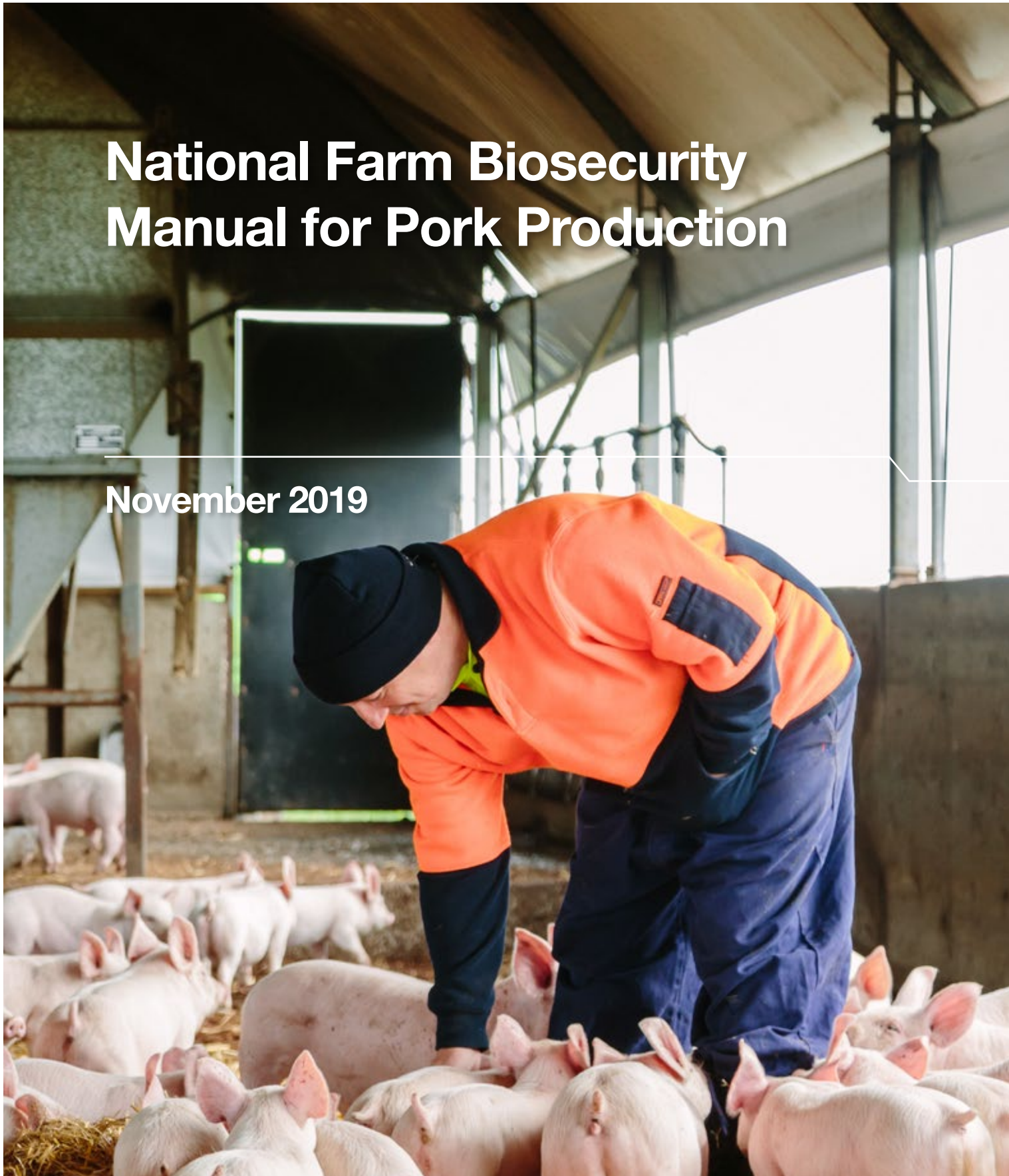


National Farm Biosecurity Manual for Pork Production

November 2019



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Cover image: Australian Pork Limited

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National Farm Biosecurity Manual for Pork Production

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This manual is an important tool for meeting our shared responsibility for biosecurity. The manual outlines the minimum biosecurity requirements that producers should implement on-farm. Some producers, including those who are quality assured, may exceed these minimum requirements and others may also choose to do so.

In support of 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 emergency disease outbreak.

The manual contains information and specific procedures for all pig farmers to follow to help reduce the risk to farming operations of disease entering a property, spreading through livestock and/or being passed to surrounding livestock operations. By implementing these biosecurity practices, pig producers can increase their ability to cope with a potential disease outbreak and minimise the cost of its control and eradication at the farm and industry level.

It is designed as a tool that all pork producers, particularly those with larger scale enterprises who employ significant numbers of staff and/or contractors, can use to translate biosecurity requirements into operating procedures and work instructions.



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Biosecurity on the farm

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The key strategic objectives of a farm biosecurity plan are to:

1. prevent the introduction of infectious disease agents to pigs (i.e. bio-exclusion or external biosecurity)
2. reduce the spread of disease among pigs on the premises already contaminated with a disease agent (i.e. bio-management or internal biosecurity)
3. prevent the escape and spread of disease agents already present on pig premises to other uninfected livestock populations (i.e. bio-containment)
4. minimise the incidence and spread of microorganisms of public health significance
5. ensure staff follow biosecurity procedures and are trained in emergency disease awareness
6. establish and implement pest control measures for wildlife, feral animals and vermin.

Biosecurity is about managing risks to meet the objectives stated above. It is important that an assessment be conducted for each enterprise to establish what level of risk exists in each phase of its operations, and to identify and implement appropriate control measures to these risks.

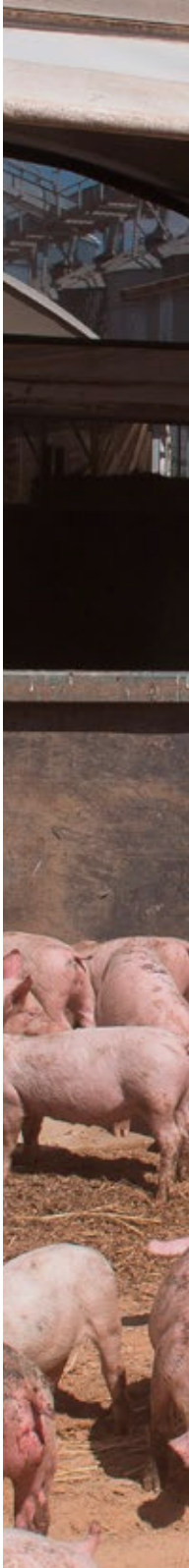
Biosecurity is an integral and proactive part of any successful pig production system. Biosecurity can have a preventative impact, which can enable producers to protect their livestock and assets.

Biosecurity refers to those measures taken to prevent or control the introduction and spread of infectious agents to a herd. Such infectious agents, whether they cause clinical (obvious) or subclinical (hidden) disease, significantly reduce the productivity, profitability and long-term financial viability of a pig operation.

These procedures cover areas of risk common to most pig farms and appropriate measures to minimise these risks. When undertaking the risk assessment to determine farm-specific biosecurity measures, it is important to consider all factors that may impact on the biosecurity of the production area.

These factors include the:

- location and layout of property and production area
- source of water supply and feed
- disease status of the district
- proximity to other production areas with pigs or other livestock
- presence and type of wildlife, feral animals and pests such as rats and mice.



- customer/supplier interactions¹ and customer requirements.

Customer requirements may affect the biosecurity measures needed. For example, a nucleus breeding herd supplying semen and genetic stock will have different biosecurity factors to consider compared with a farrow-to-finish operation, a weaner producer or a contract grow-out facility.

Supply chain partners may also have their own biosecurity requirements that their suppliers need to meet, typically as part of an overall quality assurance program.

Additional elements in managing the risk of introduction and spread of disease are the use of vaccination and medication policies. The procedures outlined here do not cover these aspects of risk management. However, the importance of an appropriate vaccination strategy is acknowledged and vaccination as a possible risk management measure should form part of the farm's herd health plan, which will in turn impact upon the farm's overall biosecurity risk assessment and strategy.

The purpose of these procedures is to establish a minimum set of biosecurity guidelines applicable to all pig producers, from birth to the point of delivery at the processor or sale.

Commercial enterprises which raise pigs for the purposes of breeding also fall within the scope of these procedures.

The procedures outlined are designed to be incorporated in farm operating manuals and have also been used in the design of the Biosecurity Standard Operating Procedures (SOPs) in APIQ[✓][®], the Australian Pork Industry Quality Assurance program (see www.apiq.com.au).

Individual producers and companies may wish to develop enhanced biosecurity manuals, which should nevertheless incorporate these minimum requirements in addition to any specific company requirements. Many farms are part of a larger integrated multi-site production system with common health status and biosecurity practices.

A biosecurity self-audit checklist for continuous improvement is attached as Appendix I. This document has also been designed to enable either second- or third-party audits where required.

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

¹ Customer/supplier interactions include pick-ups and deliveries of livestock and feed, as well as interactions with service/trades personnel, industry personnel and contractors.

Potential biosecurity risks

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Anything entering a property is a potential mechanism for spreading diseases or introducing pests.

Pigs

- Transfer of pigs from one production area or site to another
- Dead pig disposal

Semen

- Semen from boar stations
- Within herd transmission of venereally transmitted diseases when using on-farm artificial insemination with own boars
- Semen imported from other sites

Other animals

- Wild birds
- Feral and domestic animals, other livestock, predators and pets
- Insects
- Rodents – rats/mice
- Domestic birds e.g. poultry

People

- Farm personnel and family members living on site
- Contractors, maintenance personnel, neighbours, service personnel and visitors
- Dirt/manure/contaminants carried on hands, boots, clothing and hair
- Insufficient quarantine time when returning from another farm or overseas

Vehicles and Equipment

- Dirt/manure/contaminants carried on cars, trucks, tractors, scales, husbandry equipment (plants, dips, drench and vaccination guns, etc), and even bags containing feed supplies
- Office supplies (notebooks, pens etc) and other items (e.g. camera)

Air

- Transmission as an aerosol or dust

Feed and Water

- Contamination with faeces/urine from contact with avian or other animal species
- Raw materials
- Post-production contamination or spoilage during transport and storage
- Feed and other storage bags
- Kitchen waste or other food scraps should not be fed to pigs. This is 'prohibited pig feed' and is also known as swill²

² Prohibited pig feed means material of mammalian origin, or any substance that has come in contact with this material, but does not include:

(i) Milk, milk products or milk by-products either of Australian provenance or legally imported for stockfeed use into Australia.

(ii) Material containing flesh, bones, blood, offal or mammal carcasses which is treated by an approved process.

(iii) A carcass or part of a domestic pig, born and raised on the property on which the pig or pigs that are administered the part are held, that is administered for therapeutic purposes in accordance with the written instructions of a veterinary practitioner.

(iv) Material used under an individual and defined-period permit issued by a jurisdiction for the purposes of research or baiting.

Definitions of 'production area' and 'property'

Shutterstock

In this document, the production area refers to sheds and paddocks used for pig production in both indoor and outdoor farming systems.

The production area also includes areas used for feed storage and handling and the area immediately surrounding the sheds and paddocks, including load-out areas.

The property is the land on which the production area is located and typically includes the facility manager's home and may include other farmland

used for livestock or cultivation. The boundary of the production area and the boundary of the property may be the same.

Any reference to sheds is a reference to roofed buildings capable of and used for holding pigs securely within their perimeter.

Any reference to paddock is a reference to fenced pastures that are, or at times are, accessed by the pigs being farmed.

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Levels of biosecurity overview

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LEVEL 1 – Principles of biosecurity

The following six essential principles of biosecurity provide guidelines for the ongoing management practices for:

- farm inputs – stock, water, feed, bedding
- the movement of people, vehicles and equipment
- production practices
- feral animals, pests and vermin
- outgoing products
- training, planning and recording.

These biosecurity principles can be achieved by implementing appropriate management practices on a daily basis. The adoption of such practices will minimise the risk that diseases and pathogens will be carried into pig production areas, and it will reduce the risk of transmission between production areas. These principles should be seen as a minimum requirement.

Action plan for suspected emergency animal disease

Each owner should establish and document clear guidelines regarding the circumstances when an EAD alert should be raised (e.g. an unusual increase in mortality or appearance of suspicious or unusual signs of illness in pigs) and who must be informed. The action plan should also clearly state that, if an alert is raised, movements on and off the production area and the property must be limited to the absolute minimum and special precautions must be taken as outlined in the section 'Level 2 – High-risk biosecurity procedures'.

The *AUSVETPLAN Enterprise Manual for Australian Piggeries* provides a key reference for the development of your on-farm emergency response plan. It can be found at www.animalhealthaustralia.com.au/ausvetplan.



LEVEL 2 – High-risk biosecurity procedures

In the event of an outbreak of an emergency disease or serious endemic disease, high-risk biosecurity procedures will be implemented.

In the case of an EAD and where applicable, SOPs will be implemented by government response personnel, in line with the relevant AUSVETPLAN disease strategy (see www.animalhealthaustralia.com.au/ausvetplan).

Outdoor production systems

These procedures apply equally to pigs reared in either indoor or outdoor production systems.

It is recognised that outdoor pigs will have some exposure to wildlife. However, in these environments, documented measures should be taken to minimise the incursion of feral pigs, goats or other feral animals onto the production site as well as the congregation of waterfowl and the impacts of wild birds generally.

A system should be implemented to monitor and control any potential hazardous organic material (such as untreated effluent or un-composted litter from deep litter housing) from entering outdoor areas where pigs are kept, and these measures should also be documented.

Good fencing is recommended around outdoor farms to prevent entry of feral animals.



**NOTICED
ANYTHING
UNUSUAL?**

**EMERGENCY ANIMAL
DISEASE WATCH HOTLINE
1800 675 888**

Level 1 – Principles of biosecurity

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Note: For farms certified under APIQ✓®, these requirements will be met as part of the APIQ✓® program which are independently audited by a third party.

1.0 Manage farm inputs – stock, water, feed, bedding

PRINCIPLE 1.1: Pigs

Objective: To manage the introduction and movement of pigs and their products in a way that minimises the risk of introducing or spreading diseases, pests and weeds.

Standards

- S.1.1.1 Before commencing movement, drivers must complete the transporter's declaration on the valid movement document (preferably section D of the PigPass National Vendor Declaration [PPNVD]) accompanying the consignment. Drivers must provide a copy of the movement document with the signed transporter's declaration to the producer.³
- S.1.1.2 Copies of valid movement documents must be retained for the length of time specified in the respective state National Livestock Identification System (NLIS) legislation.⁴
- S.1.1.3 Pigs must be identified prior to transport according to the respective state NLIS legislation.⁵
- S.1.1.4 All introduced stock must be accompanied by a valid movement document, preferably a PPNVD which is retained for the period specified in state regulations.⁶
- S.1.1.5 All introduced livestock must be inspected for signs of disease on arrival.
- S.1.1.6 All introduced breeding stock with an unknown health status must be isolated from other pigs and observed for signs of disease for a minimum of 21 days.
- S.1.1.7 All pigs exhibited at shows must be isolated and observed for signs of disease for a minimum of 21 days after returning to the farm of origin.

³ Note that drivers must provide a copy of the movement document with the signed transporter's declaration on delivery at the destination. They should also retain a copy for their records.

⁴ The length of time required to retain a valid movement document varies across states.

⁵ Respective State NLIS legislation can be found at <https://pigpass.australianpork.com.au/faq>.

⁶ The length of time required to retain a valid movement document varies across states.



Recommended practices

- RP.1.1.1 Loadouts of pigs should be at the farm perimeter wherever possible. Where this is not possible, the race and loading facility should be designed to eliminate/minimise the possibility of pigs running off the truck and back into the shed.
- RP.1.1.2 Semen deliveries should only come from a reliable verified source such as accredited farms.
- RP.1.1.3 Trucks should be cleaned, disinfected and left to dry between consignments when moving pigs from properties not owned/operated by the same entity. Cleaning should be done after each day of use when transporting pigs as a minimum requirement.
- RP.1.1.4 If cattle, sheep or goats are brought in to graze around the pig sheds or into the outdoor range areas, this should be done only for as limited time as necessary and with the awareness that it may pose a potential risk of disease transfer. Such stock should be retained on the property for a minimum period of two weeks after grazing within close proximity of pigs in order to allow any signs of viral infection to be seen before they are transferred off the property.
- RP.1.1.5 Commercial poultry operations should not be present on the same property, or if they are should be completely separated from the pig operation with an adequate biosecurity buffer zone.
- RP.1.1.6 Commercial cattle, sheep and goat operations should not be present on the same property, or if they are, they should be completely separated from the pig operation with an adequate biosecurity buffer zone.

PRINCIPLE 1.2: Feed and water

Objective: To ensure the quality of stock feed and water is fit for purpose including:

- *pig stock feed is free from contaminants and prohibited pig feed (PPF)*
- *pigs have no access to feeds that contain PPF*
- *water and other farm inputs are managed to reduce risks of transmitting disease agents or weeds.*

Feed**Standards**

- S.1.2.1 PPF or any food scraps that contain meat, other matter from animals, or any other substance prohibited under state and territory legislation, must not be fed to pigs.

Recommended practices

- RP.1.2.1 All feed and bedding provided for pigs should be accompanied by a commodity vendor declaration stating that it is free from contaminants and fit-for-purpose.
- RP.1.2.2 Pig feed should be inspected on delivery for evidence of pests, vermin faeces and contaminants.
- RP.1.2.3 Feed spills should be cleaned up as soon as practicable. Feed attracts birds and rodents to the production area.
- RP.1.2.4 Pig feed should be stored in a manner that prevents contamination by livestock, vermin (including vermin faeces), insects, wildlife, feral and domestic animals and other feed types.

Water

The use of a suitable water supply is important for good biosecurity. If water treatment is required, in general, water with a high level of organic matter is unsuitable for chlorination alone. Ultraviolet treatment is also of little use for turbid water. It may be necessary to seek expert advice to ensure a safe water supply. Any water treatment process should be monitored regularly.

Recommended practices

- RP.1.2.5 Drinking water quality should be maintained at a suitable standard for pigs (see Appendix II).
- RP.1.2.6 All surface water should be tested and if necessary, treated before being used as drinking water for pigs.
- RP.1.2.7 Expert advice should be sought on water treatment options if water testing shows the available water to be of unsuitable quality.
- RP.1.2.8 A treated water supply should be kept in a closed system from the point of treatment to the drinker.

PRINCIPLE 1.3 : Bedding (when/where used)

Objective: To manage the introduction and movement of bedding in a way that minimises the risk of introducing or spreading diseases, pests and weeds.

Recommended practices

- RP.1.3.1 All bedding provided for pigs should be accompanied by a commodity vendor declaration stating that it is free from contaminants and fit-for-purpose.
- RP.1.3.2 Bedding should be sourced from a pig-free production system.
- RP.1.3.3 During storage, bedding should be kept free from pests and vermin to prevent contamination.
- RP.1.3.4 All solid surfaces that pigs have access to should be made of materials that can be readily cleaned and disinfected.
- RP.1.3.5 In deep litter systems, litter should be replaced or refreshed at intervals to ensure good hygiene.
- RP.1.3.6 The litter used should be compatible with drainage, hygiene requirements and climatic conditions.

2.0 Manage the movement of people, vehicles and equipment

PRINCIPLE 2.1: People, equipment and vehicles

Objective: To minimise the potential for property contamination by the movement of people, equipment and vehicles.

Contractors, suppliers, other service personnel and visitors

Standards

- S.2.1.1 A visitor's log must be completed by all persons entering a production site (see Appendix V).
- S.2.1.2 Drivers and other transport personnel must not enter pig buildings, free-range areas or designated 'clean areas' unless they have complied with the on-farm biosecurity arrangements.

Recommended practices

- RP.2.1.1 All contractors, suppliers, service personnel and visitors must agree to comply with the entry conditions for visitors as outlined in Appendix IV. Contractors who have had contact with pigs from other piggeries within the farm's biosecurity quarantine period, and those required to enter sheds populated with pigs to undertake emergency repair and/or maintenance, must shower thoroughly and change clothing and boots.
- RP.2.1.2 Hand washing/sanitising facilities should be available at all production area entrances and must be used before entering.
- RP.2.1.3 If visitors wear their own boots into the sheds or any designated 'clean' area, the soles of the boots should be scraped clear of any organic matter before cleaning and disinfecting. Alternatively, 'shed boots' must be provided.
- RP.2.1.4 International visitors should have at least 48 hours of no animal contact before arriving on-farm.



Production Personnel

Recommended practices

- RP.2.1.5 Hands should be cleaned/sanitised before entering the production site and on leaving the production site.
- RP.2.1.6 Production area personnel should wear laundered clean clothes each day at the commencement of their work.
- RP.2.1.7 Boots and outer clothing that are worn in the production area should not be worn or taken outside this area, as they are the most likely method for disease spread by personnel.
- RP.2.1.8 Staff should always work from low-risk production areas i.e. from 'cleaner' production areas with higher biosecurity standards (e.g. youngest, most vulnerable pigs or healthy production area) to high-risk production areas, i.e. those with lower biosecurity standards (e.g. older or diseased pigs). In an emergency, access may be made from high risk production areas with lower standards of biosecurity after a shower and complete change of clothing.

Equipment and Vehicles

Standards

- S.2.1.3 Vehicles are not allowed into 'clean' areas unless authorised.

Recommended practices

- RP.2.1.9 All equipment should be visibly clean and, where practical, the exterior treated by wet disinfection (alcohol/methylated spirits) or water and detergent or other disinfectant after use and, where possible, between animals.
- RP.2.1.10 All visitors should park their vehicles outside the production area, unless it is essential the vehicle be taken on site, for example, some maintenance contractors.
- RP.2.1.11 Trucks carting new or old bedding materials, feed and other supplies should be cleaned and disinfected wherever possible between visits to different production areas.
- RP.2.1.12 Transport, people, and other animal traffic within the production area should be on an as-needs basis, and with the intention of reducing the number of passes through the production area and in such a way as to minimise disturbance of soil, plants, animals.

3.0 Manage production practices

PRINCIPLE 3.1: Animal health management

Objective: To manage the prevention and control of animal diseases on-farm by regularly monitoring livestock health.

Standards

- S.3.1.1 Inspect all pigs at least once daily for any signs of ill health.
- S.3.1.2 Separate sick pigs into sick pens where possible and treat appropriately.

Recommended practices

- RP.3.1.1 The use of herd health programs is an effective method of reducing the build-up or effect of disease pathogens.

PRINCIPLE 3.2: Carcass, effluent and waste management

Objective: To minimise the spread of disease and manage the disposal of dead animals and waste in a manner appropriate for the production system.

Standard

- S.3.2.1 Faeces and urine must not be permitted to accumulate to the stage where there is no clean area for pigs to lie down.

Recommended practices

- RP.3.2.1 Dead pigs must be disposed of according to regulatory requirements and good biosecurity practices (see the recommended procedures at Appendix VII)⁷.

⁷ Refer to the Carcass Management section of the APL National Environmental Guidelines for Piggeries, Third Edition (Revised) 2018 which can be found at <http://australianpork.com.au/industry-focus/environment/national-environmental-guidelines-for-piggeries/>

PRINCIPLE 3.3: Facility requirements

Objective: To design and maintain pig production areas (including sheds) that will assist in providing a biosecure area.

Recommended practices

- RP.3.3.1 A 3 km biosecurity buffer zone from existing piggeries is recommended when establishing a new piggery.
- RP.3.3.2 A sketch, map, plan or photo of the layout of the property, showing the production area, sheds, paddocks, access roads and gates should be created and maintained up-to-date. Clean areas to which restricted access applies and dirty areas should be clearly shown. The feed silos and load-out area are generally considered dirty areas and parts of the production site where pigs are living should be designated as clean areas.
- RP.3.3.3 The main entrance to the production area should be capable of being closed off to vehicle traffic (e.g. lockable gate that, where feasible, should be kept locked at all times) and should 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/office.
- RP.3.3.4 There should be a parking area for vehicles not entering the production area.
- RP.3.3.5 There should be a change area separate from the production area, with clean protective clothing and boots provided.
- RP.3.3.6 All pig housing, bedding and feed sheds should be designed and maintained to limit access of vermin and entry of wild birds, feral animals and other pests as far as practical.
- RP.3.3.7 Trees and shrubs should be set back from the immediate shed area to deter wildlife. Vegetation should be carefully selected to minimise wild bird attraction. Vegetation buffers for environmental compliance should not be compromised.
- RP.3.3.8 Facilities should be available for the cleaning and disinfection of any equipment brought into sheds before entry.

PRINCIPLE 4.1: Feral animals/wildlife/weed control

Objective: To minimise the potential for wildlife and domestic or feral animals to introduce diseases to livestock.

Standard

- S.4.1.1 Control risks from rodents and other pests accessing pigs, feed and bedding through an appropriate pest control program⁸.
- S.4.1.2 Pest control products must not be accessible to pigs, and mobile rodenticides (powders, pastes and gels) should not be used within and around piggery facilities.
- S.4.1.3 Do not use first generation rodenticides within piggery sheds, and only use second generation rodenticides outside piggery sheds in commercial bait stations.
- S.4.1.4 The piggery should be maintained in a clean and tidy state. Repairs and maintenance should be carried out in a timely manner. Accumulated rubbish, redundant equipment or scrap metal is kept in controlled areas separate from pigs, feed storage and public access. There is no unintended build-up of weeds.

Recommended practices

- RP.4.1.1 Pig farmers should practice regular pest and rodent control, with rodenticides or by keeping the surroundings of the pig unit clean.
- RP.4.1.2 Rodenticides must not be used where there are risks of pigs eating the bait, rodent faeces or the rodent carcasses. Potential refuges for rodents, such as garbage, dumps, bush or wasteland, must be systematically eliminated.
- RP.4.1.3 Bait stations or traps for rodents, cats, flies and other insects should be set as required and meet regulatory requirements for use where appropriate.
- RP.4.1.4 Cats should be kept out of the production area as far as is practically possible.

⁸ The APL Rodenticide Stewardship Plan is available on request from APL.

5.0 Manage outgoing products

PRINCIPLE 5.1: Farm outputs

Objective: To manage the movement of livestock and animal products from a property in a way that minimises the risk of spreading diseases, pests and weeds.

Recommended practices

- RP.5.1.1 Only animals that are in a condition fit-to-load are selected to minimise potential disease and/or contamination spread through transport.
- RP.5.1.2 Ensure all livestock leaving the property are identified in accordance with the appropriate NLIS Standards, meeting government legislation and have accurate documentation such as a PPNVD and/or an Animal Health Declaration.

6.0 Train, plan and record

PRINCIPLE 6.1: Biosecurity planning and staff instruction

Objective: To ensure all staff and contractors understand the importance of the biosecurity requirements for the operation in which they work and can implement the agreed practices for which they are responsible.

Standards

- S.6.1.1 A farm biosecurity plan must be in place, which includes:
 - a. a controlled entrance to the piggery through which visitors, animals and transport movements are admitted
 - b. a record of all visitors, animal and transport movements
 - c. hand washing and/or shower facilities and/or boots and clothing provided to all authorised visitors prior to entering the piggery
 - d. an employee Biosecurity Declaration⁹ signed by all staff confirming their adherence to the farm biosecurity procedures

⁹ See Appendix III Employee Biosecurity Declaration Template.

- e. ensure all equipment used around pigs or brought into pig housing is cleaned and, where practical, disinfected.

S.6.1.2 The farm biosecurity plan must, wherever possible, also include the following:

- a. Designation of clean and dirty areas.¹⁰
- b. Warning signs displayed on entry gates and/or shed doors, along with locked entrances where appropriate, to discourage unauthorised entry by pig and feed truck drivers or unauthorised visitors.

S.6.1.3 Must have a documented Herd Health Plan¹¹ to manage the risk of infectious diseases entering the piggery and to treat existing disease problems. This includes requirements to:

- a. inspect all pigs for signs of infection at least once daily and more frequently where required
- b. pigs with illness are identified and treated with an appropriate treatment as soon as practicably possible
- c. maintain detailed health and treatment records
- d. have recorded and easily accessible contact details of authorities (e.g. state primary industries or biosecurity authority) to be advised of notifiable disease outbreaks; and have the National Emergency Animal Disease Watch Hotline on 1800 675 888 recorded and easily accessible
- e. have a pest control program that minimises rodents, cats and other pests accessing feed, bedding and storage areas for feed and bedding materials
- f. domestic pigs are separated from feral pigs and other animals of risk, where possible, by secure containment in buildings and/or perimeter fencing or other suitable means.

¹⁰ Definitions of 'clean' and 'dirty' areas should be in the farm biosecurity plan, however in general a 'clean' area will be a part of the production site with access restricted to people, animals and equipment of assured biosecurity status and a 'dirty' area will be a part of the production site other than a designated 'clean area'.

¹¹ Information on developing a Herd Health Program can be found in APIQ[®]; go to www.apiq.com.au. The Herd Health Program helps producers identify potential health and biosecurity risks to pigs and specifies action to prevent or minimise those risk. Herd Health Fact Sheets to support the Herd Health Program are available from APL at www.australianpork.com.au. Alternatively, producers can develop a Herd Health Plan in two easy steps online courtesy of the NSW Department of Primary Industries website www.dpi.nsw.gov.au.

- S.6.1.4 Policies and procedures are put in place to ensure that for all introduced semen, the disease-free status of the boars and type of extenders used must be verified and supported, where possible, by a vendor declaration.
- S.6.1.5 Staff must be trained in emergency disease awareness and follow biosecurity procedures, including these requirements:
- a. Staff are aware of the farm's biosecurity procedures
 - b. Staff are aware of important exotic and endemic diseases, can recognise the signs of ill health in pigs and are aware of the procedures to follow when such signs are seen.
- S.6.1.6 Record pig movements, including for sale, slaughter or between properties:
- a. All pigs moving from their Property Identification Code (PIC) of residence to any location outside their PIC of residence, i.e. for sale or slaughter, must be clearly identified according to the relevant state legislation and accompanied by a PPNVD (or other valid movement document)
 - b. All pig movements must be reported to the PigPass database
 - c. PPNVDs must be retained for the length of time specified in the respective state or territory government NLIS or biosecurity legislation.

Recommended practices

- RP.6.1.1 Any additional biosecurity practices that are required by the farm should be added to the farm biosecurity plan.
- RP.6.1.2 Consider including a farm policy for staff and visitors that are at higher-than-reasonable risk of carrying zoonotic pathogens that can be transferred from humans to pigs or from pigs to humans e.g. influenza, Hepatitis E, Methicillin-resistant *Staphylococcus aureus* (MRSA) in the farm biosecurity plan:
- a. Establish, implement and enforce strict sick leave policies for on-farm workers with influenza-like illness
 - b. Recommend that all workers on-farm (and family members who live on-site on piggeries) are vaccinated against the seasonal influenza virus every year

- c. Ensure workers maintain a high level of disinfection and cleaning practices
- d. Limit visitors to farms and follow other generally accepted biosecurity practices
- e. Staff returning from overseas travel should be precluded from production areas for at least 10 days. This will reduce the risk that they are in contact with animals before they show signs of being infected. Clothing and footwear worn during international piggery visits should not be worn on-farm.

RP.6.1.3 A register should be maintained recording training of farm personnel in biosecurity requirements.

RP.6.1.4 All pig mortalities and cases of disease must be recorded to assist monitoring for any unusual animal health problems potentially indicating a biosecurity breach.



Level 2 – High-risk biosecurity procedures

Objective: To protect the property, as much as possible, from the increased threat of pathogens being introduced from the outside during a suspected outbreak of an emergency or serious endemic disease.

1.0 Action plan for suspected emergency animal disease

Recommended practices

- RP.1.1 Each producer should establish and document clear guidelines regarding the circumstances when an EAD alert should be raised (e.g. a significant increase in mortality) and who must be informed. The action plan should also clearly state that, if a National Livestock Stand Still alert is raised:
- movement of pigs must cease immediately, including in transit
 - other movements (motor vehicles, trucks, plant and equipment etc) on and off the production area and the property must be limited to the absolute minimum
 - special precautions must be taken as outlined in this section.
- RP.1.2 The *AUSVETPLAN Enterprise Manual for Australian Piggeries* provides guidelines for development of an on-farm emergency response plan for animal disease alerts and can be found at www.animalhealthaustralia.com.au/ausvetplan.

2.0 Facilities

Standards

- S.2.1 Gates must be kept locked where possible.
- S.2.2 Facilities for the cleaning and disinfection of equipment coming on and off the production area must be in place.¹²
- S.2.3 Shed doors must be locked at night where possible and reasonable.

¹² These facilities will be provided in an EAD Response by the relevant authorities in accordance with the AUSVETPLAN. For more information go to www.animalhealthaustralia.com.au.

3.0 Personnel

Standards

- S.3.1 No non-essential visitors to enter the production areas.
- S.3.2 Repairs and maintenance – no routine work, only emergency work to be carried out.

4.0 Operational

Standards

- S.4.1 Any vehicle entering the property must be washed and disinfected at the property entrance before and after going onto the property (e.g. feed trucks). Vehicle driver cabins must also be sanitised inside (e.g. a household spray type disinfectant).
- S.4.2 No pigs, litter or manure to be moved on or off properties until the disease status is clarified.
- S.4.3 If a major outbreak should occur, further measures will be stipulated by the state's Chief Veterinary Officer.



Recommended practices

- RP.4.4 Essential visits – head-to-toe shower before and after visit if possible. A complete change of clothes, footwear, hair covering and breathing protection is required. Used protective clothing and all used personal protection equipment must remain on the property.

5.0 Standard operating procedures (SOPs) for disease emergencies**Standards**

- S.5.1 SOPs will be available for any outbreak of an EAD from AHA and APL in accordance with AUSVETPLAN and the Pig Enterprise Manual; see www.animalhealthaustralia.com.au.
- S.5.2 If the premise becomes infected (or suspected of being infected), all movement of vehicles onto and off the property will cease immediately.

Appendix I – Piggery Biosecurity Audit Checklist

Australian Pork Industry Biosecurity Code

Piggery Audit Checklist

Audit date:	Audit done by:	Property name/PIC number:
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How to complete the Checklist:

This column lists the biosecurity standard being checked and asks questions that relate to each standard, which you must answer		Answer the questions by selecting the answer in these columns		In this column: <ul style="list-style-type: none"> list the supporting documents and records you keep and where they are located in your system to substantiate that you met the standard; AND, all corrective actions (dated) that you have taken to meet the standard.
1.0	MANAGE FARM INPUTS – STOCK, WATER, FEED BEDDING	YES	NO	CORRECTIVE ACTION(S) (are reactive – something has gone wrong and these are the actions taken to deal with and eliminate the problem to ensure it will not happen again)
1.1	Pigs			
	Do you ensure that drivers complete the transporter's declaration on a valid movement document (preferably Section D of the PigPass National Vendor Declaration [PPNVD]) prior to commencing movement?			
	Do you keep copies of valid movement documents, including records of pig movements between properties, for a minimum of three years?			
	Are all introduced stock accompanied by a valid movement document (preferably a PPNVD)?			
	Do you inspect all introduced livestock for signs of disease on arrival?			

1.1 Pigs (Continued)

	Do you quarantine breeding stock with an unknown or lesser health status than the herd for a minimum of 21 days?			
	Do you observe them for signs of disease or sickness while in quarantine?			
	Are all pigs exhibited at shows isolated and observed for signs of disease for a minimum of 21 days after returning to the farm of origin?			
	Do you clean and disinfect trucks between consignments after transporting pigs to saleyards and or abattoirs?			
1.2/1.3	Feed and bedding			
	Is prohibited feed (swill) or any food scraps that contain meat, other matter from animals, or any other substance prohibited under state and territory legislation, fed to pigs?			
	Do you have commodity Vendor Declarations (CVD) for all feed ingredients and bedding materials to ensure they do not contain chemicals and are not contaminants?			
	Do you have an appropriate pest control program in place to prevent rodents and other pests accessing pigs, feed stores and bedding?			
	Are pest control products secure and not accessible to pigs?			
COMMENTS:				

2.0	MANAGE MOVEMENTS OF PEOPLE, VEHICLES AND EQUIPMENT	YES	NO	CORRECTIVE ACTION
	Is a visitor's log completed by all persons entering a production site?			
	Do you permit drivers and other transport personnel to enter pig buildings or free-range areas or designated 'clean areas'?			
COMMENTS:				
6.0	TRAIN, PLAN AND RECORD	YES	NO	CORRECTIVE ACTION
6.1	Biosecurity planning and staff instruction			
	Do you have a farm biosecurity plan?			
	Do you have a controlled entrance to the piggery through which visitors, animals and transport movements are admitted?			
	Do you provide hand washing and/or shower facilities and/or boots and clothing provided to all authorised visitors prior to contact with pigs?			
	Do all your staff sign an employee Biosecurity Declaration confirming their adherence to the farm biosecurity procedures?			
	Do you ensure all equipment used with pigs or brought into pig housing is cleaned? Is it disinfected?			
	Are the 'clean' and 'dirty' areas of your piggery clearly identified?			
	Are warning signs displayed on entry gates and/or shed doors, along with locked entrances <i>where appropriate</i> , to discourage unauthorised entry by pig and feed truck drivers or unauthorised visitors?			
	Does the piggery have a documented <i>Herd Health Plan</i> to manage the risk of infectious diseases entering the piggery and to treat existing disease problems?			

6.1 Biosecurity planning and staff instruction *(Continued)*

	Do you inspect all pigs at least once daily and more frequently when needed?			
	Are pigs with illness identified and treated with an appropriate treatment as soon as practicably possible?			
	Do you maintain detailed health and treatment records, including mortalities and cases of disease?			
	Are domestic pigs separated from feral pigs, domestic poultry and other animals of risk, where possible, by secure containment in buildings and/or perimeter fencing or other suitable means			
	Have policies and procedures been put in place to ensure that for all introduced semen, the disease free status of the boars and type of extenders used have been verified and supported, where possible, by a vendor declaration?			
	Are the people who work with you pigs aware of exotic and endemic diseases?			
	Are they able to recognise ill health in pigs?			
	Do they know what to do when problems arise?			
	Are the contact details of those authorities that must be advised if there is a notifiable disease outbreak (e.g. state primary industries or biosecurity authority) recorded and easily accessible? Is the National Emergency Animal Disease Watch Hotline on 1800 675 888 recorded and easily accessible?			
	Do you maintain a register recording the training of farm personnel in biosecurity requirements?			
	Have any additional biosecurity practices that are required by the farm been added to the farm biosecurity plan? Please list below			
COMMENTS:				

Appendix II – Maximum Levels of the Major Water Quality Attributes for Pigs

The recommended maximum levels of the major water quality attributes are:

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Drinking Water Standards

Chemical/ Microbiological Analysis – Maximum Permissible Levels

Attribute	Maximum Permissible Level
Total Dissolved Solids	3000 ppm
Calcium	1000 ppm
Sulphates	1000 ppm
Magnesium	400 ppm
Coliforms	10,000/ Litre
pH	6.5 – 8.5
Hardness	120 ppm

Source: King, R. (1999).

Appendix III – Employee Biosecurity Declaration Template

All staff must sign an Employee Biosecurity Declaration. Use this form or create your own.

PERSONNEL BIOSECURITY DECLARATION

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

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

1. No pigs are to be kept at my place of residence.
2. If any exemptions to 1 are approved by the employer, I must shower and change clothes before entering the production area.
3. No untreated pig or 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 pigs or poultry. For example, on other piggeries, properties with pigs or poultry farms, unless I shower and change clothes before commencing work.
5. I will not visit pig abattoirs, commercial piggeries, properties with pigs, poultry farms or shows exhibiting pigs or poultry unless approved by my employer and appropriate biosecurity measures are taken.

Signature _____ Date _____

Residential Address _____

Appendix IV – Entry Conditions for Visitors to Piggeries

Use this form or create your own – it can be appended to Visitors' Log

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All visitors must agree to comply with these entry conditions, which must be prominently displayed near the Visitors' Log

<input checked="" type="checkbox"/>	Visitors must not have been in contact with any other pigs on the same day (within 12 hours).
<input checked="" type="checkbox"/>	Visitors must first report to the piggery office .
<input checked="" type="checkbox"/>	Visitors must complete the visitors' log .
<input checked="" type="checkbox"/>	Visitors must wear protective clothing and boots provided.
<input checked="" type="checkbox"/>	Visitors must clean/ sanitise hands before entering sheds.

Appendix V – Visitors’ Log Template

Use this form or create your own

By signing this Visitors’ Log, you agree to comply with the visitor biosecurity conditions as detailed in the accompanying entry conditions. All visitors entering pig sheds or ranges must sign this log.

Date	Name	Company	Pig/ poultry contact in last 12 hours	Reason for visit	Time in	Sign in	Time out	Sign out



Appendix VI – 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 have been observed (e.g. droppings/bait eaten).

Appendix VII – Carcass Management (Dead Pig Disposal)

APL National Environmental Guidelines for Piggeries, Third Edition (Revised) 2018

Objective: By following these guidelines, pig producers will eliminate, as much as possible, infection or contamination spreading on-farm or off-farm due to dead pig disposal.

From an environmental perspective, rendering and composting are the preferred methods for carcass disposal (including disposal of stillborn piglets and afterbirth).

Suitable alternatives may include incineration and burial. Irrespective of the method chosen, dead pigs should be immediately removed from the access by other pigs and disposed of within 24 hours of death.

Poor carcass management practices may contaminate groundwater and surface water, cause odour, spread infectious diseases, and attract vermin. Further details on all carcass management methods are provided in AUSVETPLAN (2015)¹³.

Environmental Outcome: Carcass management practices that prevent groundwater and surface water contamination, odour nuisance, spread of infectious diseases and Vermin breeding.

15.1 Carcass Composting

Well-managed carcass composting is an environmentally acceptable method and has the advantage of producing a soil amendment.

Carcass composting should be undertaken within bunded areas with a base and with a design permeability of 1×10^{-9} m/s for a depth of 300 mm comprising two 150 mm deep layers. For guidance and technical direction regarding earth pad preparation requirements see www.daf.qld.gov.au/business-priorities/agriculture/animals/pigs/managing-environmental-impacts/earth-pad-preparation. The depth to the water table from base ground level should exceed 2 m at all times. Any leachate or stormwater run-off caught within the composting area should be directed into the effluent treatment ponds or other collection ponds. For guidance and technical direction regarding effluent pond construction see www.daf.qld.gov.au/business-priorities/agriculture/animals/pigs/managing-environmental-impacts/constructing-effluent-ponds.

Carcasses are generally composted in a series of bays, although windrows can be used. The bays can be excavated into the ground (similar to silage bunks) or formed using large hay bales on a prepared pad.

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Sawdust is generally the best medium for composting carcasses, as it produces the ideal carbon to nitrogen ratio. However, used litter is also suitable. Before adding carcasses, at least 300 mm of sawdust (or alternative carbon source) should be spread over base of the bay to ensure that the first layer of carcasses is surrounded by high-carbon material and to absorb leachate. Carcasses should then be layered over the floor of the bay, with 300 mm of sawdust covering each layer. Good sawdust coverage assists composting by adding a carbon source, and is essential for controlling odours, avoiding attracting pest insects and deterring feral animals from disturbing the pile. Large carcasses need slitting before placing them in the compost pile to reduce the gasses that cause bloating, thus preventing bloated carcasses rising out of the pit.

When a carcass bay is full, a new one should be started. The carcasses in the full bay are then allowed to decompose for around three months.

When the compost is used as a fertiliser, it should be spread evenly onto land at environmentally sustainable rates. To minimise the risk of grazing livestock contracting botulism, salmonellosis or mastitis, they should be excluded from these areas for at least three weeks after the compost is spread. Providing the compost is used sensibly, there is an insignificant risk of BSE transmission to grazing stock in Australia.

For further information, see McGahan et al (2007) and the Australian Pork Limited

(2007b) factsheet 'Composting for By-Product Management – Carcass Composting for Mortality Management'.

15.2 Rendering

Rendering is an excellent carcasses management method because there is little risk of adverse environmental impacts. Rendered carcasses can also provide saleable meat and bone meal. However, this method is only economically viable if there is a nearby rendering plant willing to receive the carcasses.

A bunded area with a low permeability floor must be provided for storing carcasses before dispatch. The floor may be concrete or soil compacted for a design permeability of 1×10^{-9} m/s for a minimum depth of 300 mm, comprising two layers each 150 mm thick.

Guidance regarding earth pad preparation requirements can be obtained from www.daf.qld.gov.au/business-priorities/agriculture/animals/pigs/managing-environmental-impacts/earth-pad-preparation. This area needs to be well separated from live pigs.

An agreement with the receiving company is needed to ensure regular (preferably daily) receipt of carcasses.

Similarly, a contingency plan is needed in the event of a failure to dispatch carcasses.

15.3 Burial

Burial is a common method of disposing carcasses. However, it should only be used where rendering or composting is not feasible. Burial is not the preferred method because:

- the carcasses decompose slowly and need covering to avoid odour problems and scavenging by feral animals
- burial pits fill quickly and continually need replacement
- nutrients and bacteria can leach into and contaminate groundwater, particularly if:
 - » there is shallow groundwater and inappropriate sealing of the bottom of the pits
 - » stormwater run-off from pits can contaminate surface water
 - » land can become contaminated.

To avoid these problems:

- large carcasses should be split to minimise bloating
- the pit bases should be at least 2 m above the water table at all times
- pits should be situated on low permeability soils and/or low-risk sites
- carcasses need to be well covered with soil, or other suitable material, each day to avoid scavenging by feral animals and to prevent odour

- further clay should be compacted over filled pits
- earth should be mounded over filled pits to promote shedding of stormwater.

The mounds should be grassed over, but trees should not be planted at the site as the roots allow water to move through the pit.

An alternative to an earthen pit is an enclosed burial pit, constructed from concrete or high-density polyethylene or fibreglass and fitted with a watertight lid.

Some state government agencies only allow burial under specific conditions, for example, disease outbreaks or mass mortalities.

15.4 Burning or Incineration

While biologically the safest carcass management method, incineration is generally not ideal because:

- it needs to be performed efficiently and effectively to ensure that it is complete
- needs to avoid complaints about odour and particulates (smoke)
- it is not energy efficient and generates greenhouse gases
- it is expensive
- regulations of some state and territory government departments responsible for environmental protection and local council by-laws do not permit it.

Generally, the requirements are similar to those for clinical waste. The incinerators are either complex multi-chamber units or pyrolysis process types. They typically have a final chamber that operates at 1000°C with a residence time of at least one second to incinerate the odorous gases that may result from the ignition of the carcass. The fuel and operating practices needed to ensure that combustion does not result in offensive odour, which means that this is a specialised activity.

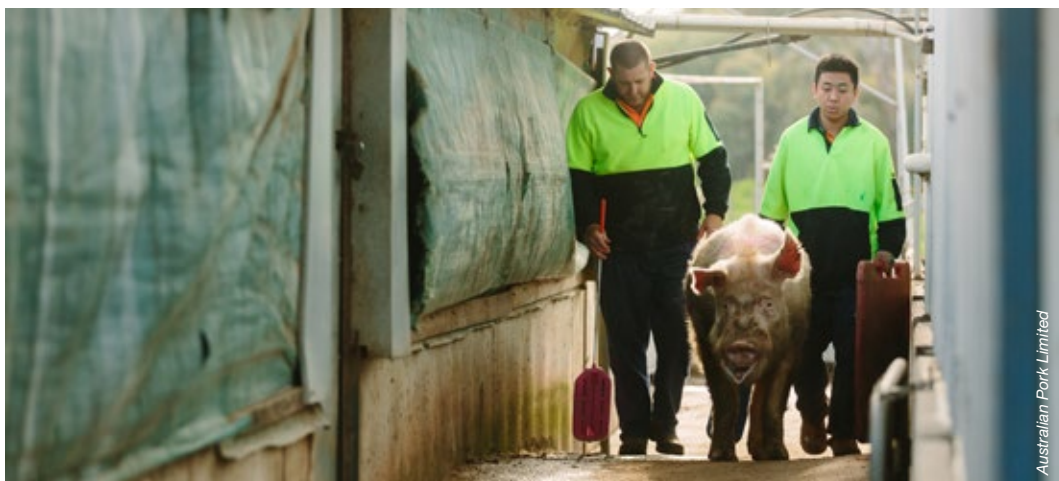
Burning of carcasses in open fires is unacceptable, as it creates smoke and odour and is unlikely to maintain a sufficiently high temperature consistently. It is also a biosecurity hazard due to the potential for thermal updraughts to dispersal of biological matter. Correct burning or incineration is rarely feasible on-farm.

15.5 Mass Carcass Disposal

Effective responses to emergency disease outbreaks require efficient planning.

The options available for disposal of mass mortalities depend on the cause of death and resource issues, including soil type and depth to groundwater. However, all piggery operators should identify a disposal site and have a contingency plan for managing the high death rates that may occur as part of a disease outbreak.

State government veterinary officers have the main responsibility and resources to combat an exotic disease incursion or endemic disease outbreak. They should be contacted immediately if a disease outbreak is suspected. The relevant state government department should be consulted regarding selection of a disposal method and site.



AUSVETPLAN (2015)¹⁴ provides very useful information for managing disposal of a large number of carcasses.

If mass carcass disposal is needed, burial is often the preferred method as it is quick, cheap, relatively easily organised and, if properly done, environmentally clean. If burial is to be used, a suitable site is needed. It should be readily accessible, be well separated from sensitive areas (watercourses, bores, neighbours and public land) and be of a soil type that does not drain readily. The pits should be as deep as possible, while ensuring that the base is at least 2 m above the water table. For pit stability, the pit sides should be battered (angled) outwards from the base. The pit width should not exceed the width of the equipment that will be used to fill the pit, since it is difficult to evenly distribute carcasses in wider pits. The carcasses must be well covered with soil, with further soil mounded over the pit which:

- promotes water shedding
- helps to prevent carcasses rising out of the pit as they bloat
- filters odours
- absorbs fluids released through decomposition
- reduces the likelihood of feral animals exposing carcasses.

The burial area should be grassed over after filling. Trees should not be planted, as the roots allow for movement of water (and nutrients) through the pit. Ongoing monitoring of mass burial sites may be needed.

For some diseases, incineration may be the preferred method. The relevant agriculture or environment department may be able to supply a suitable mobile incinerator.

Composting is an option for some diseases or if the deaths result from environmental conditions (e.g. heat stress). Composting of mass carcasses uses the same principles as described in section 15.1, with long windrows being used instead of small bays. Windrows should be 1-2 m wide at the base and contain only one layer of pigs. All carcasses need to be covered with a minimum of 300 mm of sawdust or alternate carbon source for controlling odour emissions and deterring feral animals.

When the temperature in the pile drops (after about 8-16 weeks) the windrow should be turned and recapped.

In some instances, disposal to land fill may be mandated by a state veterinary officer.

¹⁴ AUSVETPLAN Operational manual - Disposal 2015 www.animalhealthaustralia.com.au/ausvetplan

Appendix VIII – Treatment Record

[illegible]

Appendix IX – Deaths Record

[illegible]

[illegible][illegible]

Notes

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ANIMAL HEALTH AUSTRALIA

AHA facilitates innovative partnerships between the Australian Government, state and territory governments, major livestock industries and other stakeholders. We work with our 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.



AUSTRALIAN PORK LIMITED

APL is a unique rural industry service body for the Australian pork industry. It is a producer-owned company delivering integrated services that enhance the viability of Australia's pig producers. The organisation aims to enhance opportunities for the sustainable growth of the Australian pork industry by delivering integrated marketing, innovation and policy services along the pork industry supply chain. APL pursues opportunities for the industry at both the domestic and international level.



FARM BIOSECURITY

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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