

NSW biosecurity guidelines for free range poultry farms

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The information contained in this publication is based on knowledge and understanding at the time of writing (July 2007). However, because of advances in knowledge, users are reminded of the need to ensure that information on which they rely is up to date and to check the currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.

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FOREWORD

Biosecurity, at the practical level, is an action plan designed to minimise the risk of introducing diseases into a flock. The term 'biosecurity' refers to measures taken to prevent or control the introduction and spread of infectious agents to flocks.

This document is designed to provide guidelines specifically for free range layers at a practical farming level. Some people may believe that by their nature free range farms cannot accommodate biosecurity principles. This is a misconception, as most biosecurity principles can be accommodated on a free range farm.

Many free range farms enjoy the advantage of being located outside districts where the conventional poultry industry is concentrated. It is therefore very important that those free range farms maintain this advantage and avoid sourcing replacement stock, feed or other supplies from other poultry farms; for example, they can choose to raise replacements from day old chickens, deal with feed millers or grain producers located outside poultry districts, and deal directly with packaging manufacturers.

The perimeter fencing of range areas must be secure, to prevent neighbouring poultry or other animals from wandering in. This is also necessary in order to minimise the risk of attacks by foxes and dogs.

The establishment of buffer zones between poultry range fencing and the property boundary fence should be considered.

Wild birds are likely to be attracted to range areas if they have access to feed, drinking water or surface water. If those attractions are eliminated, wild birds are unlikely to try to mix and compete with the poultry flock.

Layers are vaccinated against a wide range of diseases. Some free range organic layer farms may not be in a position to follow the entire vaccination program, due to accreditation restrictions. Generally, there are a number of significant diseases that are capable of having a significant financial impact on a farm, and may not be covered by an available vaccine (e.g. *Salmonella enteritidis* and avian influenza).

The foot-and-mouth disease outbreak in the UK and previous Newcastle disease (ND) and avian influenza (AI) outbreaks in NSW have highlighted the importance of producers taking steps to prevent the spread of livestock diseases. The current AI outbreaks in South-East Asia and parts of Europe are also a reminder about the importance of biosecurity.

The eggshell and various other components of the intact egg provide an excellent defence against bacterial contamination; however, the farm environment is not sterile, and eggs can become contaminated. Biosecurity measures will reduce the risk of introducing some disease agents, like *Salmonella enteritidis*, onto the farm. If the infectious agent is prevented from entering the farm, it cannot contaminate eggs produced on the farm.

Hygienic conditions on the farm and in egg storage and grading facilities will minimise the risk of bacterial contamination of eggs.

It is important to maintain the status of eggs in Australia as a product with a low food poisoning risk. This is achieved by keeping a high level of biosecurity and good hygiene standards on the farm, and during the storage and grading of eggs.

The guidelines identify some of the significant and obvious risk areas; however, it is important to remember that aspects such as the locality of the farm, proximity to other farms and effective vaccination programs all impact on a farm's biosecurity.

The guidelines include sections on basic day-to-day biosecurity, normal risk mitigation, and high risk biosecurity for circumstances of high disease pressure, such as Newcastle disease or avian influenza outbreaks.

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THE OBJECTIVES OF BIOSECURITY

- To prevent the introduction of infectious agents into free range layer farms
- To prevent the spread of disease between farms and between sheds on a farm
- To improve the standard of farming and the public perception of food producing enterprises
- To minimise the potential disease risk to humans from eggs.

HOW ARE DISEASES SPREAD?

There are many ways that diseases can spread to farms. Some of the more likely methods of disease transmission are:

- movement of birds and equipment – particularly second-hand packing material, such as egg fillers – between farms;
- movement of people between farms;
- movement of infected poultry products (e.g. eggs);
- windborne transmission;
- rodents (e.g. rats, mice);
- contaminated water supply;
- wild bird access to birds;
- insects;
- other birds or animals on the farm.

Basic practical precautions go a long way toward preventing the entry of most diseases onto the farm. Indeed, there are some diseases for which these precautions may be insufficient to prevent entry; however, the fact that burglars can get in through the roof does not stop most households from placing locks on doors and windows, especially if the cost associated with these measures is negligible compared with the trauma and loss associated with burglary. So, while in some cases a disease can enter the farm through means that cannot be easily controlled by a practical level of biosecurity, this should not stop a farm from taking basic practical precautions.

BASIC BIOSECURITY

THE FARM

Keep the farm clean and free of debris, particularly around the shed area and egg room. Stockpiles of poultry manure should not be kept in these areas. This is important for public perception as well as minimising the presence of ‘hiding spots’ for rodents and insects, and maximising the ability of the sun (UV light) to ‘disinfect’ the shed surrounds.

The area leading to the shed should have appropriate signs to stop customers wandering into the shed. An alarm system should be installed, to alert the owner/manager that customers have entered the farm area.

Because free range chickens require free access to the outdoors, bird-proofing the shed is practically impossible. Contact with wild birds – particularly wild water birds – can be minimised by making the free range enterprise less attractive to them; e.g. by placing feeders inside the shed, rather than in the open range where wild birds will have easier

access. Placement of bird netting in critical feeding areas may also reduce the risk. The netting should allow the entry of chickens but limit entry by wild birds.

The shed should be waterproof, as damp areas in the shed and wet feed in the troughs may attract flies, and will also provide a suitable environment for bacterial and fungal multiplication.

Adequate facilities for the disposal of dead birds should be in place, using methods that comply with environmental guidelines.

The feed-mill/preparation area should be as bird-proof and animal-proof as possible, to prevent contamination of feed.

Unnecessary large bodies of water around the shed should be avoided, as they may attract wild waterfowl to the vicinity. Access of free range chickens to dams and creeks should be curtailed by fencing off these areas.

The water supply to the shed (e.g. for drinking and fogging) should be either mains water, good quality bore water, or be treated by an appropriate method such as chlorination, UV irradiation or ozonisation.

New litter (shavings) for deep litter during the growth phase of day old and pullet rearing should be accessed from known, reputable sources, and stored in a bird-proof location.

Only new egg fillers or cleaned plastic egg fillers should be used. Customers should be discouraged from returning empty egg fillers to the farm.

Movement of eggs between farms should be avoided if possible.

Eggs sourced from another farm (e.g. to make up for a temporary shortage, or for other reasons) should be kept in a separate section of the farm or in the egg storage area.

Soft-shell, cracked or unusable eggs should not be dumped in or outside the shed. They should be buried, composted or removed from the farm as part of the dead bird pick-up, or by other suitable arrangements.

OPERATIONAL STANDARDS

Vaccination

An effective vaccination program appropriate to the diseases found in the area is one of the most important aspects of biosecurity, regardless of any other biosecurity measures taken at farm level. Vaccination against endemic diseases – such as Marek's disease, infectious laryngotracheitis (ILT), infectious coryza, mycoplasma, fowl pox, infectious bronchitis, avian encephalomyelitis and egg drop syndrome 76 – should be considered as routine farm practice. **Vaccination of chickens against Newcastle disease is compulsory in NSW.**

Vaccination by an outside crew can carry a significant risk if not done with appropriate biosecurity precautions. Professional vaccination crews should have their own biosecurity code, which should be examined by the farmer prior to the visit. It is essential that vaccination crews do not visit more than one farm on the same day, and that all their equipment is sanitised before the next 'job'. Vaccination crew personnel should sign the visitors' book and declaration (see Appendix 3).

Sick and dead birds

Sick birds should be treated as soon as possible, or removed from the flock. The presence of sick birds may compromise the ability of the flock to resist disease, by causing the disease to build up beyond the threshold level.

Dead birds should be removed from the shed as soon as possible, and disposed of in a manner that complies with environmental guidelines. Immediate burial (following EPA guidelines), incineration or composting (see Appendix 2) is preferable. Dead bird pick-up

by a contractor should be avoided if possible; however, if a contractor is used and birds have to be stored prior to pick-up, they should be stored in a freezer (see Appendix 1).

In the case of dead bird pick-up, the collection area should be as far away from the operational area of the farm as possible. The collection vehicle should not enter the farm. Regular cleaning and disinfection of carcass storage containers and the collection area should be undertaken, to minimise the spread of disease by flies.

Water supply

If water treatment is necessary (e.g. where the water supply is surface water or poor quality bore water), the efficiency of the treatment facility needs to be regularly monitored. When chlorination is used, a chlorination record chart should be utilised to document that the water has been adequately treated (see Appendix 5). Chlorination requires a level of 5 ppm chlorine over the 1–2 hours holding time (contact time).

Drinking water, like feed, should be accessed inside the shed; or, if watering stations are required outside, they should be of a type that cannot be easily accessed by wild birds (e.g. a nipple system). It is important to place any outside watering system in a cool area, as chickens will not drink hot water.

The watering system should be maintained, in order to prevent leakage and the creation of wet patches within or outside the shed. Wet areas may result in a build-up of flies, provide an ideal environment for bacterial multiplication, and may also attract wild birds.

Water tanks should be checked regularly to ensure that they remain bird-proof.

Rodents

Baiting stations should be placed around the farm perimeter in a secured manner that allows access by rodents and prevents access by other animals. Narrow pipes are ideal for this purpose. The baiting stations should be checked weekly, and fresh bait placed monthly (or more often if required). An activity logbook for rodent control should be maintained (see Appendix 6). It is recommended that baiting stations be placed at intervals of 10–15 m around the perimeter, or outside the sheds.

Feed spills must be cleaned up as soon as they occur.

In most free range enterprises, long grass should not be an issue around sheds, as chickens tend to take care of this aspect themselves. If this is not happening, however, the grass around the shed site should be kept cut, as long grass attracts rodents, and favours the survival of bacteria and viruses.

Visitors

Many egg farms sell eggs and manure directly to the public. In such cases, every effort should be made to stop customers entering the free range area. Free range farms are more vulnerable than conventional sheds to contamination by visitors. People can carry contaminants on soiled footwear, and these can persist in the soil for many weeks or months.

Neighbours, friends, sale representatives and other people should be kept away from the free range area unless their presence is essential.

Visitors who are required to enter the free range area (e.g. veterinarians, maintenance and service personnel) should be recorded in the visitors' book and asked to sign a visitor declaration (see Appendix 3) – unless an emergency exists.

Producers may insist that visitors who have visited other farms on the same day do not enter the sheds or range areas.

Visitors entering the free range area shed should be provided with protective clothing, if they do not carry their own set of unused disposable protective coverings. The protective clothing should include overalls and plastic overshoes or boots. In general, every farm should have sufficient protective clothing for 2 to 3 visitors.

Tools taken into the free range area must be clean and free of organic matter and dust.

Any crew delivering pullets or day old chickens to the farm should sign a declaration that they have not been on another farm on that day (i.e. split delivery). If it is not possible to avoid split deliveries, the delivery crew should shower and completely change their clothing before being allowed into the free range area sheds.

Any crew picking up end of lay hens for processing or transfer to another farm should comply with the same conditions as above, unless they are depopulating the entire farm.

The drivers of feed delivery vehicles who are required to enter the free range area or feed mixing area should be provided with disposable plastic overshoes if they need to get out of their vehicle, particularly in the area where feed is mixed.

Customers should never be allowed to enter the free range area to collect eggs.

Other animals

Good fencing is required around free range enterprises, to prevent entry by animals such as dogs, foxes and cats. In many situations, however, fencing alone is insufficient to stop such intrusions; therefore, some free range enterprises keep specially-trained dogs with the chickens, as protection against other animals, and also against unauthorised human entry. Guard dogs such as these are not regarded as a biosecurity risk, but rather as a biosecurity tool.

Hygiene

Hygienic conditions on the farm and in the egg storage and grading facilities will minimise the risk of bacterial contamination of eggs. It is recommended that free range farms:

- keep the farm and egg grading room clean and tidy at all times;
- control rodents and flies on the farm, particularly in the egg grading facilities;
- make sure employees are familiar with the basic principles of food hygiene – an operational manual with a checklist of routine hygiene and husbandry standards is recommended;
- make sure the egg belts in automated systems are clean and properly maintained, as dirty egg belts have the potential to dirty numerous eggs;
- regularly remove cobwebs and dust from inside the shed and egg grading room;
- use new, clean egg fillers;
- don't allow domestic animals inside egg grading rooms;
- clean manure flaps under cages and regularly clean nest boxes in barns;
- maintain a record of the checks you do (see Appendix 8);
- ensure manure/litter in the shed is low in moisture, as the moisture content of litter/manure is an important factor in the multiplication of some bacteria.

PERSONNEL

Producers and their employees should not have contact with other poultry, emus, ostriches, pigeons, caged birds or poultry manure from other farms in the 24 hours before arriving at the farm. Such contacts may result in the introduction of a serious disease onto the farm. Farm employees should complete a personnel quarantine declaration (see Appendix 4).

Backyard flocks have the potential to introduce a number of diseases into a commercial flock, including *Salmonella enteritidis*, egg drop syndrome 76, infectious bursal disease, tuberculosis and Newcastle disease. Pigeons and cage birds are significant potential sources of psittacosis.

In the case of valued employees who have been working on the farm for some time and who keep caged birds at home, an acceptable alternative would be for these employees to shower and completely change their clothes before entering the shed.

The farm's biosecurity must be evaluated in the context of the potential risk, and what risk the farmer is prepared to accept. The disease risk from a caged bird that has been with the household for some time and is housed in a secured area would, under most circumstances, be minimal. The presence of aviary birds on a property – if kept away from the house and serviced by other members of the family rather than the employee – may also be acceptable as a low risk.

Farm clothing, particularly boots, should not be worn off the farm; nor should street clothing be worn on the farm.

AIRBORNE INFECTION

Very little can be done to mitigate the airborne spread of infection on most farms, apart from the original placement of a farm at a safe distance from other poultry enterprises, and the planting of trees and large shrubs to filter and block some of the airborne spread. Proper management of free range pastures could, however, reduce the airborne spread associated with dust.

Effective airborne spread of infections usually requires a large transmitting flock and a large receiving flock. Two elements mitigate the airborne risk to free range farms: their small size compared with conventional enterprises, and the fact that most free range enterprises are located in districts with a low-density poultry population.

HIGH RISK BIOSECURITY

High risk biosecurity measures are recommended during outbreaks of significant diseases, such as Newcastle disease, avian influenza, virulent infectious bursal disease (IBD), *Salmonella enteritidis*, and egg drop syndrome 76.

In cases such as avian influenza, Newcastle disease and virulent IBD, specific designated risk areas will be declared, and biosecurity measures in these areas will be decided through consultation between governments and industry.

Farms outside the officially designated risk area are advised to upgrade their biosecurity to a higher level than normal.

Visits to the farm for any reason should be discontinued, unless absolutely necessary for the purpose of surveillance or emergency repairs. Any vehicle that must enter the farm should be thoroughly disinfected before entering.

Movement of birds, equipment and eggs between farms should cease.

Movement of manure off farms should be discontinued.

The above is recommended not only to stop potential disease spread but also to ensure that farms outside the designated risk areas do not become unnecessarily tangled in surveillance as part of movement trace operations.

APPENDIX 1 – DEAD BIRD COLLECTION

Dead birds must be removed from the free range enterprise daily, or twice daily if mortality is high.

Once collected, dead birds must be moved from the free range area to an appropriate site either on or, preferably, off farm, for processing or subsequent collection by a contractor.

If dead birds are not disposed of daily, they must be stored in a designated freezer on the farm. The freezer should have sufficient capacity to adequately handle 1–3 days of normal flock mortality, and should not be used for any other purpose.

The dead bird collection area should be as far away from the shed site as possible; it should also be secure, and designed in a way that minimises the spread of infection. If possible, vehicles collecting dead birds should not enter the farm. If they must enter the farm, they should not come close to the flocks. For example, a dead bird collection shed could be provided, on a concrete base with doors on both sides. One door would be for dead birds to be placed in the shed, and the other for dead birds to be taken out and placed in the collection vehicle. The truck loading area should be washable.

Steps should be taken to minimise the presence of flies in dead bird collection and disposal areas.

Any dead bird collection containers must be washed and disinfected before being returned to the farm/shed area.

Personnel disposing of dead birds should be instructed on the need to maintain personal hygiene.

APPENDIX 2 – DEAD BIRD COMPOSTING

The composting process/apparatus should be able to accommodate the normal mortality rate of layers with up to 0.2% mortality per day. For example, in order to compost 500 kg of dead birds on the farm, a composter 2.4 m wide, 1.5 m deep and 1.5 m high would be required. The general rule is to build 0.06 m³ of primary capacity bins and 0.06 m³ of secondary capacity bins for 1 kg of dead poultry.

Commercial composters are available and can be hired or purchased.

For proper composting, four elements are necessary:

1. proper nutrient mixture of carbon and nitrogen (C:N range of 1:20 to 1:35);
2. 40–60% moisture;
3. a temperature range of 57°C to 63°C;
4. pH in the range of 6.5 to 7.2 (mildly acid to neutral).

The materials required are water, straw, woodchips or sawdust, dead birds and poultry litter.

When done properly, composting does not generate an odour.

Rodents, cats, dogs, feral animals, scavenging birds and flies must be kept away from composting carcasses.

The composting area should be away from sheds and boundary fences.

The composting area must be kept neat and clean at all times.

Details on the Australian Standard™ for Composts, soil conditioners and mulches (AS 4454-1999) are available from Standards Australia (www.standards.com.au).

APPENDIX 3 – LAYER FARM ENTRY PERMIT

Authorisation for: _____

Date of entry: _____

Terms and conditions of entry to layer sheds

Visitors:

- have not been in contact with any avian species or untreated poultry manure within the last 24 hours.
- agree to wear the protective clothing required, or their own unused clothing.
- agree to wear the protective boots or overshoes provided.
- agree to sanitise their hands in the facility provided.

I agree to the terms and conditions of entry stated above.

Object of visit: _____

Name _____ **Signature** _____

**APPENDIX 4 – PERSONNEL QUARANTINE DECLARATION FORM
(FARM EMPLOYEE)**

I _____ hereby agree to abide by my employer's biosecurity rules and standards.

I understand that the following quarantine rules/standards apply:

- No avian species are to be kept at my place of residence without the knowledge of my employer – i.e. no poultry or birds of any type (e.g. ostriches, aviary birds, or pigeons).
- No untreated poultry manure **from other farms** is to be used at my place of residence.
- I will not visit poultry shows or poultry processing plants, **unless approved by my employer and unless appropriate quarantine measures are taken.**

Signature _____ **Date** _____

Residential Address _____
