

Booklet 1

Guidelines for biosecurity plan workbook

CONTENTS

STEP 1

Define the purpose and regulatory requirements of the biosecurity plan 2

STEP 2

Document the layout of the farm 3

STEP 3

List the major disease risks to the farm 4

STEP 4

Document input management 5

STEP 5

Document the biosecurity control points on the farm 12

STEP 6

Implementing the biosecurity plan 16

STEP 7

Implementing a review cycle for the biosecurity plan 19



STEP 1

Use this information to help you fill in page 2 in **Booklet 2**

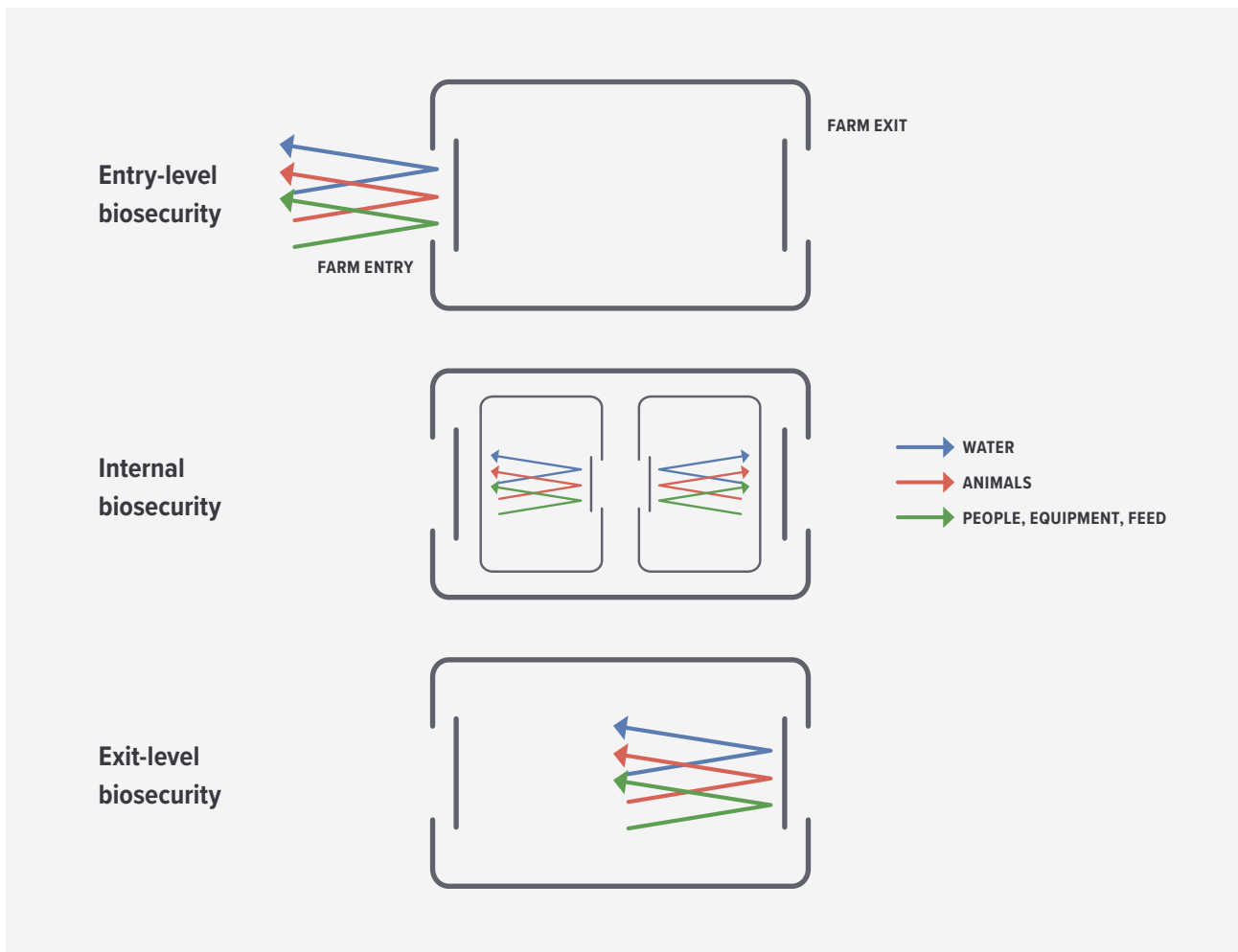
Define the purpose and regulatory requirements of the biosecurity plan

Biosecurity is an important part of any successful egg production system. It describes the systems in place within an enterprise or business to protect against infection and disease.

The purpose of a Biosecurity Plan is to put controls in place that:

- 1) reduce the risk of diseases being introduced into your farm (entry-level biosecurity)
- 2) reduce the risk of diseases spreading within your farm (internal biosecurity)
- 3) reduce the risk of diseases exiting from your farm (exit-level biosecurity)
- 4) define the emergency response protocols in place for serious disease outbreaks (all three levels of biosecurity)

An effective Biosecurity Plan should be farm-specific and balance practicality, cost and regulatory requirements.



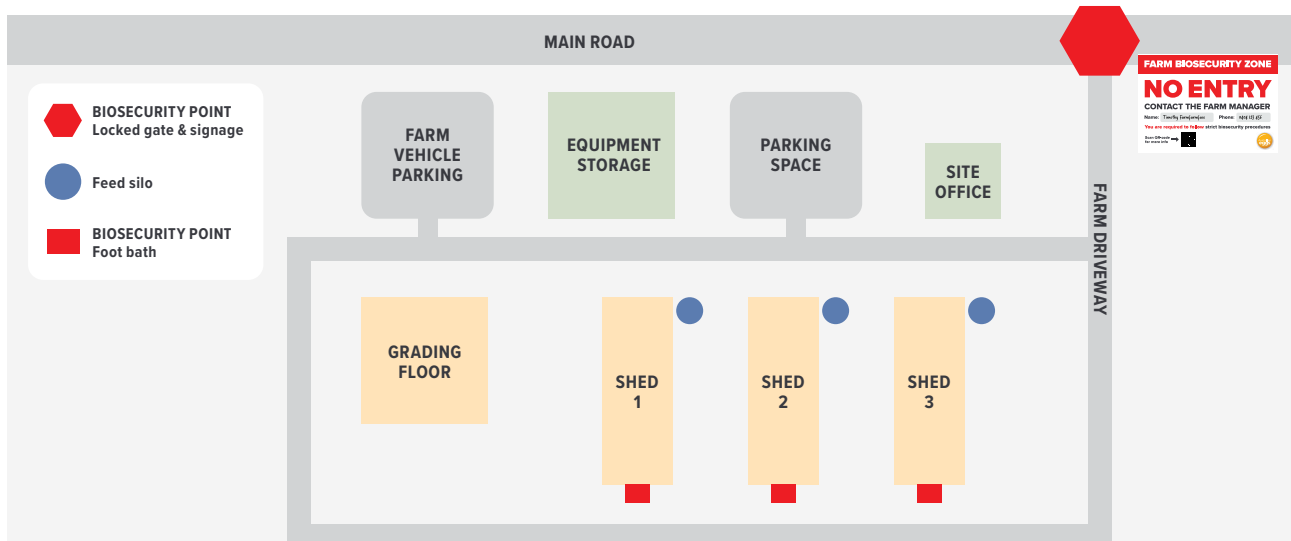


STEP 2

Use this information to help you create a farm map. To do this you could edit or print and annotate a current farm map. Otherwise page 3 in **Booklet 2** has been left blank if you need to create a new map.

Document the layout of the farm

Having a detailed map of the farm and included production area(s) will help you in planning biosecurity controls, training your staff and responding to an outbreak, should one occur.



Your map should contain the major facilities (for example, buildings, roads, production sheds, ranges) as well as the significant natural features of the site (for example, waterways and hills).

The map should also include:

- roads and site access points onto the farm
- vehicle parking areas for visitors
- all buildings – including main office and sheds
- production areas within the facility (for example, egg grading, hatchery, pullet raising and adult housing)
- equipment and vehicle storage areas
- water supply and treatment points
- escape and entry prevention measures (for example, fencing)
- any features important for the hens
- typical staff movements through the facility (for example, from hen sheds to egg packing shed)
- biosecurity controls, such as:
 - ▶ reception points for visitors and contractors
 - ▶ equipment and vehicle wash down areas
 - ▶ location of footbaths and disinfection areas
 - ▶ waste disposal areas (for example, for mortalities and manure)
 - ▶ site security points (include locations of lockable doors and gates)



STEP 3

List the major disease risks to the farm

Use this section to list known biosecurity risks (aka diseases) in your geographical area. This should include diseases known to infect local poultry and diseases that have previously infected flocks on your farm.

Use the Spotty Liver Disease example below to help you fill in pages 4 and 5 in **Booklet 2**, using one table for each disease.

Table 1 – Provided as an example only Spotty Liver Disease

SPOTTY LIVER DISEASE	DESCRIPTION
Disease agent	Campylobacter hepaticus
Distribution	Occurs worldwide and nation-wide in Australia. More prevalent in free range production systems.
Consequences	Spotty liver disease (SLD) in chickens can present with variable impacts on mortality and production, ranging from sporadic mortalities of individual birds and no notable impact on production to severe reduction in egg output and increased mortality in layer flocks of greater than 1% per day.
Transmission	Currently understood to be transferred by faecal-oral route. In food, water and surfaces contaminated with faeces.
Further information	<i>Induction of spotty liver disease in layer hens by infection with Campylobacter hepaticus</i> , Veterinary Microbiology 199 • December 2016. By Peter Scott, Robert Moore et al.



STEP 4

Use this information to help you fill in pages 6 to 11 of **Booklet 2**.

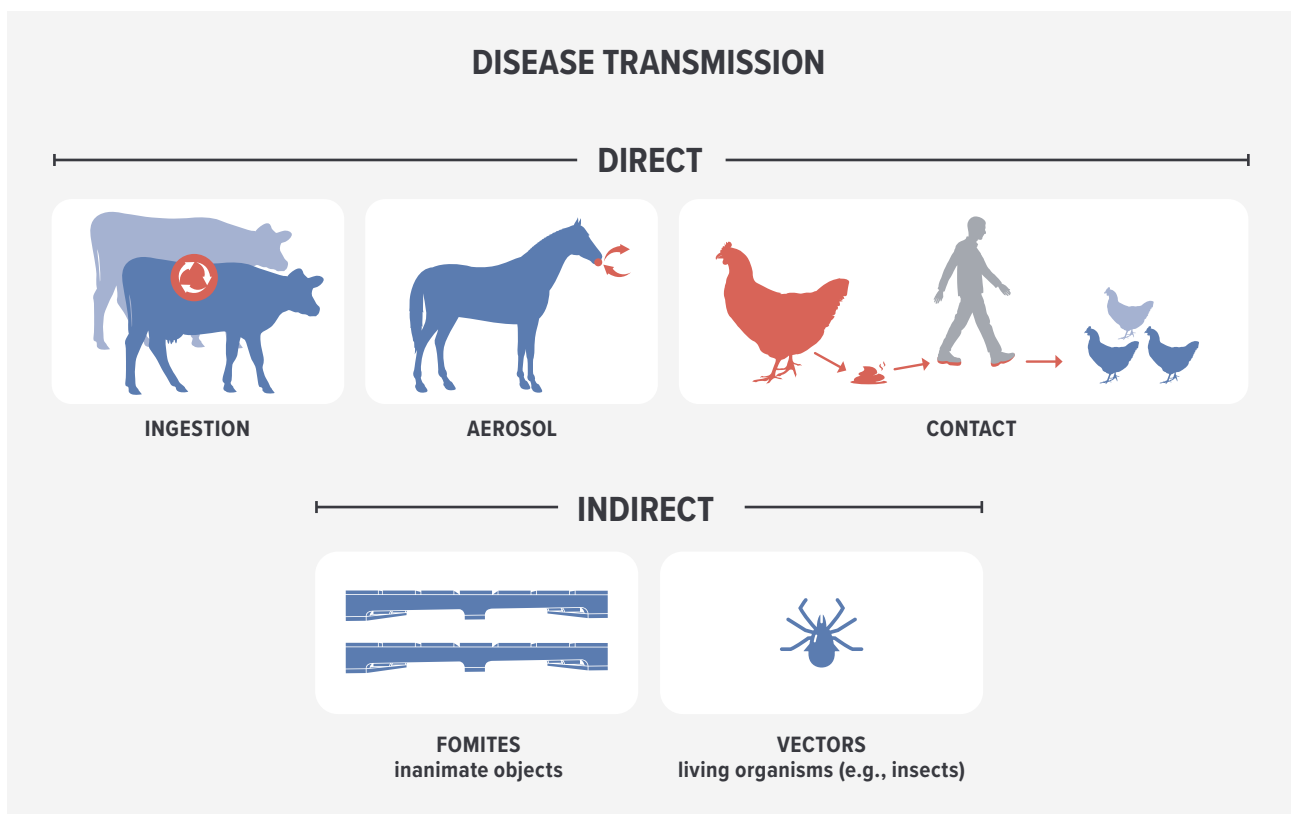
Inputs: Understand how disease can enter, move within and leave the farm

Pathways of Disease

In egg production systems there are three main pathways diseases can take to infect a healthy hen. The pathway taken will depend on the disease itself and which pathways are available at the farm. These are:

- 1. Direct contact:** a diseased hen coming into contact with a healthy hen. For example, this is one of the ways Erysipelas can spread.
- 2. (Indirect) Faecal – Oral:** given many disease-causing agents will be 'shed' in faeces, it's very common for disease to spread through infected faeces being digested by a healthy bird. *Salmonella* is spread in this way, for example. Importantly, this is also the disease pathway that can infect drinking water or surfaces such as egg fillers.
- 3. (Indirect) Aerosol:** Some diseases can be spread through droplets in the air. Highly Pathogenic Avian Influenza, for example, can spread in this way.

The aim of biosecurity is to put effective controls in place that prevent or reduce these pathways from existing on your farm.



 S4

Inputs & Carriers of Disease

Bacteria and viruses that cause disease aren't capable of transporting themselves; the pathways above rely on carriers to transport them from animal to animal, human to human or between human and animal.

Animals

Poultry – Often poultry infected with disease will not show obvious signs of disease, which means chicks and pullets entering the farm could be carrying undetected disease. Any hen entering the farm should be managed in a way that prevents the spread of undetected disease to other hens on farm. This is particularly important if incoming poultry are of unknown health status e.g. no vaccination papers, not tested for *Salmonella* free status.

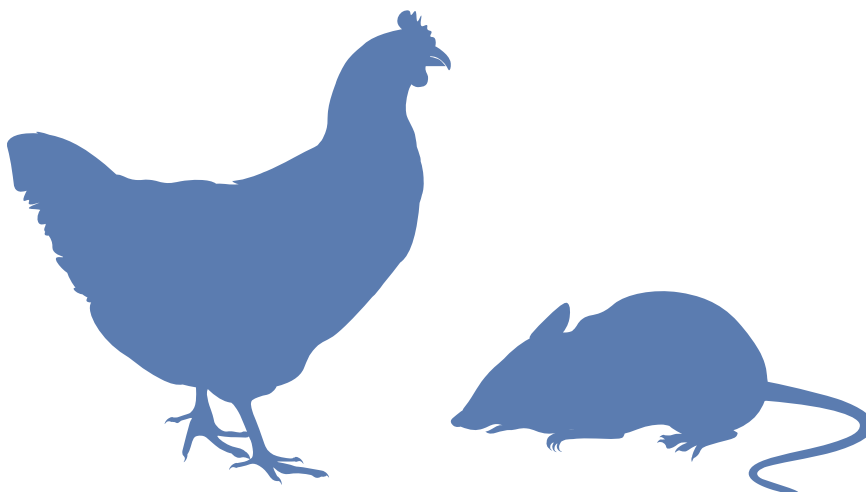
Other animals – Many other animals living in the environment can also spread diseases to hens. For example, diseases such as Avian Influenza are spread to domestic poultry from birds in the environment and *Salmonella* Typhimerium is harboured in rodents.

The following table provides important information for completing page 6 in **Booklet 2**.

ENTRY RISK	INTERNAL RISK	EXIT RISK
<p>Poultry: Day old chicks or pullets delivered to farm</p> <p>Other Animals: Animals in the environment which may have access to production area(s)</p>	<p>Both: Disease spreading between hens, either through direct contact, faecal-oral or aerosol pathways</p>	<p>Poultry: Escaped hens and spent hens</p> <p>Other Animals: Animals could become infected on the farm and spread this to neighbouring farms</p>



Use *The National Farm Biosecurity Technical Manual for Egg Production* (April 2015) as a reference for this section www.bit.ly/2SZrE2Z



 S4

People

People can be carriers of disease, usually by transporting small amounts of faecal matter on clothing, footwear, hands, skin or hair. People present the highest risk of carrying disease if they’ve been in recent contact with other poultry premises, pig production premises or domestic birds at home. Thorough personal hygiene and personal disinfection procedures can be used to remove any faecal matter from visitors, contractors and staff before entering the production area(s).

The following table provides important information for completing page 7 in **Booklet 2**.

ENTRY RISK	INTERNAL RISK	EXIT RISK
<p>Anyone accessing the production area(s) could potentially be carrying a poultry disease-causing agent</p> <p>As disease-causing agents can sometimes persist in the environment, people don’t have to come into contact with live poultry to have been contaminated</p>	<p>Staff generally move between sheds/ranges or production area(s) on a daily basis. This presents the risk that they are spreading disease between flocks</p>	<p>Should people come into contact with disease-causing agents on your farm, there is the potential for them to transport disease</p>



Use *The National Farm Biosecurity Technical Manual for Egg Production* (April 2015) as a reference for this section www.bit.ly/2SZrE2Z



Salmonella Enteritidis – A Guide for Producers is also a handy resource which outlines best practise on-farm biosecurity procedures www.bit.ly/2T0iPGg



 S4

Vehicles and Equipment

Like people, equipment and vehicles can spread disease onto or within the farm through transporting faeces. Vehicles and equipment that have been onto other farms present a particularly high risk of contamination. However, as poultry diseases can be spread through birds and rodents, all vehicles and equipment could potentially be contaminated with faeces. Equipment includes anything brought onto the farm such as transportable cages, feeding equipment or egg pallets.

The following table provides important information for completing page 7 in **Booklet 2**.

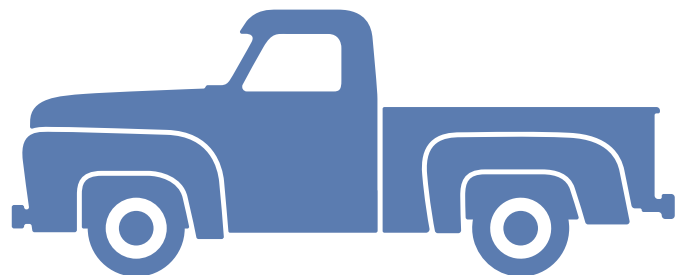
ENTRY RISK	INTERNAL RISK	EXIT RISK
Any vehicle or piece of equipment could bring infected faeces onto the farm	Vehicles or equipment moving between sheds or production areas can transfer infected faeces between areas and potentially spread disease from infected to infection-free flocks	Vehicles or equipment leaving the farm can transport faeces, feathers and organic matter, all of which can potentially harbour disease



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 S4

Water

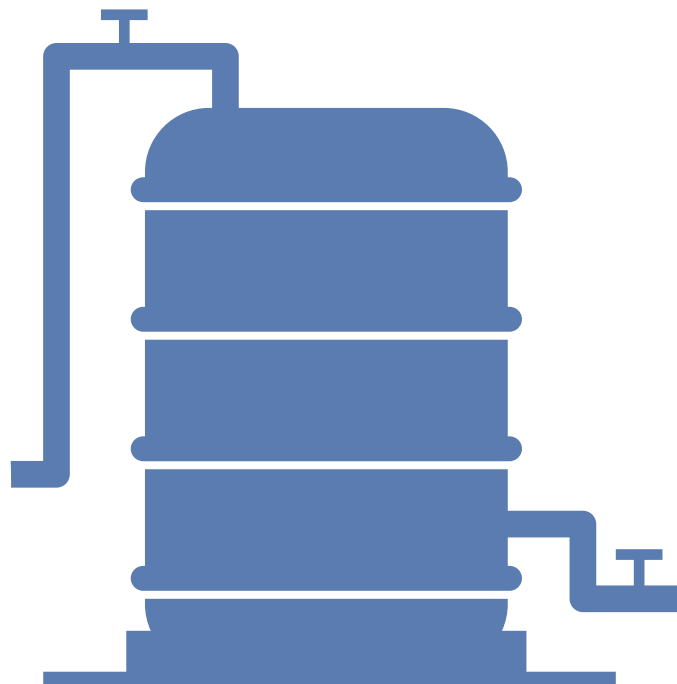
Water can be contaminated by coming into contact with animal faeces and spread disease to your flock. Depending on the source and storage of the water you use for production, your water could be contaminated before it reaches the farm, while being stored or transported within the farm, or once in the shed.

The following table provides important information for completing page 9 in **Booklet 2**.

ENTRY RISK	INTERNAL RISK	EXIT RISK
Water could be contaminated with faeces 'upstream'	If water is moving within the property or between production areas it could come into contact with faeces	Water that ends up in the surrounds after being in contact with production areas could spread disease from your flock to other farms or animals in the environment



Use the *National Water Biosecurity Manual – Poultry Production* as a reference for this section www.bit.ly/381jkUH



 S4

Feed

Feed or feed ingredients delivered to your farm can be contaminated with disease-causing agents at a few different points before it reaches the feeding line. For example:

- feed could be contaminated with disease at it’s origin or in manufacturing, or
- during transport, or
- by exposure to rodents, birds and pests at the site of production or on your farm

Standard heat treatments used for processed feeds (e.g. pellets) will kill bacteria but not viruses. Feed produced on site can still be contaminated if it comes into contact with faeces from rodents, birds or pests.

The following table provides important information for completing page 10 in **Booklet 2**.

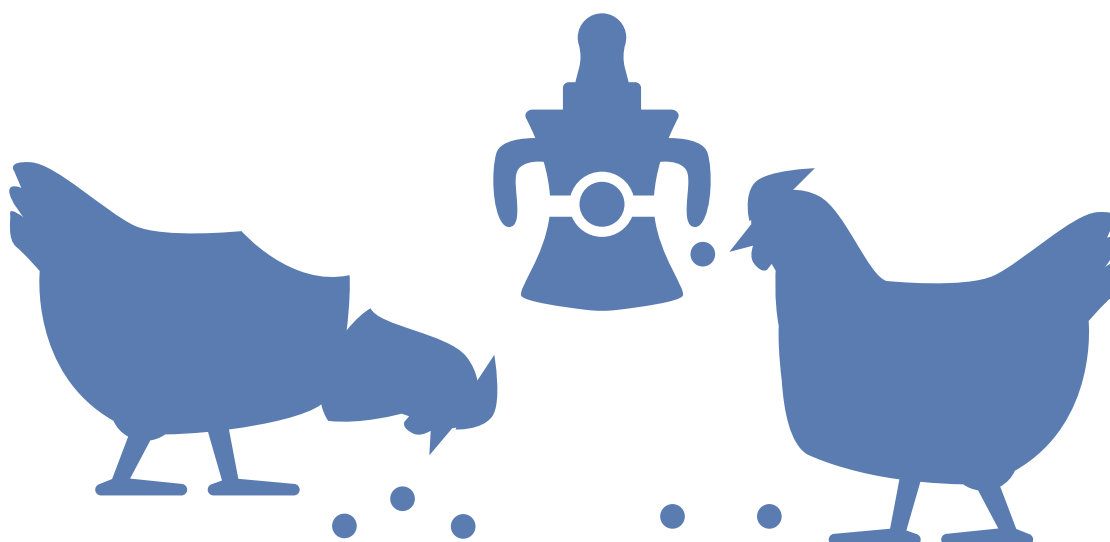
ENTRY RISK	INTERNAL RISK	EXIT RISK
Feed may be delivered with traces of animal faeces or come into contact with animal faeces on the farm <i>* Also consider the risk the feed truck coming on site poses to your farm</i>	N/A	Feed leaving the property, or it’s vehicle could be contaminated with traces of faeces <i>* If feed is leaving the property</i>



Use *The National Farm Biosecurity Technical Manual for Egg Production* (April 2015) as a reference for this section www.bit.ly/2SZrE2Z



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 **S4**

Waste

Waste products such as spent hens, dead rodents, used litter and manure can all be carriers of disease. Dead animals, for example, may themselves be diseased, and disease-causing agents are often present in the manure of infected animals. All waste should be disposed of in a way that prevents animals and people from accessing it. This includes having appropriate infrastructure in place, as well as sound procedures for waste disposal. Vehicles and equipment used to contain or transport waste materials should be cleaned and disinfected before returning to any production areas.

The following table provides important information for completing page 11 in **Booklet 2**.

ENTRY RISK	INTERNAL RISK	EXIT RISK
Manure can enter the farm on the soles of boots, equipment and vehicles <i>Management of these has already been covered</i>	Manure, dead rodents and spent hens, if accessible by other animals (e.g. vermin, pests) and hens can lead to spread of disease throughout the farm	Dead animals, manure and used litter all pose a significant risk of spreading disease. If live animals or humans have access to waste they can become vehicles for any disease causing agents present.



Use *The National Farm Biosecurity Technical Manual for Egg Production* (April 2015) as a reference for this section www.bit.ly/2SZrE2Z



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STEP 5

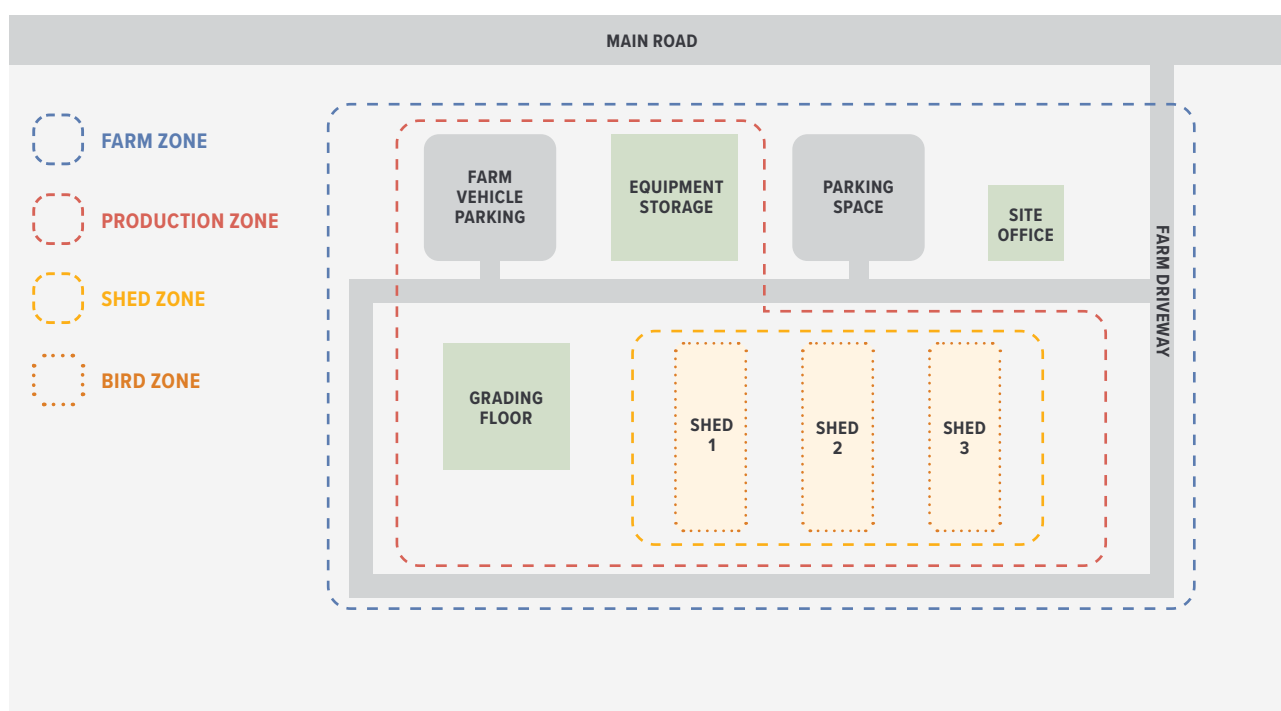
Document the biosecurity control points on the farm

A biosecurity control point is any location on the farm that inputs must pass through and where disease risk reducing activities take place. For example, the shed entry is a biosecurity control point where disease risk is reduced by staff washing or changing their footwear.

To effectively protect against the entry, internal and exit disease risks mentioned in **Step 4** there needs to be multiple biosecurity control points, or ‘layers of protection’, standing between the farm gate and the individual hen.

To understand where control points are placed on the farm the concept of biosecurity zones is helpful, as a control point should be part of entry to each zone. There are different ways of assigning biosecurity zones to the farm but a simple approach that works for most farms is the following:

ZONE	INCLUSION, DESCRIPTION	CONTROL POINT
FARM	Whole farm	Shed gate
PRODUCTION	Sheds, ranges, farm equipment and vehicles, storage areas (excludes visitor parking)	Office
SHED	Each shed, and its range where relevant	Shed entrance
BIRD	The flock, each individual hen	Staff and Quality Assurance





S5

In **Step 4** you listed the actions that take place to prevent disease being transmitted through each farm input. For this step, assign each of the activities to the control point where they take place.

In **Booklet 2** summarise how disease is prevented from entering and exiting each biosecurity zone on the farm. Use the pre-filled example below to assist, bearing in mind the answers are provided as examples only and may not be relevant to your farm.

AREA	FARM
Required inputs to zone	PEOPLE, VEHICLES
Control point	Shed gate
Actions carried out at control point	<ul style="list-style-type: none"> ■ Gate is kept locked and signage indicates biosecurity measures must be followed ■ Non-vital people and vehicles are kept offsite ■ Vehicles that are needed on the farm are washed down to decontaminate
Documentation and training which support this	<ul style="list-style-type: none"> ■ All staff receive biosecurity training reinforcing the importance of restricting access onto farm. ■ There is a SOP for vehicle wash down
How is effectiveness validated	Once per month a random vehicle is protein swabbed by farm manager

AREA	PRODUCTION
Required inputs to zone	PEOPLE
Control point	Office and farm manager
Actions carried out at control point	<ul style="list-style-type: none"> ■ Visitors/ contractors/ tradesman need to sign in ■ Any site visitors must be accompanied into the production area with by a staff member ■ People are not allowed to enter the production area if: <ul style="list-style-type: none"> – They have been in contact with other poultry or pigs – Have travelled overseas for the last 7 days – Have been suffering from gastro
Documentation and training which support this	<ul style="list-style-type: none"> ■ Visitors log book ■ Biosecurity declarations for staff and visitors



S5

AREA	PRODUCTION
Required inputs to zone	VEHICLES
Control point	Office and farm manager
Actions carried out at control point	Vehicle log book needs to be completed for non-farm vehicles accessing the farm
Documentation and training which support this	Vehicle log book

AREA	PRODUCTION
Required inputs to zone	EGGS
Control point	Office and farm manager
Actions carried out at control point	<ul style="list-style-type: none"> ■ Eggs and their pallets are inspected for cleanliness, any with traces of organic matter are not accepted. ■ Eggs received come with documentation detailing production method, date of lay, storage and transport conditions and biosecurity measures practiced on farm of lay
Documentation and training which support this	Record of eggs delivered

AREA	SHED
Required inputs to zone	PEOPLE
Control point	Shed entrance
Actions carried out at control point	<ul style="list-style-type: none"> ■ Wash hands at entry, either change into designated 'shed boots' or use foot bath ■ Foot bath is inspected daily to ensure it is in working condition

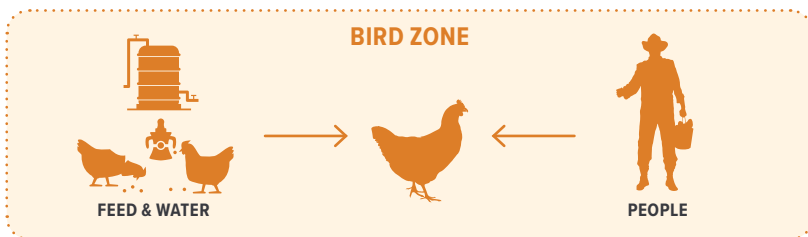


S5

AREA	SHED
Required inputs to zone	EQUIPMENT
Control point	Shed entrance
Actions carried out at control point	Equipment entering the shed must be disinfected before entry

AREA	SHED
Required inputs to zone	BIRDS
Control point	Shed entrance
Actions carried out at control point	<ul style="list-style-type: none"> ▪ Must be inspected before entry ▪ Must be accompanied with health records

AREA	BIRD
Required inputs to zone	FOOD, WATER, STAFF
Control point	<ul style="list-style-type: none"> ▪ Staff member ▪ Feed and water systems



As you can see at the **bird zone level**, biosecurity control relies on production staff; their knowledge and the systems put in place to uphold biosecurity.

Given this is the final defence in protecting hens from disease, the importance of providing staff with adequate biosecurity education and training can not be understated.

**STEP 6**

Use this information to help you put the biosecurity plan into action and fill in pages 20 to 22 in **Booklet 2**.

Implementing the biosecurity plan

In **Steps 4 & 5** you listed the controls that will be in place to prevent disease entering and spreading through the farm. These controls will be implemented on a day to day basis by your staff. For this reason, educating your staff on the fundamentals and importance of biosecurity as well as the steps they will need to take to implement this plan is crucial. SOPs and checklists will provide clarity for staff on the actions they need to take to maintain biosecurity controls and are especially helpful resources for new staff.

Staff Training

Staff training and consultation will be critical for effective implementation of your biosecurity plan. It is important that staff are fully aware of any new responsibilities under the farm biosecurity plan and clearly understand their role. Staff consultation in developing new procedures may improve practicality and efficiency.

Standard Operating Procedures (SOPs)

A biosecurity process should be described in an SOP if:

- it is complex, or
- rarely performed, or
- performed by multiple staff, or
- critical to the maintenance of farm biosecurity

Additionally, if a quality management system has been implemented on your farm, biosecurity SOPs should be incorporated within that quality system.

An SOP aims to support consistent performance of a particular function by farm staff. For this reason it must be clear, easy to follow and available to staff in areas where the function is performed.



Use the example in the table below and the template in **Booklet 2** to generate your own set of SOPs for staff (you may need to copy the template for each SOP required).

Table 7 – SOP Template

SOP SECTION	PRODUCTION	EXAMPLE
Title	This should be clear and unambiguous	Emergency procedures for high mortality
Objective	This should be clear and unambiguous	Describe procedures to be followed in the event of high, unexplained mortality on the farm
Responsibilities	Describe who the SOP applies to and the roles they must perform	<p>All staff: understand this procedure, be able to follow initial response actions, report to biosecurity manager</p> <p>Biosecurity manager: coordinate initial response, report to farm manager, liaise with farm veterinarian</p> <p>Farm manager: responsible for deciding on response actions, reporting to government authorities</p>
Procedure	Clearly describe the steps that should be taken as appropriate	<ol style="list-style-type: none"> 1. Cease all activity including feeding, cleaning or stock movement 2. Check quality parameters such as water and feed 3. Secure the area to prevent access by unnecessary personnel, and to prevent movement of equipment, or stock 4. Assess the extent of the situation. How many flocks are affected? What is the proportion of sick or dead animals? Are there any obvious disease signs?
Precautions	Clearly describe any activities that must be avoided	<ol style="list-style-type: none"> 1. Staff must not visit other production areas of the farm 2. Equipment and animals must not leave the affected area
Review date and further information	The SOP should include the date it came into effect, any supporting information and cross reference the relevant component of the farm biosecurity plan	



Checklists and Forms

Your biosecurity plan will require that records are kept which reflect the activities being carried out as per the plan. Collecting and managing records should be as simple and practical as possible. Templates to cover a range of record keeping requirements are available on the Farm Biosecurity website (www.bit.ly/2HYbbFN) or from Australian Eggs (www.bit.ly/211aFa2).

Equipment

If new equipment is being put in place on the farm it should be labelled (for example, for the production area of intended use) and farm staff should understand proper use and maintenance (for example, use of foot baths and procedures for refreshing disinfectant). For some equipment, use and maintenance may need to be supported by an SOP (for example when technical expertise or a greater level of understanding is required).

Signage

Your biosecurity plan may require that new signs be erected at access points, to label different production areas and to identify restricted areas. Signs can be ordered from Australian Eggs (www.bit.ly/211aFa2) or purchased from commercial providers.



**STEP 7**

Implement a review cycle for the biosecurity management plan

The farm Biosecurity Plan should be reviewed routinely to make sure it continues to prevent disease infecting the flock and does so with a minimum level of resource input.

If things change on the farm that could impact biosecurity controls, for example flock numbers are increased significantly, a new senior manager is employed or your husbandry procedures change; this should trigger a review of biosecurity plan outside of the standard review cycle.

Routine audit of the plan can be used to make sure it is being implemented on a day to day basis and identify any problem areas. These internal audits should be documented.

To provide more assurance, you can employ the services of an independent third-party to conduct an audit of your biosecurity plan.

Set out a plan for reviewing the farm biosecurity plan by answering the questions on page 23 in **Booklet 2**.

