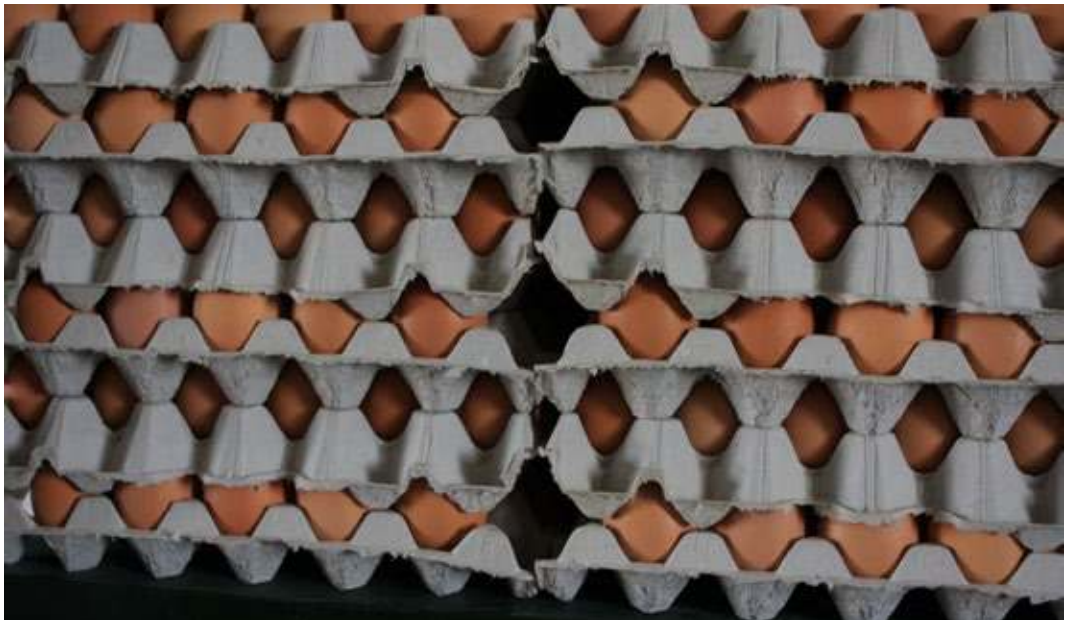
The present document is an adaptation of the National Farm Biosecurity Manual Poultry for Production to reflect the requirements as they apply to the commercial table egg industry. Reference to other sectors have been removed and industry specific arrangements have been reflected in the present text.

The sector specific manuals (such as this one) must, as a minimum, satisfy the requirements stipulated in the generic manual but may provide more specific guidance or additional requirements that reflect the characteristics of the industry sector.

Other resources are available to egg producers to assist and maintain adequate biosecurity practices for their enterprises including a Hazard Analysis Critical Control Point (HACCP) based Code of practice for biosecurity in the egg industry (second edition)[1], National

1 www.australianeggs.org.au/what-we-do/leading-research/biosecurity-in-the-egg-industry





Water Biosecurity Manual for Poultry Production 2009[2], industry quality assurance programs[3] and training programs[4]. This Manual is designed to provide technical information to support the principles of biosecurity for egg production by providing a minimum standard and example practices that must be adopted on-farm.

All properties with 100 (50 in Victoria) or more poultry are required to be registered with the relevant state/ territory government authority who will issue them with a property identification code (PIC).

Egg stamping is legislated in all Australian states and territories and is overseen by the various responsible food or agriculture authorities and thus enables traceability in the event of a food safety episode. This provides another aspect of biosecurity within the egg industry in that traceability allows the identification and containment of potential food borne pathogens, such as salmonella. Some states and/or territories have exemptions for certain categories of small egg producers. Refer to the egg stamping handbook for more information[5].

2 www.farmbiosecurity.com.au/wp-content/uploads/2019/03/National-Water-Biosecurity-Manual-Poultry-Production.pdf

3 www.australianeggs.org.au/for-farmers/egg-quality-standards

4 www.australianeggs.org.au/for-farmers/tools-and-training

5 www.australianeggs.org.au/what-we-do/leading-research/egg-stamping



3

Scope

The Manual applies to the biosecurity requirements for commercial table egg production farms (layer farms) from the time of preparation of the shed for chick placement to the delivery of day old chicks until depopulation of the spent layer hens, including transportation and delivery of point of lay pullets. It also covers the transport and movement of eggs and egg products to other farms, grading and processing establishments. This Manual stipulates the minimum biosecurity measures for EADs on egg production farms. For the control and prevention of endemic diseases on egg production farms other enhancements to these minimum standards may be required and must include such things as vaccination and may include medication.

While the Manual specifically deals with commercial layer chicken table egg production, the principles of this Manual are applicable to other poultry species used for egg production and producers of these species should also follow this Manual.

Implementation

The adoption of the Food Standards Australia and New Zealand (FSANZ) Primary Production and Processing Standards for Eggs & Egg Products Standard 4.2.5 (PPPSEEP Standard 4.2.5) in a consistent way by all states and territories presents a good opportunity to promote adoption of the biosecurity standards set out in this Manual. While the biosecurity requirements in this Manual are in some areas broader than what is strictly required from a food safety point of view, it is the industry's expectation that adoption of the measures stipulated in this Manual will meet the PPPSEEP Standard 4.2.5. The requirements as far as the production phase is concerned includes consideration for prevention of transmission of antimicrobial resistant bacteria to animals (poultry) and reverse zoonosis (transfer of bacteria from humans to animals).



Egg production biosecurity

4

Objectives

- To prevent the introduction of infectious disease agents to poultry.
- To prevent the spread of disease agents from an infected area to an uninfected area.
- To minimise the incidence and spread of microorganisms of public health significance.

Biosecurity and quarantine are integral parts of any successful poultry production system. Biosecurity refers to those measures taken to prevent or control the introduction and spread of infectious agents to a flock. Such infectious agents, whether they cause clinical or subclinical disease, significantly reduce the productivity, profitability and long-term financial viability of a poultry operation.

Biosecurity is about managing risk to meet the objectives stated above. It is essential that a risk assessment be conducted for each enterprise to establish what level of risk exists in each phase of its operations, and to identify and implement control measures appropriate to these levels of risk (refer to Appendix 9 – Biosecurity decision tree).

The aim of this Manual is to assist poultry industries to identify areas of risk common to pullet and egg production farms, and appropriate measures to minimise these risks. When undertaking a risk assessment it is important to consider all factors that may impact on the biosecurity of the production area. These factors should include location and layout of property and production area, source of water supply, disease status of the district, proximity to other production areas with avian and other livestock species, presence and type of wildlife, and interface with the organisations and/or individual clients that are being supplied. These interactions include live poultry movements, service personnel, industry personnel, contractors, deliveries of feed and disposables such as egg fillers, manure, used litter and movement of eggs and egg products between establishments. The inclusion of all other livestock and pets (dogs, cats, birds) on the site should be undertaken with a risk assessment and be considered on a case by case basis after seeking advice from your veterinarian.

This Manual is intended to assess the risk and measures to control the incursion of not only EADs such as avian influenza (AI), virulent Newcastle disease (vND), virulent infectious bursal disease and *Salmonella* Enteritidis, but also those endemic diseases (e.g. infectious laryngotracheitis (ILT)) that affect productivity, performance, and in some cases organisms of food safety significance (e.g. *Salmonella* spp.) and antimicrobial resistant bacteria.

An additional element that is used to prevent the introduction and



spread of disease is vaccination. The Manual does not cover this aspect but acknowledges the importance of an appropriate vaccination strategy as a risk management measure that forms part of the overall biosecurity risk assessment and strategy (refer to Appendix 8 – Audit check list for vaccination). Vaccination should be viewed as a biological biosecurity barrier of immunity at the bird level but operates at the flock level when most birds have been correctly vaccinated. For more information refer to the Vaccination Training Manual 2nd Edition[6].

Individual producers and companies may wish to develop alternative or enhanced biosecurity manuals, which should nevertheless incorporate the minimum standards outlined in this Manual, The National Water Biosecurity Manual for Poultry Production, the Code of practice for biosecurity in the egg industry (second edition) and other QA programs, in addition to any specific company requirements.

A biosecurity self-audit/auditable checklist for continuous improvement is attached as Appendix 1. This document may also form the basis for either second- or third-party audits where this is required.

Biosecurity is like any other insurance policy and as such it is a prudent investment.





6 www.australianeggs.org.au/for-farmers/tools-and-training/#item-905

Major routes for disease and pathogen transmission



Poultry

- Introduction of new birds
- Transfer of birds between production areas
- Dead bird disposal
- Spent layer hen depopulation
- Movement of eggs and egg products between establishments
- Other poultry moving through production area

The farm

- Inadequate cleaning leaving infection in the shed environment and surrounds

Other animals

- Wild birds, especially waterfowl encouraged by having dams close to farms or lack of bird proofing of sheds
- Feral and domestic animals, including other livestock and pets
- Insects (e.g., flies, darkling beetles and external parasites)
- Rodents – rats/mice
- Backyard, fancy poultry and other aviary birds

People

- Farm personnel and family members living on site
- Contractors, maintenance personnel, neighbours, service personnel and visitors who have recently been on other poultry farms
- Disease can be transmitted by hands, footwear, clothing and bodily fluids
- People who have recently recovered from, or still suffering from, gastrointestinal disease
- People who have come into contact with any poultry, pigs or other avian species overseas in the last 5 days

Equipment

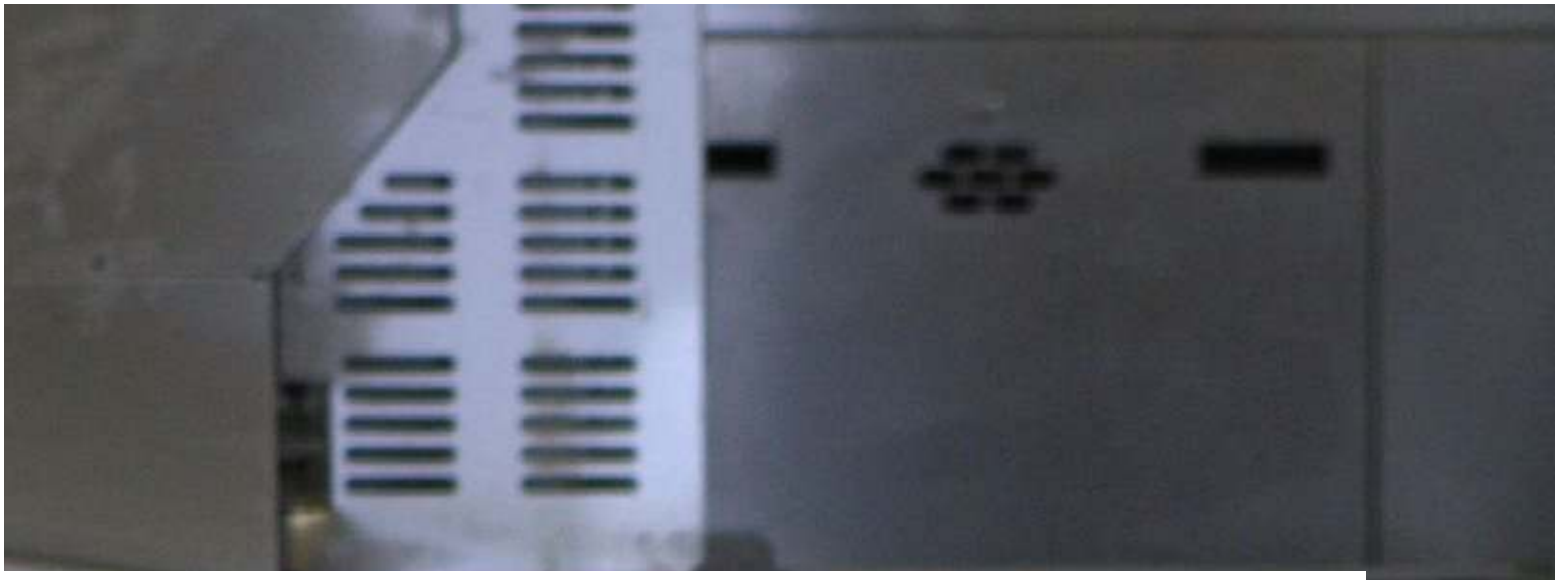
- Housing equipment, husbandry equipment, packing materials such as egg flats and all handling and cartage equipment brought onto the farm that have not been cleaned and disinfected
- Vaccination equipment that has not been cleaned and disinfected
- Inadequately cleaned equipment from the previous batch of poultry

Vehicles

- Dirt/manure/contaminants carried on and within cars, trucks and tractors

Air

- Transmission as an aerosol, dust or air/wind movement from adjacent farms within a few kilometres depending on the organism, or the movements of untreated poultry manure and litter
- Aerosol transmission from trucks carrying chickens/waste to processing facilities travelling past the farm



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Water supply

- Water supplies including dams may become contaminated by waterfowl, other animal species or run off
- Water supplies used for shed cooling or drinking that have not been treated adequately

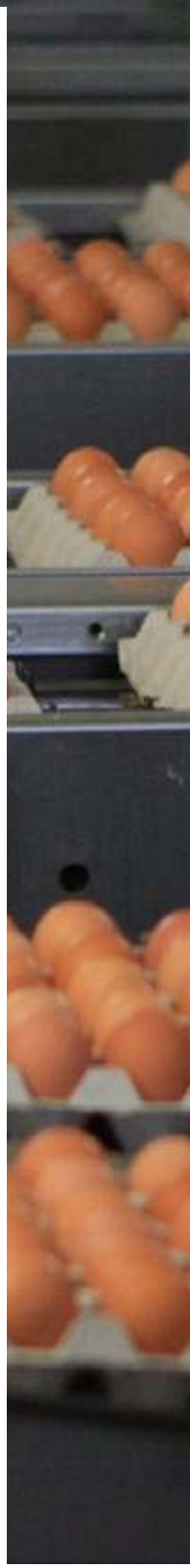
Feed

- Finished feed which may be contaminated by the raw materials used in formulation, during transport, or by exposure to rodents and birds at the site of production or on the recipient property
- Spilt feed around silos encourages wild birds, rodents and other wildlife species

Litter and waste

- Transport of litter material on and off the farm site as well as storage of used litter or manure on site may be a biosecurity risk
- Transport of egg waste and dead birds and the composting or burial of egg waste and dead birds on the site may be a biosecurity risk
- Accumulation of debris on/around the production site that can act as a rodent harbourage







Definition of production area and property



In this manual, the term **'production area'** includes poultry sheds, the egg collection amenities, egg storage areas, egg grading and processing floors, dry storage areas, change rooms, on site feed production or storage areas, loading pads and truck movement areas and ranges used for free-range production. It should be surrounded by a well-defined perimeter fence with a lockable gate.

Reference to **egg storage** areas means generally a cool room where eggs are accumulated having been obtained from a shed or sheds within the immediate vicinity, or a centrally located facility where eggs from the entire property or possibly other properties are brought to and stored.

Egg grading floors are where eggs are delivered from the property or potentially a number of properties and graded, packed and sorted ready for storage and eventual distribution.

Egg processing is where eggs are received from the property or potentially a number of properties and are cracked and processed into a variety of products for storage and distribution.

While egg grading and egg processing floors may be physically located on an egg production property, often they are separate entities with no physical association with properties on which there are poultry sheds.

The term **'property'** refers to the land on which the production area is located and typically includes the facility manager's home or other accommodation and may include other farm land used for livestock or cultivation or waste disposal. The introduction of any eggs from external properties must also be treated as a biosecurity risk. The boundary of the production area and the boundary of the property may be the same, but this is not desirable as it may allow construction of an adjacent poultry farm.

Any reference to **sheds** is a reference to roofed fixed buildings, mobile housing and shelters capable of and used for containing poultry securely within their perimeter.

Any reference to **range** is a reference to fenced pastures that are, or at times are, accessed by the poultry being farmed.



Principles of biosecurity

A. Emergency animal diseases including economically serious endemic diseases

When there is a perceived heightened threat of an EAD such as AI and vND (for example, when an outbreak has occurred), there is a natural tendency to implement more stringent biosecurity procedures. However, it should be realised that the threat from these diseases is ever present. Hence, sound biosecurity principles must be in place at all times. This includes staff awareness of the possibility of an EAD incursion and frequent assessment of operational procedures and how they may affect the risk of an EAD incursion and outbreak. The continued objective of any biosecurity program, as recommended in this Manual, is to ensure there is a functional exclusion **boundary** that prevents the entry and spread of an EAD on the property at all times.

This exclusion boundary should eliminate the risk of an EAD entering the property from any source. This can only be achieved by a combination of physical and technical barriers to entry, including:

- physical including fencing, gates and quarantine signs to restrict vehicular movements and the entry of people.
- policies that restrict the movements of visitors onto the farm within certain time frames, e.g. after visiting other avian properties.
- showering onto properties and/or sheds with a change into farm clothing.
- the exclusion of wild birds and particularly waterfowl from access to areas in which poultry are located.
- the effective sanitation of surface water and captured rainwater.
- the avoidance of horizontal contacts between other poultry, pigs and disposables such as reused egg fillers.
- zonal and boundary baiting for vermin.
- only introduce birds to the farm if they are of equal or better health status than animals on farm. If health status is unknown, isolate them in separate production areas or dedicated quarantine facilities.
- routine isolation of introduced birds is good biosecurity practice, irrespective of their status.

When planning the establishment of new poultry facilities, appropriate siting should be considered to reduce disease risks, in particular (a) away from water bodies to reduce contact with risk species (wild ducks), and (b) separation distances from other poultry farms to reduce the risk of spread during an outbreak. Under the National Newcastle Disease Management Plan, it is compulsory for all layers to be vaccinated against vND.



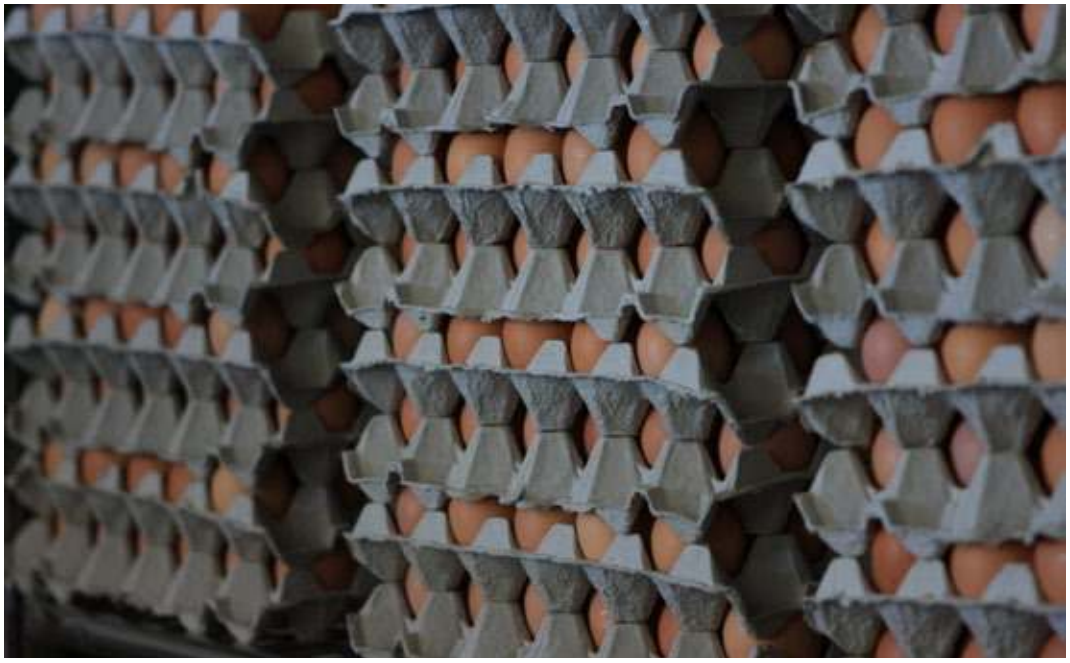
B. Endemic diseases

Endemic disease includes infectious bronchitis virus, avian encephalomyelitis, *Mycoplasma gallisepticum*, infectious laryngotracheitis, etc. These disease agents may be present on all egg production farms or on neighbouring farms in the vicinity making it difficult to exclude these diseases from entering and spreading within an egg production operation. Thus, control is usually by a combination of vaccination, biosecurity and hygiene. It is important that young stock are reared in isolation in single-age sheds that are free of diseases. These pullets should be vaccinated effectively against these endemic diseases before they are transferred to multi-age production sites.

Where the decision is made not to vaccinate against certain endemic diseases, it is essential that the biosecurity boundary principle is applied to ensure that these endemic disease pathogens do not enter the property and cause disease in the unvaccinated susceptible birds (layers). On multi-age sites, it is not feasible to control most endemic diseases through the normal principles of biosecurity because of the inability to control transmission by regional aerosol and physical object (e.g. clothes, equipment, etc) spread. In this case, vaccination of young livestock or pullets becomes a pivotal part of the endemic disease control program. Vaccination may not be required on sites where monitoring has confirmed the absence of an endemic poultry disease, and in regions where aerosol or other horizontal spread is unlikely.[7]

7 www.dpi.nsw.gov.au/animals-and-livestock/poultry-and-birds/health-disease/national-salmonella-enteritidis-monitoring-and-accreditation-program





C. Zoonotic Diseases (e.g. salmonellosis, avian influenza, erysipelas, chlamydia) and Antimicrobial Resistant Bacteria

Zoonoses are infectious diseases that are naturally transmissible from animals (including poultry) to humans. Transmission may result from direct contact with an infected animal, through contaminated faeces or urine or through food consumption in the case of food safety organisms. For table eggs, *Salmonella* is of the most concern with prominent outbreaks of salmonellosis within the community being traced to the consumption of raw egg dishes. By implementing sound biosecurity and hygiene practices, the risk of zoonotic diseases can be mitigated.

Appropriately used therapeutic antimicrobials (i.e. the right drug at the right time, at the right dose, through the right route, and for the right length of time) have a place in the egg industry for disease control to avoid negative effects on welfare and productivity of layers. A treatment failure may suggest an antimicrobial resistance (AMR) problem, and for suspected bacterial infections, culture and sensitivity testing should be considered as part of the diagnostic workup. The use of available antimicrobial prescribing guidelines for poultry[8] will ensure a best-practice approach regarding on-farm decision-making for the appropriate use of antimicrobials.

8 www.ava.com.au/siteassets/advocacy/antimicrobial-prescribing-guidelines---poultry.pdf





Furthermore, prevention and control of infections through the implementation of on-farm biosecurity is a recognised approach to reducing the need to use antimicrobials, and minimising the development and spread of AMR – the goal of Australia's National Antimicrobial Resistance Strategy – 2020 and Beyond.[9] Vaccination may also be available to control several important poultry diseases. There is a potential risk for antimicrobial resistant bacteria to enter the food chain. Recent studies in commercial layer flocks in Australia suggest a minimal risk to public health, with low levels of AMR observed in Salmonella spp. isolates obtained from layer farm environments.[10]

To minimise the risk of an EAD, endemic or zoonotic incursion, the highest level of biosecurity should always be maintained at the functional boundary of the property. Operational factors, such as the close proximity of sheds to each other, aerosol spread and the high frequency of horizontal contacts such as staff movements, egg conveyor belts and movement of equipment and vehicles between sheds, may compromise internal biosecurity at times and need to be re-assessed during times of heightened disease risk and considered as part of the EAD action plan.

The control of vectors of endemic disease, such as rodents and insects, must be implemented correctly.



9 www.amr.gov.au/resources/australias-national-antimicrobial-resistance-strategy-2020-and-beyond

10 Australian Government Department of Health (2018). Review of published and grey literature on the presence of antimicrobial resistance in food in Australia and New Zealand.



Biosecurity procedures

1. Documentation and training

Objective: To ensure awareness by, and training of, all production area employees in all relevant biosecurity requirements.

1.1 Each production facility must keep a copy of this National Farm Biosecurity Technical Manual for Egg Production (the Manual) and it be readily accessible to staff. Key elements of the manual relevant to staff should preferably be on display within the poultry facility.

1.2 Staff must be provided with training in the relevant parts of the Manual and such training is to be recorded together with a staff declaration that they have completed the training required.

2. Facility operational standards

Objective: To limit and control access to poultry production areas by vehicles, equipment and people, and prevent access by livestock, wild birds and other animals (including rodents and insects) as much as possible.

2.1 The production area must have a perimeter fence establishing a clearly defined biosecurity zone with appropriate signage.

2.2 If livestock graze the property then the production area must have a stock proof fence. Grazing near sheds (i.e. on part of the production area) is only permitted where the grazing area is separated by a stock proof barrier from the area used by poultry, effectively preventing transmission of contaminants from grazing livestock to poultry. The grazing area must not be used for access to other parts of the production area. Drainage from livestock pastures or holding areas must not enter poultry enclosures or areas that can be accessed by poultry (e.g. through fences).

In free-range egg operations, where either dogs or alpacas are used to protect poultry in the range area from attack by foxes, feral dogs or birds of prey, these guard animals should be tested for freedom from *Salmonella* by faecal microbiological culture prior to introduction and ideally retested annually.



2.3 A sketch or map of the layout of the property, showing the production area, sheds, ranges, access roads and gates must be created and maintained up to date. This must be readily accessible to all staff and visitors.

2.4 The main entrance to the production area must be capable of being closed off to vehicle traffic (e.g. lockable gate which, where feasible, should be kept locked at all times) and must display appropriate signage including "Biosecure Area No Entry Unless Authorised" or similar wording. In addition, signage must direct visitors to contact the producer before proceeding (i.e. telephone number and/or enquire at house).

2.5 A vehicle disinfection station should be located at the entrance gate equipped with a pressure hose to clean and disinfect the wheels of vehicles that need to enter the property. Consider also disinfecting vehicles leaving the property where they may be likely to visit another poultry facility.

2.6 There must be a parking area located at some distance for vehicles not entering the production area. There must be a change area away from sheds with clean protective clothing and boots provided. Showering and changing into clean protective farm clothing is preferable, particularly for pullets that are susceptible to endemic poultry diseases until they have completed their vaccination program.

2.7 Dead bird storage and disposal methods must conform to applicable hygienic containment and environmental compliance requirements.

2.8 All poultry housing must be designed and maintained to prevent the entry of wild birds, especially wild waterfowl, and other animals and limit the access of vermin as far as it is practical. The control of wild birds has limitations in free-range operations. See Section 6 for more information.

2.9 Free-range landscape – trees (e.g. no fruit trees), shrubs and other range amenities should be selected to minimise the risk of attracting the types of wild birds that are a high biosecurity risk, particularly in free-range operations. The area around sheds must be kept free from debris, vegetation and the accumulation of surface water and be mown regularly to discourage wild birds, insects and rodents which are potential disease vectors.

Vegetation buffers for environmental compliance should not be compromised. Trees may be used as shelter belts, along fence lines and on free-range premises to provide shade and protection from unfavourable ambient conditions and flying predators.

2.10 Drainage – The production area should be adequately drained to prevent accumulation and stagnation of water likely to attract waterfowl, especially in the areas around sheds and range areas. Standing water may also increase the presence of insects which can act as significant disease vectors. A range management plan should be implemented to manage potholes or water pooling after heavy rainfall.

2.11 Only pullets and/or layers are to be kept in the production area and no other avian species (including fancy birds and pet birds) or domestic animals should have access. See section 2.12.

2.12 As domestic species of poultry can be asymptomatic carriers of disease (e.g. AI, ND, *Salmonella* spp.), no other poultry species or backyard (domestic) poultry should be kept on a commercial production facility.

2.13 Feeding systems, including silos, storage bins, feed troughs and feeder pans must, wherever possible, be secure to ensure access by wild birds and vermin is restricted. Feed spills should be cleaned up as soon as practicable to prevent the attraction of wild birds and vermin, and scatter feeding in range areas should not be undertaken.

2.14 Where bird weighing is practiced, it must be carried out using the production area's own weighing frames and scales. Company service personnel can use their own scales provided that they are cleaned and disinfected when moved between production areas.

2.15 All portable equipment that is used between sheds and production areas should always be physically cleaned, detergent washed and disinfected prior to being utilised on another site. An insecticide should also be considered where there is the risk of transferring ectoparasites.

Sensitive equipment like electrical appliances should be hand cleaned and wiped with a disinfectant.

Equipment or disposables that cannot be effectively cleaned and disinfected should not be transferred between sites unless the farm shed/facility is depopulated and subject to a terminal disinfection prior to repopulation with livestock.





3. Personnel standards and procedures

Objective: To minimise the risk of introducing or spreading a disease or contaminant through vehicle and/or people movement, including:

- *Staff (including production, service and grading floor personnel)*
- *Contractors, suppliers and other service personnel*
- *Visitors and family members*

and to document such movements to facilitate tracing in case of a concern.

3.1 Production personnel

3.1.1 Production area personnel or any person residing on the property, including owners, must not have contact or dealings with any other poultry, cage birds, ratites (i.e. emus and ostriches), pigeons or pigs while actively engaged with working in the production area (see Appendix 2).

3.1.2 Production area personnel must wear clean clothes each day at the start of their work or wear on-farm clothing and footwear after removing street clothes and showering.

3.1.3 Production area personnel, including grading floor staff, should not move between various operational areas including production and/or grading facilities without first considering the biosecurity risks. The concept for endemic disease of “clean sites” and “dirty sites” must be considered.

Personnel movements must always be from clean to dirty sites and not the reverse. In an emergency, access can be made from production areas with lower standards of biosecurity after a shower and complete change of clothing. Footwear should be disinfected although a change in footwear is preferable. In an egg production company facility (unless specific avian disease testing indicates otherwise) the pullets are considered to be a clean site, followed by a single-age production site and then a multi-age production site in the degree of risk. The grading floor is to be considered the highest risk area because of multiple egg source inputs and this is particularly so if the grading floor accepts eggs and egg product from other sites and companies.



3.1.4 Staff must declare overseas travel, including whether they had contact with avian species or pigs while travelling. Staff returning from overseas travel should be precluded from production areas for at least 5 full days (or other as required by the company).

3.1.5 Personnel who are suffering from gastrointestinal disease should not be allowed in the production area until clinically recovered. This requirement does not preclude the ongoing carrier status of potential pathogens such as *Salmonella*.

3.1.6 In elite breeding facilities where a high disease freedom status of the livestock is required, in contact staff should have regular screen testing for *Salmonella*.

3.2 Company service personnel

3.2.1 Company service personnel may, by necessity, make multiple production area visits on a single day. This practice should be avoided where possible. Site specific protective clothing and footwear should be worn in the production area. The preferred practice is for personnel to shower on at the point of entry.

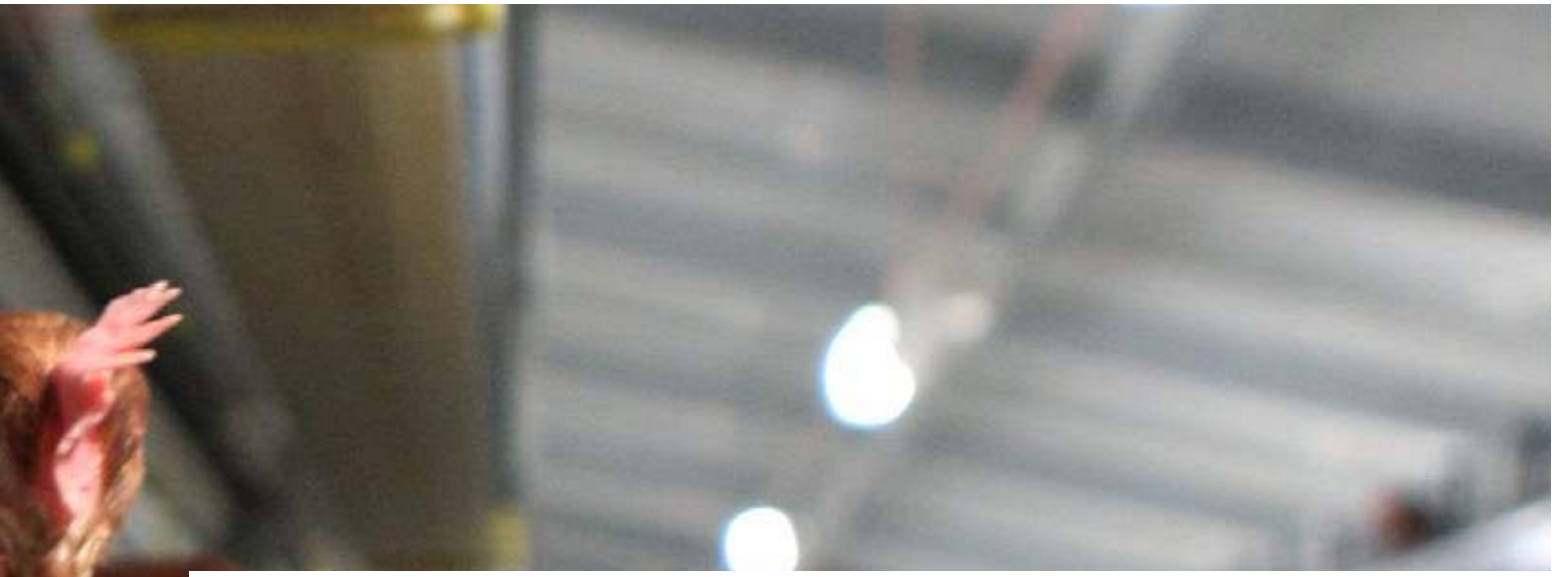
3.2.2 Visits should always be made from 'clean' areas i.e. home, pullets (younger to older) or sites of known endemic disease-free status first. Where necessary, visits may be made from production areas with lower known endemic disease status after a shower and complete change of clothing. Footwear should be disinfected although a change in footwear is preferable.

3.3 Repair and maintenance

3.3.1 Repair and maintenance contractors who have had contact with poultry or other birds that day must not enter sheds and/or ranges populated or ready to be populated with birds unless (a) it is an emergency and (b) they have showered and changed into site-dedicated clothes and boots, wear a hair covering, and as per the facility biosecurity practices and if practical.

3.3.2 Where a single age batch system is practiced, routine maintenance should be conducted, where possible, between batches prior to final disinfection.

3.3.3 Tools and personal equipment taken into the production area must be decontaminated to remove dust and organic matter before entry into sheds.



3.4 Contractors, suppliers, other service personnel and visitors

3.4.1 Conditions of entry to poultry sheds and poultry ranges – all visitors must agree to comply with the entry conditions as stipulated in Appendix 3A (which must be displayed prominently near the Visitors' Log). All visits must be approved by the manager before visitors may enter sheds and ranges. This requirement also applies to vaccination crews.

3.4.2 Visitors' Log – a record must be kept of all visitors to the poultry sheds and poultry ranges including contractors and company personnel (see Appendix 3B). The only exceptions are detailed in section 3.4.3. All visitors must sign in and out.

3.4.3 Exceptions – the only people who may enter the sheds, poultry ranges and grading facilities without signing the Visitors' Log are farm personnel covered by the Personnel Quarantine Declaration (Appendix 2). All contractors involved in live bird transfers, egg and egg product movement, vaccination crews, dead bird and waste removal and feed deliveries must sign in when attending the farm site to allow traceability of all staff movement and activities. All contractors must be fully aware of the appropriate biosecurity measures applicable to the site. Not all the entry conditions detailed in Appendix 3A may apply to all contractors.

3.4.4 Any authorised visitor (including owners, neighbours, friends, family, other producers or equipment suppliers) likely to have been exposed that day to poultry, other commercial poultry, backyard, fanciers and other aviary bids, egg handling/poultry processing establishments or pigs must not enter the sheds unless they have had a shower and changed clothes and boots, or must limit their visit to the property's residence while wearing clean clothes. A stand down period of 48 hours is always the preferred option of visitors prior to showering and/or entering the production area in clean clothing and footwear.

3.4.5 All visitors must park their vehicles outside the production area unless it is essential that the vehicle be taken on site (e.g. maintenance contractors). Where vehicular entry is necessary, the history of the movements of the vehicle should be interrogated and preferably the vehicle should be washed and disinfected at the entry point. It is important that the potential internal contamination of the vehicle, especially driver foot wells, is always considered.

Non-essential vehicles should be parked in a preferably barrier-secured area at least 30 metres from the production area.



3.5 Requirements for specific movements

Objective: To minimise the risk of introduction of disease or contaminants by specified movements.

3.5.1 Pick-up of pullets and spent hens – pick-up crews (either contracted or in-house) should only transfer one single age pullet flock in any one day from any particular production area. Similarly, after depopulating spent layer hens, pick-up crews should not handle pullets for transfer on the same day. Pick up crews must not keep birds, or any livestock including pigs, at their home and trained and mentored in the fundamentals of biosecurity and welfare. They should provide signed declarations that they have been trained and are aware of the quarantine requirements. Pick-up vehicles, modules and crates must be thoroughly cleaned, detergent washed and disinfected between farms. A thorough inspection of the vehicle and trailer should be undertaken prior to entry on the farm and the movements of the driver and crew validated. Boots and clothing of the pick-up crews should also be clean. Prior communications should ensure that there is a clear understanding by the contractor of their biosecurity responsibilities and policies of the poultry farm operator.

3.5.2 Day-old chick delivery – trucks, dollies and chick boxes must be cleaned and disinfected each day and between properties. Drivers must wear clean protective clothing and footwear prior to each delivery. Hands must be sanitised. Where the chick delivery truck is necessitated to visit several farms during the one delivery run, then measures must be put in place to ensure the risk of infectious agent spread between properties is minimised. This would require visiting designated rearing farms first and mixed rearing and production farms last, ensuring off-loading equipment and chick boxes are confined to the clean and disinfected placement shed. Coupled with this is knowledge of the endemic disease status of each property.

3.5.3 Fresh litter delivery and collection of manure and used litter should be dedicated to those tasks only - trucks carrying new litter should be from reputable companies and not used for carting used litter and manure. Trucks carrying manure and used litter should not be used for back loading grain without a prior thorough cleaning program and the knowledge of all parties involved.



3.5.4 Other deliveries (e.g. gas and feed) – drivers must not enter sheds; must wear protective clothing and boots; and confine their movements to the immediate vicinity of the truck and trailer. External feed suppliers should be certified and have internal biosecurity and hygiene policies which are accessible to the poultry producer.

All farms should operate an approved suppliers list which details the approved companies for each activity and the checks undertaken and guarantees made by each company to uphold the biosecurity requirements of the site.

3.5.5 There must be a system for tracing movements of delivery personnel (e.g. through delivery dockets and feed company records).

3.6 Entry procedures for poultry sheds and ranges

Objective: To prevent the introduction of disease agents and contaminants entering into bird sheds and ranges through people movements.

Any person entering sheds must sanitise their hands and use footbaths (unless separate shed specific boots or other ways to minimise organic material into the shed are being used) before entering each shed, and on exiting if going into another production facility.

3.6.1 To prevent the incursion of pathogens into the production area, the preferable practice is to have separate shed footwear for each shed/ production facility (including free-range operations).

If footbaths are used, the soles of boots must be scraped and have no adhered organic matter before disinfecting in the footbaths. Footbaths must be inspected daily (e.g. for excessive organic matter) and the contents replaced as required to achieve an adequate concentration of suitable disinfectant used according to company or manufacturer's recommendations. It's advised to place the footbath away from any ambient conditions that may inactivate the disinfectant.

3.6.2 A hand sanitiser or equivalent alternative must be available at all shed entrances and must be used before entering..

3.6.3 Facilities should be available for the cleaning and disinfection of equipment before entry.



3.6.4 The practice of having a change of footwear and coveralls to put over clothing at the shed entrance is the preferred method for moving between like sheds and minimally impedes the flexibility of staff movements.

3.6.5 Persons who have been in previous sheds that may, through positive endemic disease status, compromise the birds in another shed should only enter after showering and changing into farm-based clothing. This is typically the requirement for moving from production areas of the farm to rearing and pullet facilities.

4. Operational standards

4.1 Water supply

Objective: To ensure that water used in poultry sheds for drinking, cooling and cleaning, is of a standard suitable for livestock.

The use of a quality water supply free of potential avian pathogens is critical to achieving good biosecurity. Effective treatment of surface water and runoff water from roofs to reduce contamination and eliminate avian disease agents is essential but can be technically difficult. Any water treatment process should be monitored regularly. Water with a high level of organic matter, or low or high pH, cannot be effectively sanitised without having the appropriate pre-treatment, such as filtration. Ultraviolet treatment of water is limited to low flow rate clean water with no turbidity. It may be necessary to seek expert advice to ensure a secure water supply.

4.1.1 A chlorinated water supply treatment must achieve a level of 1.0 – 2.0 ppm Free Available Chlorine (FAC) at the continuous point of drinking by the birds. Effectively chlorinated water may, after sitting in storage for extended periods, test negative for FAC but provided the water storage is sealed, this is still satisfactory. This is often the case for manually treated multiple water tanks or for the early morning water entering the shed immediately after lights on.





4.1.2 When chlorinating water, there must be a minimum of 2 hours contact time with chlorine prior to use. As water quality varies, the effective level of FAC required over this 2 hour period can vary. One of the most accurate ways to determine if the chlorine level is effective is to measure the Oxidation Reduction Potential (ORP) of treated waters, which should be approximately 650 mv. This should be done in conjunction with reading the pH of the water, which may require adjustment. This value (650 mv) applies for any oxidative chemical used for sanitising water. Guidelines regarding the chlorination of surface water are available in Appendix 4.

4.1.3 Water sanitation testing must be conducted and recorded daily (see Appendix 6) and a maintenance program needs to be in place.

4.1.4 Chlorine dioxide water sanitisation systems are becoming more commonly utilised within the poultry industry and have advantages over the use of chlorination using sodium hypochlorite.

4.1.5 The effectiveness of water treatment systems, including alternative systems (e.g. ultraviolet), must be validated before use and treatment systems require a programme of maintenance and monitoring to ensure effectiveness. Production area records able to demonstrate the effectiveness of water treatment must be kept. Microbiological validation of the efficacy of the treatment system must be carried out at least once a year. Producers are advised to see the National Water Biosecurity Manual - Poultry Production for more detail on water biosecurity.[11]

4.1.6 Drinking water quality must be maintained at a standard suitable for use in livestock (see Appendix 5).

4.2 Vermin baiting (see also 2.12)

Objective: To minimise the potential for introduction of infectious agents and pathogens by vermin, foxes, wild dogs and cats and in particular, rodents, through their presence in the production area.

4.2.1 An appropriate control strategy with provisions for managing rodents, foxes, and wild dogs and cats must be developed and implemented. This includes ensuring that any baits used are registered and approved for the specific vermin species.

11 www.farmbiosecurity.com.au/toolkit/plans-manuals



4.2.2 Bait stations must be placed at strategic locations around the sheds, predetermined by the vermin species, tracking routes and movements within the facility. The number of bait stations should be increased in areas where there are signs of increased rodent activity.

4.2.3 Bait stations must be numbered, and a map kept of their location.

4.2.4 Bait stations must be checked frequently using a risk-based approach and fresh baits laid as required.

4.2.5 A record should be kept of each inspection and any activity noted (see Appendix 7).

4.2.6 Bait stations must be properly secured and tamperproof to minimise the opportunity for other mammals, native wildlife and birds to access the bait.

4.2.7 Other procedures like trapping and sonic sound aversion systems may also assist in rodent control.

4.2.8 The chemical compound used in rodenticides should preferably be a second-generation compound, which has low volume intake and rapid kill activity. The acceptability to the rodents and the effectiveness of the rodenticides should also be reviewed.

4.2.9 Dead vermin should be removed promptly and appropriately to avoid scavenging by poultry within production areas and other animals outside production areas.

4.2.10 Procedures should be in place to prevent the aggregation of wild birds and particularly the aversion of wild waterfowl.

4.3 Cleaning, ground and amenities maintenance

Objective: To reduce the likelihood of the introduction of disease agents and contaminants into poultry sheds and enclosures and reduce the attraction of rodents and wild birds to production areas.

4.3.1 Grass on and around the production area must be kept cut – long grass attracts rodents and favours the survival of viruses and bacteria.

4.3.2 The free-range area must be adequately drained to prevent accumulation and stagnation of water. The area must also be contoured to limit the ingress of runoff water from other parts of the property.





4.3.3 The use of untreated manure or litter on adjoining land to the free-range areas from other parts of the poultry operation or from other poultry farms should take into account the spread of potential endemic disease agents e.g. *Salmonella*, infectious laryngotracheitis virus, Marek's disease virus and the introduction of litter beetles. The use of windrow composting or off-site disposal is preferable, to remove these risks. Alternatively, manure or litter should be deposited at least 1 kilometre away from the production area.

If the farm does not have the capability to treat the manure and used litter on the farm, the company which collects/purchases the manure and used litter should have measures in place to treat the manure and used litter before they can on-sell products as fertiliser for crop production and horticultural use.

4.3.4 The control and eradication of endemic pathogens between batches in regard to free-range areas is determined by the characteristics of the pathogens. Agents like mycoplasma, IBV, and obligate external parasites like the Northern Fowl mite survive for only a limited time in the environment and away from the host. Most other avian pathogens and intestinal worm eggs require hot dry conditions for destruction by desiccation. Thus, under normal conditions it can be expected that some endemic pathogens will persist between batches in free-range systems. This is where efficacious vaccination against a broad spectrum of avian endemic diseases in pullets before transfer is a critical tool in any biosecurity program. This is coupled with a regular worming program.

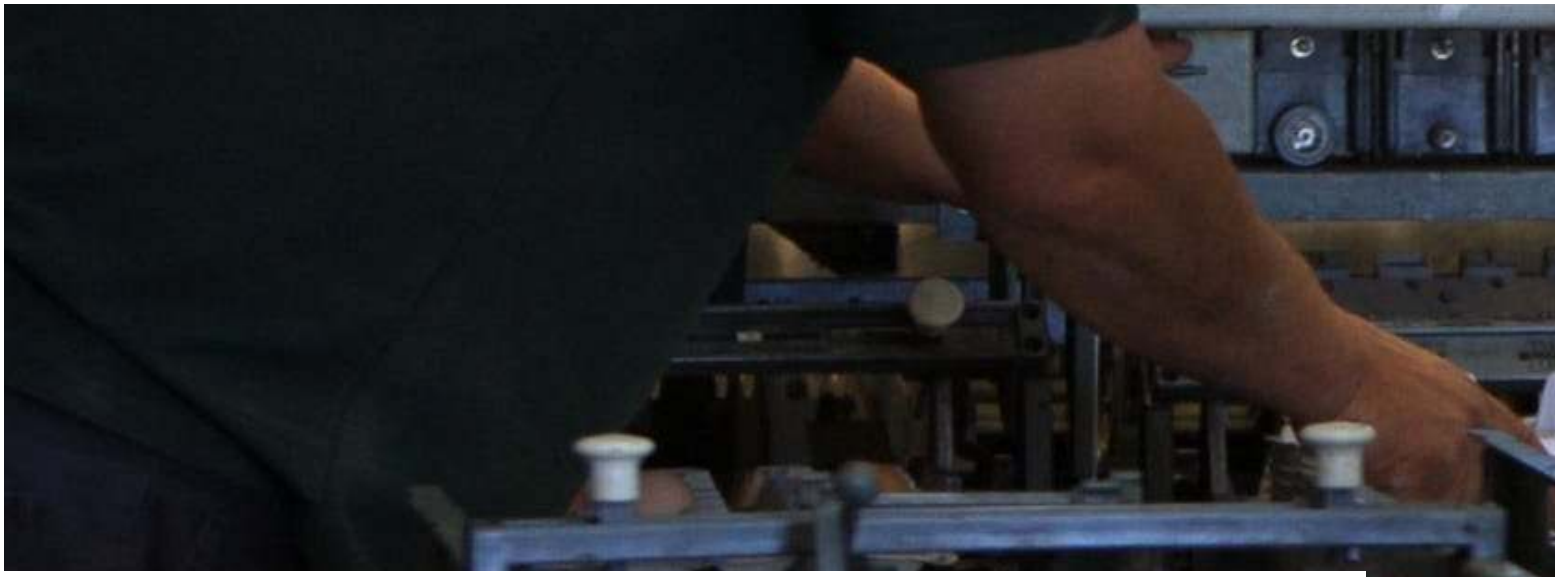
4.4.4 Monitor and investigate unusual signs of disease and death in wildlife[12] in areas surrounding production zones (including birds) to prevent the risk of a biosecurity incursion.

4.4 Record keeping

Objective: To assist early detection of animal health issues and the response to any biosecurity breach.

4.4.1 Bird mortality, feed and water consumption and production data must all be recorded daily to assist monitoring for any unusual animal health problems potentially indicating a biosecurity breach.

12 www.wildlifehealthaustralia.com.au/Portals/0/Documents/FactSheets/Avian/Mass_mortalities_in_wild_birds.pdf



4.4.2 A record of bird movements must be maintained to facilitate tracing in case of an animal health or food safety concern.

4.4.3 A batch summary sheet which identifies all the vaccinations, treatments and monitoring procedures and outcomes for each batch of pullets should be completed and made available to the production farm prior to the bird transfer. This is so corrective actions can be undertaken like revaccination where serological evidence indicates this is required or where a contingency is required for a health status change such as with *Salmonella*.

5. Grading floor and egg processing specific additional biosecurity requirements

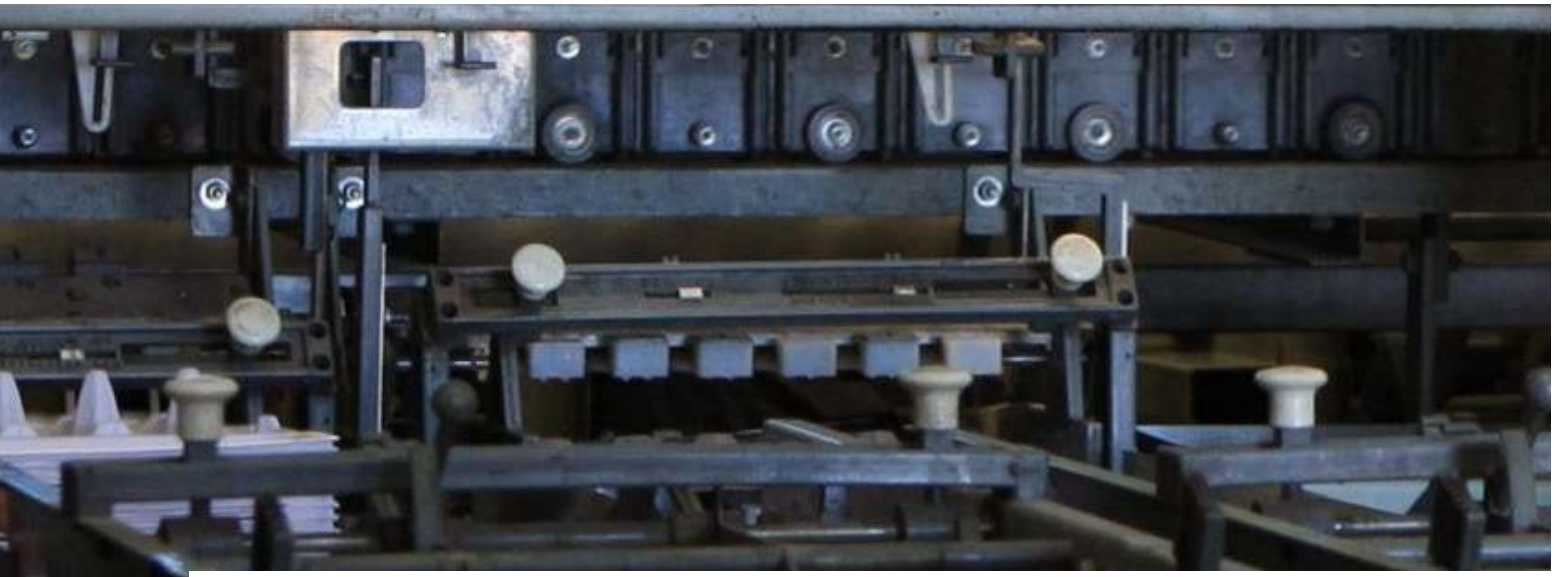
Objective: To enhance egg production biosecurity with specific additional requirements and operational procedures.

Egg grading floors and egg processing operations introduce another component of horizontal contacts that can impact on the biosecurity of egg production.

5.1 Egg grading floors

5.1.1 The egg grading floor can be located within egg production sites, connected to a number of sheds directly using conveyor belts, or by the use of internal vehicles bringing eggs in from other sheds. Subsequently, the disease status of the grading floor is equivalent to that of the “dirtiest” production shed. Portable egg handling equipment must be cleaned and disinfected before being returned to the shed.

5.1.2 For centralised standalone grading floors where there are inputs from multiple sheds and farms, the high level of horizontal contacts makes the risk of transfer of endemic disease between properties high. There is a need to ensure that vehicles, personnel and egg handling equipment (e.g. fillers, trolleys and pallets) do not cross-contaminate and/or transfer avian pathogens to previously clean farms. This has been the manner in which egg drop syndrome (EDS) infection has historically been spread amongst layer farms.



5.1.3 Re-using cardboard egg flats is a particularly high-risk practice in transferring poultry diseases between properties. Where multiple properties are involved in grading floors, either cleaned and disinfected plastic fillers or heat-treated cardboard flats should be used, or the less preferred option of marked fillers (colour coded for each farm) with a property identification.

5.2 Egg processing floors

5.2.1 The risks of egg processing plants spreading avian infectious disease is potentially higher because of the increased number of eggs from different properties, different egg production types and the wide geographical spread.

5.3 EAD traceability

In the advent of an EAD on one of the properties inputting eggs into a grading floor or liquid egg processing (LEP) plant, these facilities would become a ‘suspect premises’. The ability to trace the eggs would become pivotal in ensuring the sustained and minimally interrupted activity of the egg handling facility. The ability to isolate, treat or destroy the suspect eggs would be a potential critical containment component of the EAD response plan.

Free-range production operations

6.1 Background

Although this Manual applies to cage, barn and free-range operations, it is recognised that free-range birds will potentially have increased exposure to some avian pathogens including EADs through contact with wild waterfowl and other wild birds and animals in open planned production systems. Diseases such as internal and external parasites, fowl cholera and spotty liver disease are more commonly recognised in laying poultry farmed under extensive conditions. While it is difficult to apply standard hygiene practices to free-range areas, the basic biosecurity principles of preventing the introduction of disease by controlling movement of livestock, equipment and personnel still apply.

The use of enhanced vaccination programs and strategic prophylactic medications are a useful tool to limit disease build up on free-range operations.

6.2 Possible transmission routes and risks

Increased exposure to wild birds is considered a biosecurity risk and most importantly:

- waterfowl, particularly wild ducks belonging to the order Anseriformes (e.g. chestnut teal, freckled duck and black duck).
- the free-range area must not have the right environmental and amenity factors that will attract congregations of large numbers of wild birds or surface water for ducks. Especially proximity to dams and waterways must be avoided.
- wild birds, like the white ibis, which have access to waterways, rubbish, other birds and people.

Wild waterfowl surveillance in Australia identifies that most wild ducks have at some stage been exposed to avian influenza virus (AIV) and more importantly at any one time a small percentage of these are shedding virus in their faeces which can contaminate surface water and pastures. Some of these AIV are of the H5 and H7 subtypes which have in the past caused EAD outbreaks in the Australian poultry industry. In all cases, there was evidence of an association between wild ducks and contamination of drinking and/or cooling water or direct physical contact.



6.3 Control programs

Control programs that reduce the presence of wild waterfowl on free-range areas should be a priority consideration for all free-range operators.

This will involve the:

- absence or elimination of water catchments and other surface water within and in the vicinity of the free-range area.
- netting of retention dams or the use of flotation coverage devices and laser bird deterrent.
- use of aversion programs.
- Avoid planting fruit producing trees and vegetation that may attract free flying birds.

Good fencing is required around free-range farms to prevent entry of animals such as foxes. Fencing alone is on occasions insufficient or not practical to stop such intrusions; therefore, some free-range enterprises keep specially trained dogs or guard animals (e.g. alpacas) with the poultry to reduce predation by foxes and birds of prey. Further detail regarding deterrent techniques can be found in the separate document, “Avian Influenza Guideline”, found here: www.australianeggs.org.au/for-farmers/resources/avian-influenza-guidelines

It is acknowledged that full exclusion fencing/netting is generally cost prohibitive. However, netting a section of the range closer to the shed that covers a high proportion of hens that are ranging, thus significantly reducing risk, may be practical and cost effective.

In planning new production facilities, it should be noted that the need to minimise surface water can at times conflict with local government requirements (e.g., water run-off holding ponds). It is therefore important to consult with local authorities early in the process to clarify their requirements and, where possible, negotiate a more suitable arrangement.



High risk biosecurity procedures

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Objective: To enhance biosecurity protection by strategically assessing movements to protect the property from the increased threat of a disease being introduced from outside in the face of a suspected outbreak of an emergency disease or a serious endemic disease in the local area or state.

7.1 Action plan for suspected EAD

It is important for all egg producers and handlers to be aware that there is potential for an EAD to occur at any time and thus producers must be proactive at **ALL** times to ensure biosecurity procedures are in place that will prohibit the entry of an emergency or serious endemic disease into the poultry operation.

For an EAD, the level of biosecurity must be optimal **at all times** because infection will occur before clinical signs are observed. Thus, there will be a period of potential "silent" spread prior to any industry awareness or notification of the EAD. This is an important concept for all horizontal contacts (e.g. egg producers, transporters, clean out and vaccination crews, grading floors, carriers) who are potentially spreading the EAD while not aware of its presence.

The activity level required to prevent an EAD should include high awareness at all times and not just during a suspect EAD or after an outbreak notification.

7.2 Guidelines for EADs

Each egg producer must establish and document clear guidelines regarding the circumstances when an EAD alert should be raised (e.g. an unusual increase in mortality or drop in production), and who must be informed. The action plan must also clearly state that, if an alert is raised, movement of birds, eggs and egg products, disposables, equipment and personnel from and onto the suspect property must immediately cease and/or be strictly controlled. For other farms and properties which are close, the movement of horizontal contacts must have a risk-based assessment.

7.3 Frequency of monitoring

The frequency of monitoring of mortality and production variations is to be increased and enhanced across the operation including in contact properties.



7.4 Notification

Senior management and/or the operation's veterinarian, or the district veterinary officer (DVO), must be immediately notified. They will then assess the situation to consider or rule out an EAD. The directions given regarding biosecurity, livestock and product movements must be strictly followed and all other relevant personnel made aware of these directions.

When an EAD or notifiable disease is suspected, management or a veterinarian are legally obliged to report it under state and territory legislation. Even where there is uncertainty, the case should be reported as soon as possible. Emergency Disease Watch Hotline -**1800 675 888**.

7.5 Livestock movement controls and quarantine

In the event of a suspect EAD being notified the state/territory Chief Veterinary Officer (CVO) becomes the responsible entity with the legislative authority to implement livestock movement controls and enforced quarantine.

EMERGENCY ANIMAL DISEASE WATCH HOTLINE

1800 675 888



Australia's Response Arrangements

Australia has well developed response arrangements to manage emergency animal diseases like AI. Some key features are:

8.1 EADRA

8.1.1 There is national cost sharing of responses under the Emergency Animal Disease Response Agreement (EADRA - see animalhealthaustralia.com.au/eadra).

8.2 AUSVETPLAN

8.2.1 Technical guidance regarding the disease response strategy is provided within AUSVETPLAN disease specific documents, as well as various operational manuals and guidance documents (see animalhealthaustralia.com.au/ausvetplan)

8.2.2 AUSVETPLAN disease strategies are a guide and may need to be adapted according to the circumstances of an individual outbreak. However, significant variations must be documented in the Emergency Animal Disease Response Plan and approved by National Management Group (NMG).

8.3 Response Implementation

8.3.1 State agricultural agencies are responsible for implementation of the response, led by the Chief Veterinary Officer (CVO), but key decisions around cost sharing and the overall technical approach are made by the National Management Group (NMG), with technical advice from the Consultative Committee on Emergency Animal Diseases (CCEAD). These national committees have representatives from each of the states and the commonwealth, as well as industry.



8.4 Shared Responsibility

8.4.1 The concept of shared responsibility is embedded within the system, with industry involved in strategic and operational decision making at multiple levels. For example, AI may be treated as a Category 2 or Category 3 disease under EADRA depending on the virus strain/subtype involved. This means industry contributes either 20 percent or 50 percent of total eligible costs incurred by all signatories.

8.4.2 Only additional costs required to mount a response are cost shared, for example, existing government staff salaries are not cost shared. Compensation for birds and property destroyed at ‘market value’ rates are eligible costs, but consequential losses, for example, lost production are not eligible.



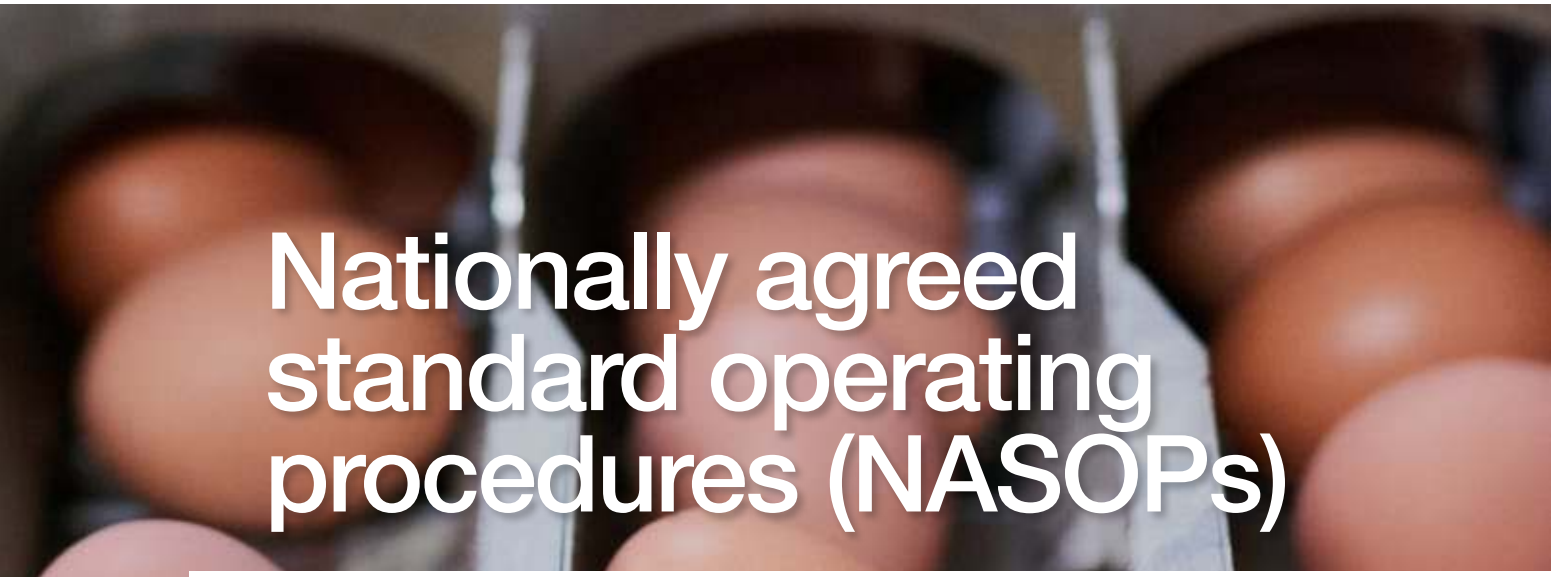
What to expect when an EAD occurs on your farm

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Following detection of an EAD on a farm, it will be immediately quarantined under state legislation. A Restricted Area and a Control Area will normally also be declared around the property in order to control further spread of the disease. The jurisdiction will establish a State Coordination Centre (SCC) and Local Control Centre (LCC) to manage the eradication effort. On the affected farm, this will primarily involve destruction of birds (generally the whole farm), their disposal and disinfection of facilities prior to repopulation.

This will be a stressful time for all involved and good two-way communication, particularly with the LCC, is essential. However, at times, busy people may inadvertently let communication lapse. Hence, farm owners / operators should take a proactive approach to communications. For example, when information is not forthcoming, take active steps to contact the people responsible, even where this means going to a higher level, for example the LCC Controller, or even the CVO.

Other support services, such as financial or mental health counsellors may also be made available. The industry organisation should also have appointed a liaison officer for the response and this person can also play a valuable role in assisting with communications.



Nationally agreed standard operating procedures (NASOPs)

NASOPs have been developed for use by jurisdictions during responses to EAD incidents and emergencies.

NASOPs support national consistency and provide guidance to response personnel undertaking operational tasks. NASOPs underpin elements of AUSVETPLAN and describe the actions typically undertaken during a response to an incident.

NASOPs cover a wide range of topics – and although they have been developed in the context of an EAD response, many will have application in all types of biosecurity incidents and emergencies. EAD-specific NASOPs are overseen by the Animal Health Committee (AHC), while NASOPs of a generic nature are developed by the National Biosecurity Committee's Biosecurity and Agricultural Emergence Network (BAEN).

For further information and a list of the NASOP's see www.animalhealthaustralia.com.au/nationally-agreed-standard-operating-procedures

What to have prepared in advance

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What to have ready in advance of an EAD situation:

- Always have an emergency kit with appropriate safety gear on-farm and ensure staff are trained in how to use it. This should include the provision and training in the use of well-fitting face masks and breathing equipment (minimum specification P2), goggles, gloves, hairnets and full-length coveralls.
- Have supplies on-farm of disinfectants for different purposes e.g. disinfectant for footbaths, hand sanitiser, vehicle cabins.
- A designated wash-down area and facilities to clean vehicles and equipment at the entry point to the production area. Exit washing may be required if the vehicle tends to visit another property that does not have appropriate truck washing facilities.
- Sheds must be lockable.
- Consideration should be given to where showering would occur for people entering and leaving the property.
- It is strongly recommended that individual enterprises should also develop their own destruction, disposal and disinfection plans (particularly for large scale facilities). An on-line mass disposal planning tool to assist in this process is available to those who have a registered account with Australian Eggs.
- While it can be argued that this is ultimately the responsibility of the state response agency, it is in the best interests of a poultry farm to have this work pre-planned so that it can be expedited, with a view to returning to production as soon as possible.

Note that under an EAD incident a CVO has responsibility and authority for the subsequent on-farm operations regarding personnel and facility movements, depopulation, disposal and disinfection, organisational matters and employment of resources and expenditure. However, where possible, these will be undertaken in consultation with the farm operator or owner. Further, there may be operational matters that are best undertaken by the owner and/or their normal staff / contractors. This would occur through a contractual or employment arrangement.



Appendix 1 – Production area audit checklist

National Farm Biosecurity Technical Manual – For Egg Production

Audit Checklist

Audit date:	
Auditor's Name:	**Auditee's Name:**
Auditor's Signature	**Auditee's Signature**

1.0	**Documentation and training**	**Paragraph Ref.**	**Yes**	**No**	**N/A**	**Corrective action**
1.1	Is a copy of the current National Farm Biosecurity Technical Manual for Egg Production held in the production area and readily available?	1.1				
1.2	Have staff been given instruction in the relevant parts of the Manual?	1.2				
1.3	Is a record kept of all relevant training received by employees?	1.2				
1.4	Is a bird mortality, feed and water register being maintained?	4.4.1				
1.5	Is an appropriate bird movement register being maintained?	4.4.2				
NOTES:						

2.0	Facility standards	Paragraph Ref.	Yes	No	N/A	Corrective action
2.1	Does the production area have a perimeter fence, quarantine signage and can access routes be closed off to prevent vehicle entry?	2.1 2.4				
2.2	Is there a site map clearly defining the production area and the property, including all access roads and gates?	2.3				
2.3	Is there adequate signage to inform visitors of the Biosecure Area and what action they should take?	2.4				
2.4	Is there an off-site parking area for visitors?	2.6				
2.5	Are footbaths or a change of footwear available or ways to minimise organic material used at all entrances allowing personnel access to sheds?	3.6.1				
2.6	Are the footbaths, where used, inspected daily and replenished as required? And covered when not in use?	3.6.1				
2.7	Is the area around the sheds neat and tidy? E.g. mown grass.	2.9 4.3.1				
2.8	Is hand sanitiser or washing facilities available and used at all entrances allowing personnel access to sheds?	3.6.2				
2.9	Are other livestock excluded from the production area or effectively restricted to areas so that their faeces cannot come in contact with poultry either directly or indirectly, e.g. water draining into poultry areas/sheds?	2.2 2.10				
2.10	Are the sheds bird proof?	2.8				
2.11	Are no other pet caged, avian species or intensive animals held on the property?	2.11 2.12				
2.12	Is equipment properly cleaned and disinfected between production areas?	2.12 3.6.3				
2.13	Is there a vehicle disinfection station located at the entrance gate?	2.5				
NOTES:						

3.0	Personnel standards	Paragraph Ref.	Yes	No	N/A	Corrective action
3.1	Is there a signed Personnel Quarantine Declaration for each employee?	3.1.1				
3.2	Is there a Visitors Log and are all production area visitors required to complete their details in the book?	3.4.2				
3.3	Are the conditions of entry to the production area prominently displayed near the Visitors Log?	3.4.1				
NOTES:						

4.0	Water treatment	Paragraph Ref.	Yes	No	N/A	Corrective action
4.1	Is there a water sanitising system in place for the drinking and cooling water?	2.14 4.1				
4.2	If chlorination or an alternative such as chlorine dioxide is used, is the level tested daily and recorded?	4.1.3 4.1.5				
4.3	If another sanitising system is used, is there a system in place to ensure that the water is being sanitised effectively?	4.1.5				
4.4	Is the effectiveness of the sanitising confirmed by independent microbiological testing at least once a year if required?	4.1.5				
NOTES:						

5.0	Vermin control program and rodent baiting program	Paragraph Ref.	Yes	No	N/A	Corrective action
5.1	Is there an appropriate vermin control strategy documented?	4.2.5				
5.2	Is there a rodent baiting program in place in the production area?	4.2				
5.3	Is there a plan showing the location of bait stations and are they properly secure and tamperproof?	4.2.3 4.2.6				
5.4	Are the baits regularly checked for activity and replaced; and is there a record of this process?	4.2.4 4.2.5				
5.5	Are dead vermin removed promptly and appropriately to avoid scavenging by poultry within production areas and other animals outside production areas?	4.2.8				
NOTES:						

6.0	Cleaning and ground maintenance	Paragraph Ref.	Yes	No	N/A	Corrective action
6.1	Has spilt feed been cleaned up around silos?	2.13				
6.2	Is the feed system closed to prevent contamination of feed by rodents and birds?	2.13				
6.3	Is there adequate drainage of the free-range area?	2.10				
NOTES:						

7.0	Dead bird disposal	Paragraph Ref.	Yes	No	N/A	Corrective action
7.1	Is there an appropriate procedure in place for the disposal of dead birds?	2.7				
7.2	Is the procedure both environmentally sound and biosecure?	2.7				
NOTES:						

8.0	Facility/company specific requirements	Reference	Yes	No	N/A	Corrective action
8.1	Are there dams on the property that allow wild waterfowl to congregate?	6.2 6.3				
8.2						
8.3						
8.4						
8.6						
8.7						
8.8						
NOTES:						

Appendix 2 – Personnel quarantine declaration

(Production Area Employee)

I, …… hereby agree to abide by **MY EMPLOYER'S BIOSECURITY** rules and standards.

I understand that the following quarantine rules/standards apply at all times:

1. No avian species are to be kept at my place of residence i.e. no poultry or birds of any type (e.g. ostriches, aviary birds or racing pigeons). If any exemptions to this are approved by the employer, I must shower and change clothes before entering the production area, I will adhere to their required quarantine period and other requirements.
2. No other domestic livestock are to be kept at my place of residence without approval.
3. No untreated poultry manure from other properties is to be used at my place of residence.
4. No member of my household is to work in any area where contact can be made with poultry or other processing facilities without approval. For example, on other properties or at hatcheries, processing plants, by-product plants, laboratories or with pick-up crews, unless I shower and change clothes before commencing work or they work on the same farm.
5. I will not visit poultry abattoirs, livestock production areas or poultry shows unless approved by my employer and appropriate quarantine measures are taken.
6. Any overseas travel is to be declared with the employer, including whether contact with any poultry, pigs or other avian species was made while travelling.
7. I will advise my employer if I am experiencing flu-like or gastrointestinal symptoms and will not work in the production areas until clinically recovered.

Signature …… Date ……..……

Residential Address ……

Appendix 3A – Entry conditions for visitors to poultry shed and/or range areas

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Entry to poultry sheds and/or range areas is subject to the following conditions:

	All visitors must **wear protective clothing** provided.
	All visitors must **wear protective boots**.
	All visitors must **disinfect boots in the footbath** provided on entering production area/shed, or change into a separate pair of shed boots.
	All visitors must **sanitise hands** before entering sheds.
	**Visitors who keep poultry, caged birds or other intensive livestock** are prohibited from entry without approval from management. A minimum of a 48-hour period since contact with poultry and birds shall apply and entry will only occur after a shower and change into clean clothing and footwear or adhered to required company quarantine periods and requirements.
	**Visitors who have been in contact with any avian species or untreated poultry manure** are prohibited from entry without approval from management. A minimum of a 48-hour period since contact with poultry and birds shall apply and entry will only occur after a shower and change- into clean clothing and footwear or adhered to required company quarantine periods and requirements.
	**Visitors who have come into contact with any poultry, pigs or other avian species overseas** for at least 5 full days (or other as required by the company) prior to the visit are not permitted entry.
	**Visitors who are suffering from gastrointestinal disease are not permitted entry.**

Appendix 3B – Visitor's Log

By signing this visitor's log, you agree to comply with the conditions as detailed in the accompanying list of conditions of entry. All visitors entering poultry sheds or ranges must sign this log.

Date	Name	Company and contact number	Vehicle rego number	Poultry/ livestock contact in last 48 hours?	Reason for visit	Recent overseas travel and dates	Time in	Signature	Time out	Signature

Appendix 4 – Surface water treatment

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Objective: To ensure surface water and other open sources of water are suitable for drinking and cooling and free of any avian disease causing agents

Surface, untreated channel or open sources of drinking water should not be supplied to poultry of any type or flock size. The objective of water treatment is to eliminate the avian pathogens including bacteria, viruses, algae and other organisms that birds could consume in drinking water or be exposed to through shed cooling systems.

Surface water provided to birds for drinking and used for cooling must be treated. Wash-down water should also be treated prior to use.

All surface water that comes from sources other than the mains (e.g. from dams, rivers, channels, creeks) should be treated on the farm before being used for poultry. Bore water should be tested and if not satisfying the water quality guidelines set out in Appendix 5 must be treated.

Chlorination

Chlorination is an effective low-cost method to sanitise water. However, chlorination will only be effective if the water is already relatively free of organic matter and of a pH around 7. Water filtration can be used to remove organic loads.

There are a number of different chlorination systems available to poultry producers. These can be obtained from a range of specialist water treatment companies, pumping companies or swimming pool suppliers. Assistance with the installation, operation and maintenance of these systems is usually offered by the supplier, as are kits for monitoring chlorination levels

To effectively treat a poultry water supply, the water with chlorine at a concentration of 5 ppm (or higher as required to achieve an ORP of 650 mv) must be held for a minimum of 2 hours in a holding tank. This may require the use of a two-tank system, where water is being consumed by birds from one tank, while the other tank is refilled and stored with freshly chlorinated water until the required contact time of 2 hours has elapsed. Chlorine is more effective if the pH of the water is between 6 and 7, i.e. slightly acidic.

For more detail on the sanitation of water and other alternative chemicals that can be used the reader is referred to the **National Water Biosecurity Manual Poultry Production**.

Appendix 5 – Microbiological water quality guidelines

Drinking Water Standards
Microbiological Analysis - Maximum Permissible Levels

Bacterial Standards	
Bacteria	**Poultry (max)**
E. coli (faecal coliforms)	< 1 cfu / 100ml
Coliforms	≤1000 cfu / 100ml

Appendix 6 – Water sanitation record

Date	Time	Test Result (e.g. FAC or ORP)	Corrective Action	Name or Initials

Test method .....

Appendix 7 – Rodent control record

Date	Time	Bait Station Number	Activity Level	Corrective Action	Name or Initials

Note: For activity level record “N” for no signs of rodent activity and “Y” where signs of rodent activity where observed (e.g. droppings/ bait eaten).

Appendix 8 – Audit check list for vaccination

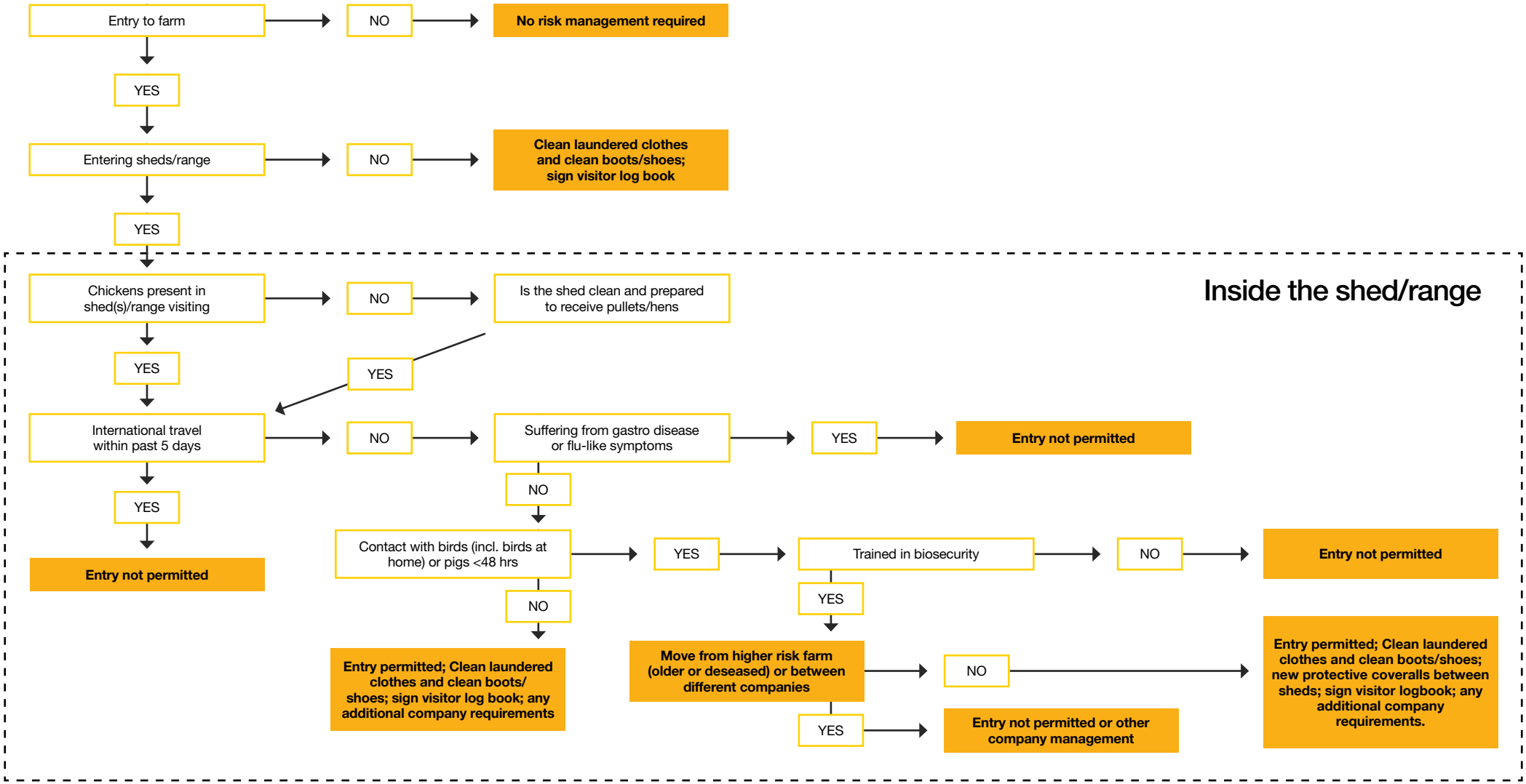
Showing the vaccination records should be maintained so that endemic disease control procedures are available.

No.	Vaccination requirements	Yes	No	Additional steps
1.	Obtain an understanding of the principles of vaccination by reading or attending courses.			Consult the Vaccination Training Manual, Second Edition (c2019).
2.	Check with your vaccine distributor or veterinarian as to which vaccines are necessary in your area.			
3.	Check with the hatchery or chicken supplier as to which vaccines have already been administered.			
4.	Decide whether you or your staff are sufficiently well trained to vaccinate, or if you require contractors.			
5.	Follow farm quarantine rules.			
6.	Maintain your personal hygiene.			
7.	Keep away from birds or animals that might be disease carriers.			
8.	Ensure all equipment and vehicles are cleaned and sanitised.			
9.	Read the labels of all chemicals and vaccines to be used and follow Directions.			
10.	Familiarise yourself with Safety Data Sheets (SDS).			Consult the Vaccination Training Manual, Second Edition (c2019).
11.	Follow the manufacturers' instructions on the handling of vaccines.			
12.	Use insulated containers for the transportation of vaccines.			

(Continued)

13.	Keep vaccines at correct temperatures as recommended for that vaccine during transportation.			
14.	Monitor the temperature of the vaccine containers.			
15.	Follow the manufacturers' instructions as to the storage and vaccine temperature requirements.			
16.	Observe and adhere to the expiry dates of vaccines			
17.	Handle birds according to the Welfare Code of Practice.			
18.	Monitor the bird behaviour at all times.			
19.	Where vaccines are to be administered through the drinking water, follow the manufacturers' instructions carefully especially in relation to cleaning of water systems, use of skim milk powder and dilution of vaccine in the correct volume of water.			
20.	Where vaccines are to be administered by spray, operate the equipment according to the manufacturers' instructions.			
21.	All equipment used for vaccination by injection, eyedrop or scarification must be clean and correctly sterilised.			
22.	Following vaccination ensure that all equipment is cleaned and disinfected.			
23.	Keep an accurate record of the number of birds vaccinated and the number of doses of vaccine administered.			
24.	Undertake any required vaccination Quality Assurance procedures following vaccination such as blood sampling as recommended by the vaccine manufacturer or your veterinarian.			

Appendix 9 – Biosecurity decision tree



Appendix 10 – Abbreviations

AHA	Animal Health Australia
AHC	Animal Health Committee
AI	Avian Influenza
AIV	Avian Influenza Virus
CVO	Chief Veterinary Officer
EAD	Emergency Animal Disease
EDS	Egg Drop Syndrome
EADRA	Emergency Animal Disease Response Agreement
FAC	Free Available Chlorine
FSANZ	Food Standards Australia and New Zealand
HACCP	Hazard Analysis Critical Control Point
ILT	Infectious Laryngotracheitis
LEP	Liquid Egg Processing
NASOP	Nationally Agreed Standard Operating Procedures
ORP	Oxidation Reduction Potential
PPPSEEP	Primary Production and Processing Standards for Eggs & Egg Products
PIC	Property Identification Code
SDS	Safety Data Sheets
vND	virulent Newcastle Disease

Glossary

aerosol	a suspension of fine solid or liquid particles in gas.
antimicrobial resistance	the ability of microorganisms – including bacteria, viruses, fungi and parasites – to develop a capability to grow or survive in the presence of antimicrobials, and to pass this trait on via their genes to other microorganisms.
asymptomatic carriers	an animal that has become infected with a pathogen, but that displays no signs or symptoms. Although unaffected by the pathogen, carriers can transmit it to others or develop symptoms in later stages of the disease.
aversion programs	a plan or schedule of activities to cause a strong feeling of dislike or opposition.
biosecurity boundary principle	an underlying or guiding theory or belief in using something that indicates a border or limit the security of animals from exposure to harmful biological agents.
clinical disease	signs and symptoms that can be recognised.
clinically recovered	to cause to be restored to a normal or usual condition based on actual observation and treatment of disease in patients rather than experimentation or theory.
disease agents	biological pathogen, such as a virus, parasite, fungus, or bacterium that causes illness.
ectoparasites	a parasite, such as the flea, that lives on the outer surface of its host.
efficacious vaccination	having the power to produce a desired effect after the administration of a vaccine to help the immune system develop protection from a disease.
emergency animal disease (EAD)	A disease that is (a) exotic to Australia or (b) a variant of an endemic disease or (c) a serious infectious disease of unknown or uncertain cause or (d) a severe outbreak of a known endemic disease, and that is considered to be of national significance with serious social or trade implications.
faecal microbiological culture	the growing of micro-organisms on a culture medium, such as agar, in an incubator kept at body temperature, for purposes of identification from faeces.
fancies	birds such as pigeons, parakeets, cockatiels, shell parakeets (budgerigars), parrots, turtle doves.

hazard analysis and critical control points (HACCP)	a systematic and preventive food safety management system. HACCP helps to determine, prevent and control biological, chemical, and physical hazards in the food processing chain, from the raw material sourcing, production, distribution to final consumption.
horizontal spread	the spread of an infectious agent from one person or group to another, usually through contact with contaminated material, such as sputum or faeces.
incursion	the act of entering or running into.
prophylactic medications	a medical treatment used to prevent the appearance of a disease or other medical problem in animals who is healthy at the time of treatment.
protective immunity	a condition of being able to resist a particular disease especially through preventing development of a harmful microorganism.
reverse zoonosis	transmission of disease from human to animal.
second generation compound	also known as single feed compound. Highly potent anti-coagulant rat poisons that can easily kill a mouse or a rat after only a single feed of bait.
serological	the scientific study or diagnostic examination of blood serum, especially with regard to the response of the immune system to pathogens or introduced substances.
subclinical disease	an illness that is staying below the surface of clinical detection and has no recognisable signs and symptoms.
susceptible host	an animal that harbours and sustain another organism which is lacking in immunity or resistance and thus at risk of infection.
therapeutic antimicrobials	treating or curing of disease using agent that kills micro-organisms or stops their growth.
turbidity	the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye, similar to smoke in air. The measurement of turbidity is a key test of water quality.
vector	an organism (such as an insect) that transmits a pathogen.

Notes



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