

AUSTRALIAN VETERINARY EMERGENCY PLAN

AUSVETPLAN

Enterprise Manual

Beef cattle feedlots

Version 5.0

AUSVETPLAN is a series of technical response plans that describe the proposed Australian approach to an emergency animal disease incident. The documents provide guidance based on sound analysis, linking policy, strategies, implementation, coordination and emergency-management plans.

National Biosecurity Committee

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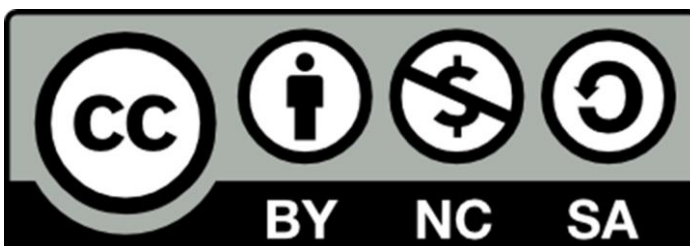
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ISBN 0 642 24506 1 (printed version)

ISBN 1 876 71438 7 (electronic version)

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In this manual, text placed in square brackets [xxx] indicates that that aspect of the manual remains unresolved or is under development; such text is not part of the official manual. The issues will be further worked on by experts and relevant text included at a future date.

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Approved citation

Animal Health Australia (2021). *Enterprise manual: Beef cattle feedlots* (version 5.0). Australian Veterinary Emergency Plan (AUSVETPLAN), edition 5, Canberra, ACT.

DISEASE WATCH HOTLINE: 1800 675 888

The Disease Watch Hotline is a toll-free telephone number that connects callers to the relevant state or territory officer to report concerns about any potential emergency disease situation. Anyone suspecting an emergency disease outbreak should use this number to get immediate advice and assistance.

Publication record

Edition 2

Version 2.0, 1996 (interim document)

Version 2.1, 1998 (final document)

Edition 3

Version 3.0, 2010 (major update)

Edition 5

Version 5.0., 2021 (incorporation into the Edition 5 format)

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1 Introduction

1.1 This manual

1.1.1 Purpose

Enterprise manuals address the risks associated with so-called risk enterprises. These are defined as livestock or related enterprises that are a potential source of major infection for many other premises, and can thus increase the potential size of an outbreak and affect its nature.

1.1.2 Scope

This enterprise manual is aimed at both government officers and beef cattle feedlot personnel who may be involved in emergency animal disease (EAD) preparedness. For government personnel, including those not familiar with the industry, the manual brings together, from many sources, operational guidelines, plans of action and other resources for dealing with EADs. For industry personnel, including owners or managers, the manual provides guidelines on their responsibilities during an EAD outbreak, as required by the relevant government authorities, and strategies that may be adopted to improve preparedness for, or to handle, a suspected EAD. Managers should include elements of this manual in the operational manuals of their enterprises.

1.1.3 Development

This manual has been produced in accordance with the procedures described in the **AUSVETPLAN Overview**, and in consultation with Australian national, state and territory governments; the relevant livestock industries; nongovernment agencies; and public health authorities, where relevant.

In this manual, text placed in square brackets [xxx] indicates that that aspect of the manual remains unresolved or is under development; such text is not part of the official manual. The issues will be worked on by experts and relevant text included at a future date.

1.2 Other documentation

This enterprise manual should be read and implemented in conjunction with:

- other AUSVETPLAN documents, including response strategies, operational and management manuals; and any relevant guidance and resource documents. The complete series of manuals is available on the Animal Health Australia website¹
- relevant nationally agreed standard operating procedures (NASOPs)². These procedures complement AUSVETPLAN and describe in detail specific actions undertaken during a response to an incident. NASOPs have been developed for use by jurisdictions during responses to emergency animal disease (EAD) incidents and emergencies

¹ www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents

² www.animalhealthaustralia.com.au/what-we-do/emergency-animal-disease/nationally-agreed-standard-operating-procedures

- relevant jurisdictional or industry policies, response plans, standard operating procedures and work instructions
- relevant Commonwealth and jurisdictional legislation and legal agreements (such as the Emergency Animal Disease Response Agreement – EADRA³, where applicable).

1.3 Training resources

EAD preparedness and response arrangements in Australia

The EAD Foundation Online course⁴ provides livestock producers, veterinarians, veterinary students, government personnel and emergency workers with foundation knowledge for further training in EAD preparedness and response in Australia.

1.3.1 Industry-specific training

Feedlots accredited under the NFAS must provide suitable staff training and maintain appropriate records of training.

ALFA works with Meat & Livestock Australia, Animal Health Australia, and training deliverers such as the New England Institute of Technical and Further Education (TAFE). ALFA also works with standards such as those developed by the Rural Skills Council to ensure that feedlot employees are trained in the necessary skills for planning, implementing and managing an effective, property-based, workplace health and safety program.

ALFA has also endorsed the TAFE Feedlot Training Program designed for workers in the feedlot industry. Topics covered include:

- for pen riders: occupational health and safety, cattle physiology, nutritional requirements and plans, cattle behaviour, minimal stress handling, and QA compliance requirements
- for those engaged in feedlot maintenance: structural works and welding, effluent management, environmental management, occupational health and safety, and QA compliance requirements.

³ www.animalhealthaustralia.com.au/what-we-do/emergency-animal-disease/ead-response-agreement/

⁴ www.animalhealthaustralia.com.au/emergency-animal-disease-training-program

2 The Australian Industry

The Australian feedlot industry has a value of production of approximately \$2.7 billion and, in 2009, employed about 2,000 people directly and almost 7,000 indirectly. The industry has a capacity of about 1.2 million head of cattle on feed; 700,000 head were on feed in 2009. There are approximately 700 feedlots distributed throughout Australia. The majority are in areas with close proximity to cattle and grain supplies: southeast Queensland (accounting for 43% of the total pen capacity), the northern tablelands and the Riverina area of New South Wales (39% of pen capacity), and expanding numbers in Victoria, South Australia and Western Australia. Approximately 32 feedlots have a capacity of more than 10,000 head.

Approximately 40% of Australia's total beef supply and 80% of beef sold in major domestic supermarkets is sourced from feedlots. The majority of production growth in the beef industry over the past 10 years has been in the feedlot sector. More than 60% of Australia's feedlot beef is exported into premium international markets, including Japan, Korea and the United States.

Feedlots are major businesses with substantial fixed investment in the premises and large operating expenditure for cattle, feed and staff. They are subject to considerable variations in the price of their inputs and the value of their product in international markets, and they use expert knowledge and management skills to balance these factors while ensuring that the day-to-day operation runs smoothly.

Feedlots vary considerably in size and can be conveniently categorised into:

- operations involving large numbers of cattle that integrate cattle purchasing, feeding, slaughtering and marketing
- 'custom feeders', which provide a feeding service to meet the cattle owner's requirements
- opportunity feedlots, which operate only when feed and cattle prices are suitable.

Although this manual is directed at all feedlots, the larger enterprises are associated with greater concern for EAD preparedness because of the number of cattle involved, their operational complexity and the challenges of planning to manage a potentially prolonged disease event that will inevitably affect profitability of the enterprise.

2.1 Industry operations

Feedlots are usually located close to supplies of grain. Access to other feedstuffs, store cattle⁵, labour, major highways, abattoirs and saleyards are other important considerations. Careful siting helps the economic sustainability of the feedlot and the management of the environment.

Location and construction of a feedlot are subject to a range of planning controls that are designed to ensure that community standards are met with respect to its impact on the environment. Approval regimes vary between the states and territories, but approval is generally required from the relevant environmental protection agency as well as from local government.

Climatic conditions have a significant impact on the environmental performance of a feedlot. Most environmental problems are associated with wet conditions that result in excessive odour and runoff, and these factors need to be addressed in choosing sites.

2.1.1 Structure

A typical commercial feedlot (see Figure 2.1) comprises an administration complex, feed preparation area, cattle pens and yards, and waste disposal areas. Generally, there is a single entry point with tight security, and records are maintained of all vehicles, people and cattle entering and leaving. Relevant forms used include the National Vendor Declaration, Stock Received and Inspection Form, Visitor Risk Assessment and Vehicle Cleaning. All visitors are required to sign a register.

Entry of vehicles to the feedlot is tightly controlled, and all vehicles are required to undergo a security check before entry. Many feedlots have a dedicated wash area with a concrete apron for washing of machinery and vehicles.

The cattle yards comprise pens containing 50–250 cattle, according to the feedlot's practices. Space allocated per head is generally 10–25 m². Pen sizes can be matched to transport arrangements, and a range of sizes may be used in custom feedlots where different sized consignments are received.

An all-weather road provides access for feed distribution. Water troughs are usually situated in the centre of a fence line on the lower side of the pen, providing access to two troughs per pen.

Dual-purpose cattle lanes/drains are common at the low end of the pens. They provide all-weather access for moving cattle and for cleaning and maintenance. Pen-to-pen drainage is avoided by ensuring that the pen cross-slope is less than the slope towards the below-pen drain.

⁵ Store cattle are cattle not for immediate slaughter, including heifers, cows and bulls consigned for sale or purchased for breeding purposes, and cattle purchased from designated prime cattle sales for further grazing or feeding.

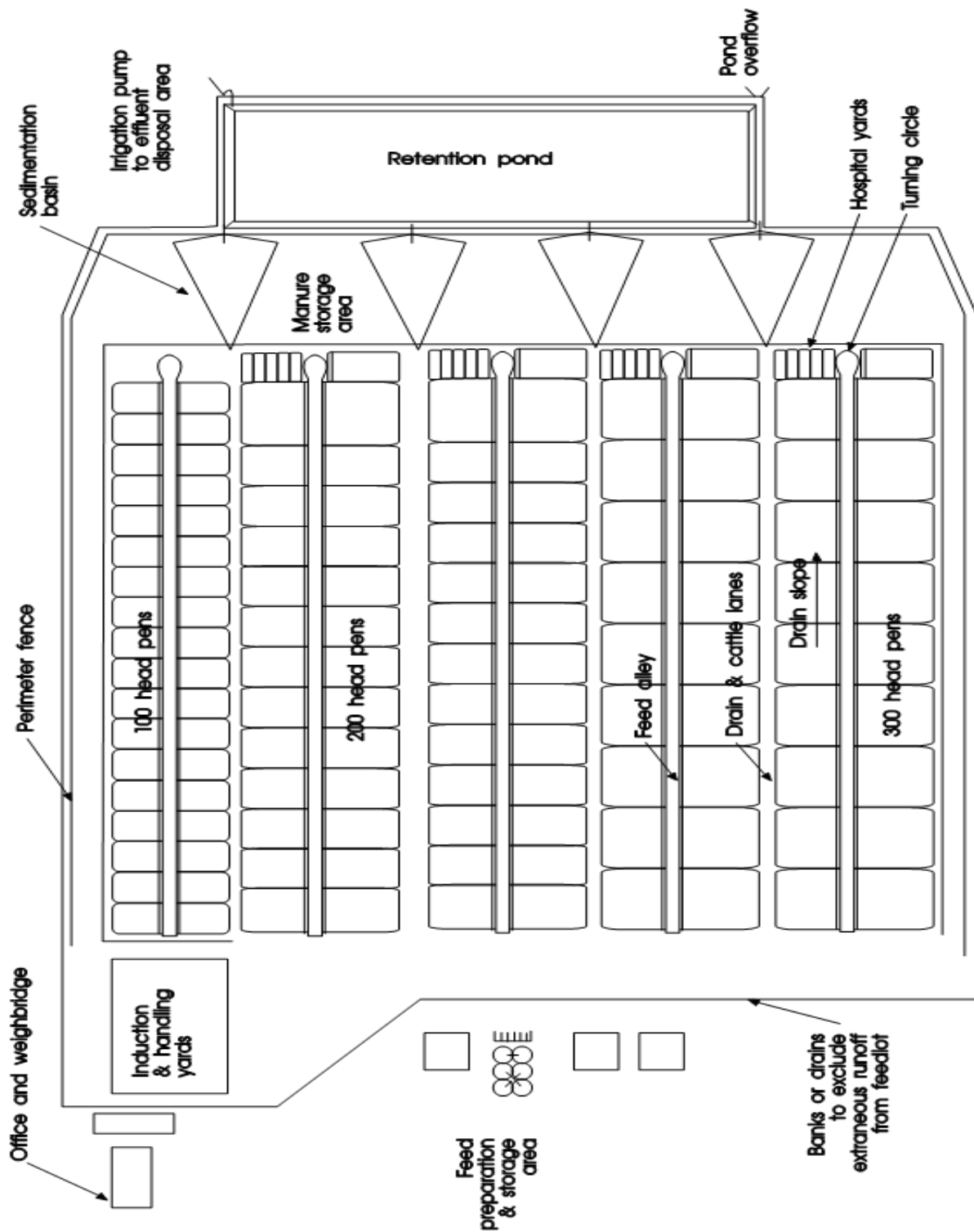


Figure 2.1 Schematic illustration of a typical feedlot

2.1.2 Livestock

Feeder cattle are supplied directly from properties or purchased from saleyards, depending on prices and availability. Breed type, age and quality must meet the requirements of the destination market. Cattle may be sourced from distant locations and may travel long distances, including from interstate.

All feeder cattle are unloaded at a receiving area and then moved into an induction area that may be physically separated from the feed pens. Here their individual and group particulars are recorded, special identification is applied, and pen groups are organised. A staged process to move them from a forage-based diet to a grain-based diet is begun. Once cattle are accustomed to the feeding regime and allocated to a particular pen, minimal relocations occur during the feeding period. Hospital pens and dispatch areas are separated from the fattening pens. However, not all feedlots have separate unloading and loading facilities for receiving and dispatching cattle.

Cattle are purchased at approximately the same rate as they are 'turned-off'. On a large feedlot, there are daily arrivals and dispatches of cattle for immediate slaughter. The numbers vary as a percentage of pen capacity, depending on the feeding period.

2.1.3 Stockfeed

Cattle are fed under various feeding regimes ranging from 70 to 300 days, depending on the market destination; the domestic market requires short-fed (70 day) cattle and export markets require longer feeding periods.

Feed costs account for 55–60% of the cost of production of feedlot beef and grains (predominantly barley, sorghum and wheat) make up about 75% of this cost. Rations combine grain with hay, silage, molasses and a mineral/vitamin supplement. Feedlots use large quantities of feed commodities, with cattle consuming 3% bodyweight equivalent per day on a dry-matter basis. A rule of thumb is that 100 tonnes of feed are required per 1,000 cattle per week.

Feedlots often grow a portion of the annual grain and forage requirements on site; however, most bulk grain supplies will be purchased regionally. Many loads may arrive daily on a large feedlot. Feed deliveries can generally be made to the feed storage and processing area without any contact with the feeding pens.

Commercial feedlots usually prepare rations formulated on site by nutritionists. A process of tempering, reconstitution or steam flaking may be used to enhance digestibility. The latter two processes will destroy most infective agents that are present. Grains are further processed by rolling or, less frequently, hammer milling.

Special feed distribution vehicles are used internally to distribute the formulated rations from the feed preparation area to the troughs in the feeding pens. Most large feedlots use open troughs. Self-feeder bins are generally used in smaller and opportunity feedlots as these require filling only once or twice per week.

To enable cattle to adapt to a high-energy and high-protein diet, a stepped feeding procedure of starter, grower and finisher rations is used.

2.1.4 Water

Access to an adequate supply of good-quality water is essential for the survival, welfare and performance of feedlot cattle.

Water troughs generally provide drinking space for about 10% of a pen at any one time. Generally, 300 mm of trough length is allowed for every 10 head. Troughs may be specific to a pen or shared between adjoining pens.

2.1.5 Animal health

Cattle entering a feedlot are inspected on arrival to assess and record their health status. A health-management program is then used to detect illness and injuries and maintain the health of the cattle.

Illness and deaths will inevitably occur, and early detection and removal of the animal to a hospital pen for treatment or to a disposal area are routine procedures. Daily health monitoring is carried out by 'pen riders' — employees who are trained in the early detection of livestock diseases and understand their responsibilities under the National Feedlot Accreditation Scheme (NFAS) standards and the feedlot's EAD Action Plan⁶. Treatments and postmortem examinations are commonly performed by feedlot staff under the general direction of a veterinarian. Animals showing signs of illness will either be held in a hospital pen until healthy or returned to their original pen after treatment if the illness is minor.

As a result of these practices, any disease is likely to be detected early and dealt with promptly. In addition, the high level of supervision by feedlot managers means that health and welfare issues in feedlots are managed promptly.

Feedlots accredited under the NFAS must ensure that systems are in place to prevent contamination of stockfeed where equipment used for handling the feed is also used in other activities, such as handling manure and dead stock.

2.1.6 Waste

Waste management

The disposal of solid waste and effluent is a major consideration in the siting, structure and management of a feedlot. Total manure production (solid and liquid) is approximately 6% of bodyweight per day. Manure is a valuable resource and is generally used on site and surrounding farmland as a source of organic nutrients. It may also be processed by composting and sold as a fertiliser. Liquid effluent may be used on site for irrigation.

Manure management

Manure management is an integral component of feedlot management. A regular pen cleaning program is used to ensure efficient use of equipment and labour. Usually, manure is scraped towards the centre or lower end of a pen and formed into a temporary mound. Although some managers like to spread the removed manure immediately onto land-use areas, this is not always possible. Manure that has been removed from yards and cannot be used immediately is usually stockpiled or moved off site. Mounding and stockpiling hasten the decomposition of manure and reduce the quantity to be

⁶ www.ausmeat.com.au/services/list/livestock/nfas/nfas-information/

disposed of by up to 50%. However, they also reduce the nutrient content of the manure and therefore its value as a fertiliser.

In a typical opportunity feedlot, with small numbers of cattle and low stocking densities, manure accumulation is low and the frequency of yard cleaning is lower than in larger, more intensive operations.

Typically, a 450 kg feedlot steer produces about 800 kg of fresh manure per month, of which 90% is water. Stocking density and animal live weight have a significant impact on the moisture added to the pad and to the rate of manure accumulation. After taking decomposition and typical moisture content of the pad into account, about 1–2 tonnes of manure per head need to be removed from the yards each year. This is a cost to the feedlot and efficient removal is important.

Effluent management

Rain run-off is described as 'effluent'. Because it has been in contact with manure, the effluent is high in nutrients and has the potential to pollute surface water and groundwater. It is collected, held in a sedimentation system and then stored in holding ponds until it can be used. Drains, sedimentation systems and holding ponds may be compacted or lined with an impermeable material like clay to prevent soil infiltration.

Effluent is generally diluted with 'clean' water and used for irrigating crops or pasture; alternatively, it may be dispersed by evaporation.

2.1.7 Carcass management

The mortality rate in feedlots is generally low and constant (less than 1%). Carcasses are removed from the pens following the daily yard inspection. They are generally lifted using a loader or carry-all rather than being dragged away, which could result in the discharge of blood and other body fluids.

Carcass disposal may be by burial into prepared pits, burning or composting. A single postmortem site is used, generally located some distance from the feedlot to reduce visual pollution. The area may be secured by fencing to reduce entry of wildlife or feral animals.

Feedlots will generally have a contingency plan for the disposal of large numbers of cattle and possibly the entire feedlot population. This will be based on knowledge of the soil type and profile, and the characteristics of the water table in the immediate vicinity of the feedlot.

2.2 Industry organisations

The Australian Lot Feeders' Association (ALFA)⁷ is the national peak body representing the feedlot industry. It provides leadership, formulates policies, sets strategic directions and agrees to overall levels of funding for industry projects (eg research, development and extension). As industry leader, ALFA works on a large range of feedlot management areas in response to the needs of the industry and its members.

2.3 Industry regulations, standards and programs

The National Feedlot Accreditation Scheme

The National Feedlot Accreditation Scheme (NFAS)⁸ is a national quality assurance (QA) scheme that enables feedlots to gain accreditation for their products. It was initiated by ALFA and is managed by the Feedlot Industry Accreditation Committee, a joint committee of the feedlot industry and government. The objective of the NFAS is to develop a quality system for beef feedlots that has positive impacts on product quality and acceptability and is the responsibility of the lot feeders themselves.

For a feedlot to be accredited, it must:

- have documented procedures in place that are specific to the feedlot and meet the industry standards
- maintain records to show that these procedures have been adhered to for all cattle fed at the feedlot
- undergo a third-party audit of these procedures, records and facilities.

Each accredited feedlot has a quality system manual and employs trained QA officers. Accredited feedlots are audited annually by a third party to ensure they continue to meet the agreed standards.

The NFAS has around 600 accredited feedlots; a minority of feedlots are not accredited. All accredited feedlots meet biosecurity standards, have an emergency animal disease (EAD) action plan and understand the NFAS requirements for EAD management. Accredited feedlots will have a superior understanding of EAD response management and the impact on feedlot operations, and will be better placed to handle the complexities of an EAD response.

Accredited feedlots are required to conform to the standards and codes of practice for the feedlot industry, including:

- *Model Code of Practice for the Welfare of Animals: Cattle* (PISC 2004)⁹
- *Safe Use of Veterinary Medicines on Farms* (AVA 2008)¹⁰
- *National Beef Cattle Feedlot Environmental Code of Practice* (MLA 2012)¹¹
- *National Guidelines for Beef Cattle Feedlots in Australia* (ARMCANZ 1997)¹²

⁷ www.feedlots.com.au

⁸ www.ausmeat.com.au/auditing--accreditation/feedlot.aspx

⁹ PISC (Primary Industries Standing Committee), *Model Code of Practice for the Welfare of Animals: Cattle*, 2nd edition, PISC report 85, CSIRO Publishing, Collingwood, Victoria, 2004. www.publish.csiro.au/Books/download.cfm?ID=4831

¹⁰ AVA (Australian Veterinary Association), *2.4 – Safe use of veterinary medicines on farms*, AVA, 2008.

avacms.eseries.hengsystems.com.au/AM/Template.cfm?Section=Policies&Template=/CM/HTMLDisplay.cfm&ContentID=14449

¹¹ MLA (Meat & Livestock Australia), *The National Beef Cattle Feedlot Environmental Code of Practice*, 2nd edition, Meat & Livestock Australia, Sydney, 2012 <https://publications.mla.com.au/login/GetDocViewer/11-10673.pdf>

¹² ARMCANZ (Agriculture and Resource Management Council of Australia and New Zealand), *National Guidelines for Beef Cattle Feedlots in Australia*, 2nd edition, Standing Committee on Agriculture and Resource Management, Report 47, CSIRO Publishing, Collingwood, Victoria, 1997. www.publish.csiro.au/Books/download.cfm?ID=114

- the **Beef Cattle Feedlots Manual**.

The National Livestock Identification System

Most feedlots have sophisticated and accurate cattle inventory control systems. The National Livestock Identification System (NLIS) is a key element of these systems and is used by most feedlots because of its implications for food safety and disease management. The detailed records provided by the NLIS would be of considerable assistance in tracing cattle during an EAD response.

2.4 Other industry-specific information

Incident reporting

The NFAS contains requirements for 'incident reporting'. Unusual numbers of deaths or illness in feedlot cattle within a 24-hour period must be reported to a veterinarian for immediate assessment. Feedlots with up to 5,000 cattle on feed must report more than 3 deaths or 20 'pulls' (cattle removed from pens due to illness or injury) in a 24-hour period. Feedlots holding more than 5,000 cattle must report deaths at numbers greater than 0.04% of the cattle on feed or 'pulls' greater than 0.4%.

3 Emergency animal diseases and the industry

3.1 Significant issues for the industry in the event of an EAD incident

Restrictions placed on the movement of cattle by a national livestock standstill will affect the operations of all feedlots. Cattle that have departed a feedlot will generally be allowed to continue to their destination and incoming cattle will generally be permitted to arrive at the feedlot. However, there are no certainties where a serious contagious disease is involved and cattle may have to be unloaded mid-journey. An official permit may be required for movements to continue.

Managers should be able to obtain information from the local disease control centre (LDCC) about the source of the outbreak and rapidly determine whether incoming cattle present any risk. If incoming cattle are of suspect status, they can be diverted to another property or segregated from other cattle on arrival.

During the national standstill, all contacts with animals on infected premises (IPs), dangerous contact premises (DCPs), and suspect premises (SPs) or trace premises will be followed up by the state or territory authorities. The extent of trace-back of cattle movements will depend on the period between infection and the onset of clinical signs. Trace-forward of movements off IPs will apply up to the time quarantine is imposed. Tracing will also apply to all animal products, vehicles (livestock transport vehicles, feed trucks, visitors' cars), materials such as hay and grains, and people (including veterinarians, contractors, feed representatives and visitors). This emphasises the importance of detailed documentation.

An extension to movement restrictions beyond the initial standstill will apply in some situations. If the feedlot is located within a CA or RA, movement controls will continue to apply as described in Section 4. Feedlots that obtain stock originating from many different areas are particularly vulnerable to being implicated by a trace from an IP, DCP or SP.

Feedlots should ensure that their records can rapidly identify the source of stock (property identification code of last property of residence) and the current location of stock on the property. This will allow segregation from other stock, if necessary, and ensure that accurate information can be provided to animal health inspection staff if they have a tracing enquiry.

With suitable contingency planning, feedlot managers can take actions to reduce the risk of disease spread to their cattle. For example, livestock that could be host to the disease agent could be removed from adjacent properties to create a buffer zone around the feedlot and reduce the risk to the feedlot. This may involve bringing cattle into the feedlot perimeter or removing them to another property.

4 Emergency animal disease preparedness and management

4.1 Australia's animal health services

Australian governments, primary industries and other stakeholders work closely together to prevent, detect, control and manage pest and disease outbreaks, and minimise impacts on the economy, environment and international trade. To do this effectively, governments, industries and stakeholders use consistent and collaborative approaches to determine national animal health priorities. The livestock industries are active partners in policy development, support targeted animal health activities and contribute to emergency responses.

4.2 National arrangements

Governance arrangements for the response to EADs are outlined in the **AUSVETPLAN Overview**.

Information on the responsibilities of a state coordination centre and local control centre is available in the **AUEVTPLAN management manual Control centres management (Parts 1 and 2)**.

Australia's response planning and coordination are enhanced by collaborative national arrangements between governments and industry, and other key stakeholders. These arrangements include:

- the *Government and livestock industry cost sharing deed in respect of emergency animal disease responses* (Emergency Animal Disease Response Agreement [EADRA])
- the Australian Veterinary Emergency Plan (AUSVETPLAN)
- training for EAD response personnel.

Coordination of the response to EAD incidents is further enhanced by the use of established consultative committees and management groups.

4.2.1 Emergency Animal Disease Response Agreement

The EADRA¹³ is a legally binding agreement between the Australian Government, state and territory governments, livestock industries and Animal Health Australia (AHA). It supports a rapid and efficient response to an EAD outbreak.

The agreement establishes basic operating principles and guidelines, and defines roles and responsibilities of the parties that are involved. It provides for formal consultation and dispute resolution between government and industry on resource allocation, funding, training, risk management and ongoing biosecurity arrangements.

The signatories of the EADRA are committed to:

- minimising the risk of EAD incidents by developing and implementing biosecurity plans for their jurisdictions or industries

¹³ The full title of the agreement is the Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Responses. For more information, see www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/ead-response-agreement/.

- maintaining capacity to respond to an EAD by having adequate numbers of trained personnel available to fill the response functions specified in AUSVETPLAN
- participating in decision-making relating to EAD responses, through representation on the Consultative Committee on Emergency Animal Diseases (CCEAD) and the National EAD Management Group (NMG) established for the incident
- sharing the eligible response costs of EAD incursions using pre-agreed cost-sharing formulas.

Four categories of diseases are used to determine the liability for costs. These categories have been developed according to the benefits of controlling the disease, as assessed by the likely impact of the specific EAD on human health, socioeconomics, the environment and livestock production.

Table 4.1 describes the four disease categories and their respective cost-sharing arrangement.

Table 4.1 Disease categories and cost-sharing arrangements

Category	Cost-sharing arrangement
1	100% government
2	80% government 20% industry
3	50% government 50% industry
4	20% government 80% industry

The EADRA also contains many other important instructions that provide the basis for a coordinated national EAD response. In particular, it refers to using existing plans, such as AUSVETPLAN; sets standards for accounting, auditing and training personnel; and, provides the incentive for developing and maintaining government and industry biosecurity measures.

4.2.2 AUSVETPLAN

This enterprise manual is part of AUSVETPLAN – Australia’s Veterinary Emergency Plan.

AUSVETPLAN is Australia’s nationally agreed approach to responding to emergency animal diseases (EADs) of national significance. It comprises resources that support efficient, effective and coherent response to these diseases. It has been developed and agreed on by governments and relevant industries in non-outbreak times to ensure that a fast, efficient and effective EAD response can be implemented consistently across Australia with minimal delay.

AUSVETPLAN provides the contingency planning framework for Australia’s response to EADs and is complemented by a range of other plans and resources, including:

- national and state/territory standard operating procedures for the implementation of certain response measures
- plans involving other areas of state and territory emergency management arrangements (eg police, local government)
- diagnostic resources
- training materials.

4.2.3 Training for emergency animal disease response personnel

It is a requirement of the EADRA that, where possible, signatories (governments and industries) use appropriately trained staff to undertake the response functions outlined in AUSVETPLAN for an EAD response.

Governments provide training in response functions for their personnel.

Animal Health Australia's Training Services project provides training for government personnel and representatives of the Australian livestock industries to help prepare them to participate in the CCEAD and NMG. The program also provides training for livestock industries representatives to prepare them to undertake the Liaison – Livestock Industry function in either a state coordination centre (SCC) or Local Control Centre (LCC).

The responsibilities of the SCC and LCC Liaison – Livestock Industry functions are documented in the **Control Centres Management Manual Part 2**¹⁴.

4.3 Controlling an emergency animal disease incident

4.3.1 Governance

Control of an EAD outbreak is a complex operation, requiring rapid mobilisation of resources and coordination of a diverse team of people. An EAD response may require input from all tiers of government and from a range of portfolios, as it may need to address not only animal health issues, but also financial, social, economic, human, trade and recovery issues.

EAD responses are planned and implemented at three levels — national, state or territory, and local.

The Australian Government (through the Department of Agriculture, Water and the Environment) provides international liaison during an EAD response; this includes market access negotiations, international reporting (eg to the World Organisation for Animal Health [OIE]), and coordinating access to overseas assistance through existing agreements. The Australian Government also provides national coordination for the response; more information is provided in the **Control Centres Management Manual Part 1**.

The CCEAD is the key technical coordinating body providing the link between the Australian Government, states and territories, industry, AHA and the NMG during an EAD response.

The NMG manages national policy and resourcing of the response. It determines whether a disease is eradicable and whether the direct costs of a response should be shared between Australia's governments and the relevant livestock industry/ies under the EADRA.

Both the CCEAD and the NMG base their recommendations and decisions on current information provided by the affected state or territory, and on guidance provided in AUSVETPLAN.

In an EAD outbreak, relevant state or territory animal health officials manage all aspects of its control and eradication according to a nationally agreed plan (Emergency Animal Disease Response Plan, EADRP).

The chief veterinary officer (CVO) of the state or territory in which an EAD outbreak occurs implements disease control measures as agreed in the EADRP and in accordance with relevant

¹⁴ www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents/

legislation. State/territory animal health (or in many cases, biosecurity) legislation provides broad powers to enable an effective response to EADs, including the ability to enter premises, examine records, order livestock musters, control livestock movements, request that animals or products be submitted for testing, and isolate and destroy diseased or suspected diseased livestock.

An SCC may be established to coordinate response activities across the state or territory, in accordance with the strategic direction provided by the CVO, the CCEAD and the NMG. The SCC maintains overall control of the incident under the CVO and is able to give specific directions to the LCCs to ensure that the CVO's intentions are met.

Disease-control activities are managed from an LCC, usually established in the vicinity of the outbreak. The LCC is responsible for all operational activities within a defined area, assigned by the CVO, including investigations of reports of disease outbreaks, consultation with livestock producers and processors, specimen collection, property quarantine, valuation of livestock and property, livestock slaughter, livestock product tracing, treatment and disposal; and property decontamination.

Information on the structure, functions and responsibilities of the SCCs and LCCs is contained in the **Control Centres Management Manual, Part 1**. Detailed descriptions of functions and associated activities in an EAD response are contained in **Control Centres Management Manual, Part 2**.

The CVO makes ongoing decisions on follow-up disease control measures in consultation with the CCEAD and, where applicable, the NMG, based on epidemiological information about the outbreak.

4.3.2 Response measures

The response to an EAD will be determined by the nature of the outbreak, including:

- how early the outbreak is detected
- the extent of the outbreak
- the location of infected, suspected, trace and dangerous contact premises
- which species of livestock are affected
- the characteristics of the disease agent involved.

The fundamental aim of national EAD control policy is to eradicate an EAD if this is reasonably feasible. Key factors taken into account are those related to the disease and affected population. For example, the principal option used for many EADs is eradication by stamping out where this is applicable to the EAD in question and is considered to be cost-effective. This may involve use of all or some of the following procedures:

- epidemiological assessment (to understand how the disease is behaving in that particular outbreak)
- quarantine of premises and/or movement controls on potentially infected or contaminated live animals, animal products, people, equipment, vehicles and other things
 - this will include a national livestock standstill if foot-and-mouth disease (FMD) is strongly suspected or confirmed; see the **FMD disease strategy** for more information
- tracing of potentially infected animals and potentially contaminated products and things (e.g. equipment, vehicles etc.)
- surveillance of susceptible animals
- biosecurity measures for people and equipment
- managing animal welfare

- valuation and compensation for livestock and property (including milk and milk products) destroyed as part of the EAD response
- destruction and disposal of infected and exposed susceptible animals, animal products and contaminated materials
- decontamination of infected premises
- restriction of the activities of certain enterprises
- an industry and public information program.

Other measures that may be used where necessary include:

- vaccination
- vector or wild animal control
- treatment of affected animals
- treatment of affected products
- use of sentinel animals
- zoning and compartmentalisation.

In some circumstances, a modified stamping-out approach may be used, for example by allowing the slaughter of animals at an accredited abattoir to produce a marketable product.

Sometimes, eradication is not considered feasible because the outbreak is already widespread when diagnosed or is considered likely to spread further despite the application of stamping out. In these cases, other control measures may be selected, such as vaccination, with a view to possible containment and eventual eradication; or a state or territory and/or industry-based control program to manage a disease that is likely to become endemic in the population. Where the NMG has reason to believe that eradication is not possible and the disease can only be contained, or in any situation where the cost of an EAD response plan will exceed an agreed limit on funding, the NMG may decide to stop cost sharing.

4.3.3 Overview of declared areas and premises classifications

Declared areas

‘A defined tract of land that is subjected to disease control restrictions under emergency animal disease legislation. There are two types of declared areas: restricted area and control area.’

Declared areas are areas declared under jurisdictional legislation. They include restricted areas (RAs), which are subject to strict disease control measures, and control areas (CAs), which are disease-free buffers between an RA and the parts of Australia that are free of disease (the outside area – OA).

There are two types of legally declared area: restricted area and control area.

All declared areas need to be clearly identified and easily understood, so that all affected parties can recognise which area they are in, and what regulations and control measures are applicable to them.

Declared areas are declared by a chief veterinary officer (CVO) or their delegate, or a ministerial declaration, according to the appropriate legislation of the states and territories involved.

There are also other areas that are not legally declared, but are used for specific reasons:

- transmission areas, which are used for vector-borne diseases for epidemiological purposes, recognising that vectors are not confined by property boundaries
- the outside area is used to describe the rest of Australia outside the declared areas.

Area definitions for non-vector-borne diseases

Restricted area (RA)

'A relatively small legally declared area around infected premises and dangerous contact premises that is subject to disease controls, including intense surveillance and movement controls.'

A restricted area (RA) will be a relatively small declared area¹⁵ (compared with a control area — see below) drawn with at least 'x' km radius¹⁶ around all IPs and DCPs, and including as many SPs, TPs and DCPFs as practicable. Based on risk assessment, the RA is subject to intense surveillance and movement controls, and other relevant disease controls. The purpose of the RA is to minimise the spread of the EAD. The RA does not need to be circular but can have an irregular perimeter, provided that the boundary is initially an appropriate distance from the nearest IP, DCP, DCPF, SP or TP. Multiple RAs may exist within one control area.

The boundaries will be modified as new information becomes available, including from an official surveillance program. The actual distance in any one direction will be determined by factors such as terrain, the pattern of livestock movements, livestock concentrations, the weather (including prevailing winds), the distribution and movements of relevant wild (including feral) animals, and known characteristics of the disease agent. In practice, major geographic features and landmarks, such as rivers, mountains, highways and roads, are frequently used to demarcate the boundaries of the RA. Although it would be convenient to declare the RA on the basis of local government areas, this may not be practical, as such areas can be larger than the particular circumstances require.

Control area (CA)

'A legally declared area where the disease controls, including surveillance and movement controls, applied are of lesser intensity than those in a restricted area (the limits of a control area and the conditions applying to it can be varied during an incident according to need).'

A control area (CA) is a disease-free buffer between the RA and the outside area (see below). Specific movement controls, surveillance strategies, and other relevant disease controls will be applied within the CA to maintain its disease-free status and prevent spread of the disease into the outside area.

An additional purpose of the CA is to control movement of susceptible livestock for as long as is necessary to complete tracing and epidemiological studies, to identify risk factors and forward and backward risk(s).

The CA will be a larger declared area around the RA(s) — initially, possibly as large as the state or territory in which the incident occurs — where restrictions will reduce the risk of disease spreading from the RA(s). The CA will have a minimum radius of 'y' kilometres¹⁷, encompassing the RA(s). The actual distance in any one direction will be determined by factors such as terrain, the pattern of livestock movements, livestock concentrations, the weather (including prevailing winds), the distribution and movements of relevant wild (including feral) animals, and known characteristics of the disease agent. In practice, major geographic features and landmarks, such as rivers, mountains, highways and roads, are frequently used to demarcate the boundaries of the CA. The boundary will be adjusted as confidence about the extent and distribution of the incident increases.

¹⁵ As defined under relevant jurisdictional legislation.

¹⁶ For specific details, refer to the relevant AUSVETPLAN response/disease strategy, www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/ausvetplan

¹⁷ For specific details, refer to the relevant AUSVETPLAN response/disease strategy, www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/ausvetplan

In general, surveillance and movement controls will be less intense in the CA than in the RA, and disease-susceptible animals and their products may be more likely to be permitted to move under permit within and from the area than those originating from the RA.

Outside area (OA)

'The area of Australia outside the declared (control and restricted) areas.'

The outside area (OA) is **not** a declared area but is used to describe the rest of Australia outside the declared areas. The OA will be subject to surveillance. Because it is highly desirable to maintain the OA as 'disease free', the movement of animals and commodities from the RA and CA into the OA will be restricted.

The OA will also be of interest for 'zoning'¹⁸ and 'compartmentalisation'¹⁹ for purposes of trade access, as well as for disease control (see below).

Area definitions for vector-borne diseases

Transmission area (TA)

'An area, not legally declared, that is used for vector-borne²⁰ diseases for epidemiological purposes, recognising that vectors are not confined by property boundaries. It includes IPs and, where possible, SPs, TPs, DCPs and DCPFs. A transmission area is subject to an increased level of surveillance, and has movement controls appropriate to its associated restricted area.'

Vector-borne diseases differ from non-vector-borne infectious diseases in that vectors cannot be contained by boundary fences. The transmission area (TA) is thus less concerned with property boundaries or definitions and more with including all infected vectors in the area surrounding known areas of transmission. It will be drawn around known sources of transmission, as evidenced by disease, seroconversion, trapping of infected vectors and any other confirmation of active disease transmission. There may be insufficient information at the start of a response to identify a TA, and an RA may be put in place before a TA can be determined.

A TA is not a legally declared area but will include all IPs and, where possible, all SPs, TPs, DCPs and DCPFs. In the presence of competent vectors, a TA of 'x' km²¹ radius should be drawn. The TA does not need to be circular but can have an irregular perimeter, provided that the boundary is initially an appropriate distance from the nearest IP, DCP, DCPF, SP or TP. This distance will depend on the information gained about vector numbers and competence, environmental factors (e.g. prevailing winds, rainfall, temperature, humidity), and the number and distribution of infected and/or susceptible animals. In the absence of competent vectors, the TA may be reduced in size.

Restricted area (RA)

An RA will be a larger legally declared area around the TA. The boundary of the RA does not have to be circular or parallel to that of the TA but should be at least 'y' km from the boundary of the TA; this distance may be influenced by OIE standards or an official control program. The RA can include areas of known competent vector distribution. In general, surveillance may be less intense than in the TA, but movement controls will be the same.

¹⁸ The process of defining, implementing and maintaining disease-free and infected areas, in accordance with OIE standards. Zoning is based on geopolitical and/or physical boundaries and surveillance, in order to facilitate disease control and/or trade.

¹⁹ The process of defining, implementing and maintaining one or more disease-free establishments, under a common biosecurity management system, in accordance with OIE standards. Compartmentalisation is based on applied biosecurity measures and surveillance, in order to facilitate disease control and/or trade.

²⁰ In most cases, a TA is focused on insect (arthropod) vectors.

²¹ For specific details, refer to the relevant AUSVETPLAN response/disease strategy, www.animalhealthaustralia.com.au/programs/emergency-animal-disease-preparedness/ausvetplan

The boundary of the RA will be adjusted as confidence about the extent of the incident increases. It will take into account the relevant OIE *Terrestrial Animal Health Code* chapter on the disease and, if appropriate, OIE standards on zoning and compartmentalisation (Chapter 4.3²²).

Other types of areas

It is possible that other types of areas (e.g. vaccination area or surveillance area), which are not legally declared, may be used for disease control purposes in some jurisdictions.

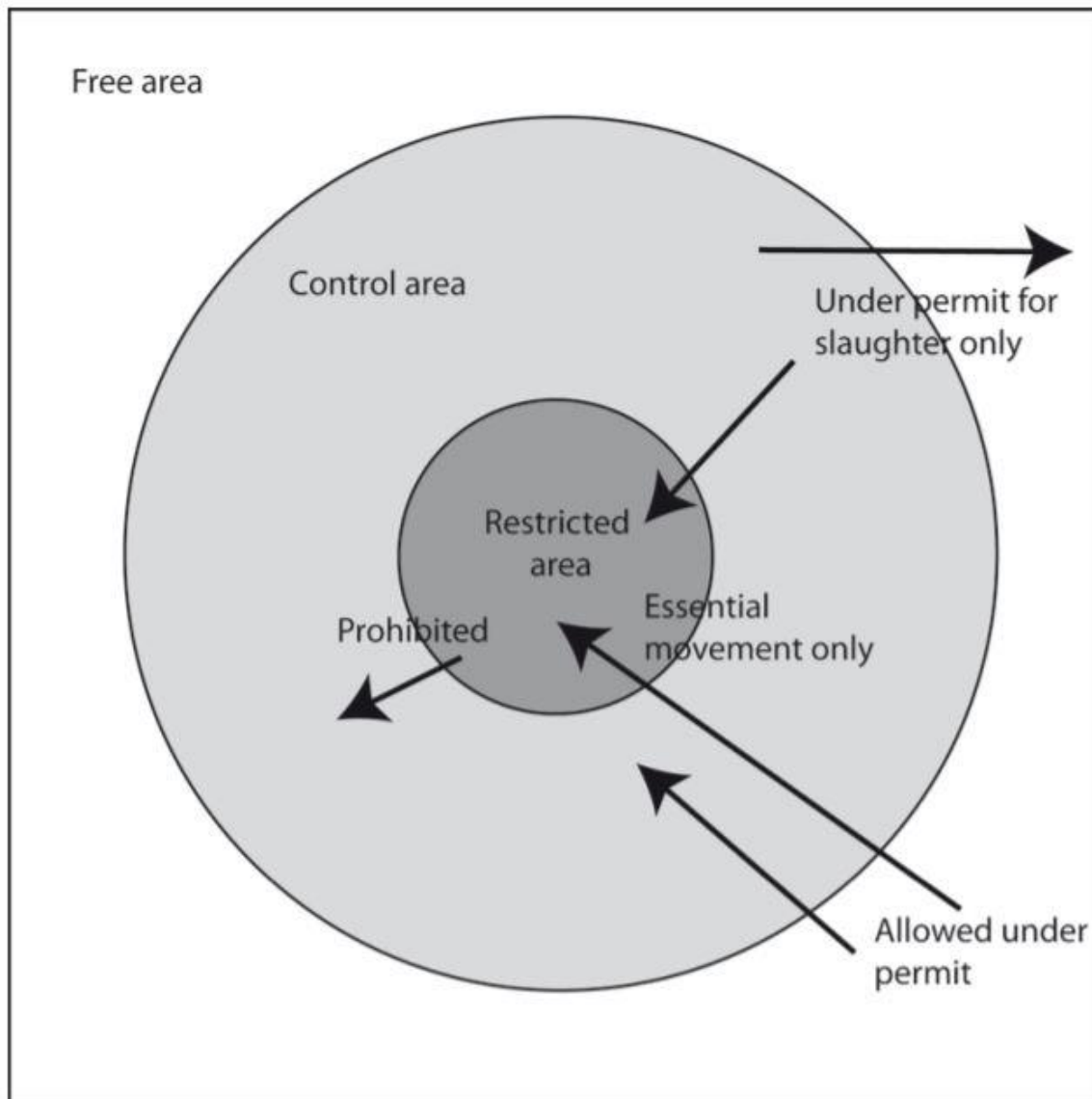


Figure 4.1 Schematic illustration of declared areas indicating standard movement controls

²² www.oie.int/international-standard-setting/terrestrial-code/access-online

Premises classifications

All premises within declared areas are subject to classification for disease control management and monitoring purposes.

A particular property (or premises) must fit clearly into only one premises classification at a given time. The classifications and their abbreviations are (in alphabetical order):

- Approved disposal site (ADS)
- Approved processing facility (APF)
- At-risk premises (ARP)
- Dangerous contact premises (DCP)
- Dangerous contact processing facility (DCPF)
- Infected premises (IP)
- Premises of relevance (POR)
- Resolved premises (RP)
- Suspect premises (SP)
- Trace premises (TP)
- Unknown status premises (UP)
- Zero susceptible species premises (ZP).

In addition to these premises definitions, the following 'qualifiers' may be used to describe the outcome of a recent investigation, epidemiological risk assessment or other activity on premises where their status has not changed:

- Assessed negative (AN)
- Vaccinated (VN)
- Sentinels on site (SN).

For example, an ARP that has been determined by the relevant jurisdictional authority as being 'assessed negative' should be recorded as 'ARP-AN', and an IP that has had a completed vaccination program should be recorded as 'IP-VN'²³.

Not all classifications may be needed in a particular EAD response.

Classification of premises provides a framework for authorities to exercise legal powers over such premises, facilitates product tracking, and serves as a communication tool for reporting nationally and internationally on progress in the response.

²³ Some jurisdictions might have a date associated with the 'assessed negative' qualifier.

4.3.4 Use of declared areas and premises classifications in an EAD incident

When an EAD incident is first suspected, the premises involved would undergo a clinical and/or epidemiological investigation. If the case definition, as defined in the relevant AUSVETPLAN response strategy, is met²⁴ (i.e. the index case²⁵), the relevant CVO or their delegate will determine the premises classification and may declare the premises an IP.

After the identification of the first IP, an RA and a CA may be declared²⁶. A transmission area (TA) may also be defined, if appropriate. All premises within these areas will be classified. At the beginning of an EAD incident, the initial premises classifications would be infected premises (IP), at-risk premises (ARP), premises of relevance (POR), unknown status premises (UP) and zero susceptible species premises (ZP).

Any premises within the RA or CA will have only one classification at any one time. After an epidemiological investigation, clinical assessment, risk assessment or completion of control measures, a premises may be reclassified.

Once the first IP has been identified, intelligence gathering through veterinary epidemiological investigations would quickly lead to the identification of SPs and TPs. These would be high priorities for follow-up investigation by the relevant state or territory authorities. In a worst-case scenario, an SP could become an IP; therefore, SPs need to be investigated as a matter of very high priority. Similarly, investigation and risk assessment of a TP might identify it as an IP, DCP or DCPF. Both an SP and a TP might also be assessed as negative and qualified as SP-AN and TP-AN, and eventually reclassified as an ARP, POR or ZP.

All premises classifications are subject to change as a result of a modification in the case definition(s) or investigation(s) as the incident response proceeds.

Classifications should be applied with information needs of managers in mind. They should assist managers to monitor and report progress. Premises classifications to be used should be agreed early in a response, so that control centre personnel can apply the correct and consistent classifications and definitions from the outset of the investigation and response.

²⁴ Note that case definitions are under development for some manuals and also that some diseases could be present without showing clinical signs.

²⁵ The first case to come to the attention of investigators.

²⁶ This is invariably the case with highly contagious diseases (e.g. foot-and-mouth disease, equine/avian/swine influenza, classical swine fever) but may not apply to less contagious diseases (e.g. Hendra virus, anthrax, Australian bat lyssavirus).

5 Industry preparedness

All feedlots accredited under the National Feedlot Accreditation Scheme (NFAS) are required to establish contingency plans to manage any unusual or emergency situation, including an outbreak of an emergency animal disease (EAD). Feedlots are required to document an EAD Action Plan describing the immediate actions and responsibilities of feedlot personnel should an outbreak be suspected. The plan covers the period between the time a disease is first suspected and subsequent confirmation or clearance of the disease. It is complemented by a feedlot-specific Feedlot EAD Response Plan.

The EAD Action Plan provides details of:

- the consulting veterinarian
- actions to be taken to isolate suspect livestock and secure the feedlot perimeter
- restrictions placed on the movement of personnel and machinery to and from suspect cattle holding areas
- actions to restrict or halt livestock movements
- actions to compile a history of all livestock, personnel and vehicle movements for the previous seven days.

To assist in implementation, a sample procedure, sample record forms and an example of an EAD Action Plan are available as part of the NFAS documentation.

5.1 Biosecurity measures and the industry

5.1.1 General biosecurity

Accredited feedlots document, in a biosecurity plan, their biosecurity management procedures, including practices that minimise the likelihood of disease entering and spreading in, or escaping from, the feedlot. Employees are trained to understand the mechanisms of disease introduction and spread, including via cattle, feedstuffs, people, vehicles, machinery and equipment, feral animals and wildlife, and manure and effluent.

Use of a single route by all incoming and outgoing vehicles, machinery and equipment is designed to minimise the entry and spread of disease. All movements are controlled and access areas are minimised. Visitors (including contractors) entering the feedlot are assessed for their biosecurity risk before being granted access to the feedlot; this assessment includes their potential to have been exposed to a livestock disease and to introduce it into the feedlot.

Further detail on these biosecurity requirements is provided on AusMeat's website²⁷ and on a biosecurity DVD prepared by ALFA to assist in the uptake of biosecurity procedures (*Feedlot Biosecurity — Understanding and Implementing the NFAS Guidelines*).

²⁷ www.ausmeat.com.au/

5.1.2 Livestock

Feedlot cattle may be sourced from multiple sources (markets or properties) and hence are high risk for introduction and spread of EADs. During an EAD response, an early assessment of source is important to assess the risk.

Feedlot recording systems will support rapid and accurate trace-back and trace-forward of cattle from the feedlot.

The cattle are monitored daily, are under tight control and are readily accessible. Pens are usually adjacent, with common water troughs, so a contagious disease could spread rapidly.

The high concentration of susceptible livestock in the feedlot and in individual pens provides ideal conditions for the spread of contagious diseases.

Cattle on NFAS feedlots are fully described on specific delivery and consignment dockets, and high-quality records of individual cattle from induction to dispatch are maintained. This allows rapid location of any suspect animals and rapid calculation and substantiation of their value.

Feedlots can arrange to move cattle quickly and efficiently to a meatworks if necessary.

The separation of cattle into pens offers opportunities to use an internal quarantine procedure to isolate suspect cattle.

Forward planning is needed to meet logistical and welfare issues associated with retention of cattle, which might be required in a stock standstill, or to meet destruction requirements for infected and dangerous contact premises.

5.1.3 Feed

Multiple daily deliveries of feed are made to many feedlots, and these must continue to provide for the welfare of the cattle.

Vehicles delivering feed can be kept separate from the cattle pens, and only minimal decontamination on exit may be needed.

It may be possible to process EAD-contaminated grain into feedlot rations on site in a way that destroys the EAD agent.

Feed is an ongoing high cost of production and maintenance of cattle on site. Payment for ongoing feeding will need to be addressed in any feedlot EAD response program.

5.1.4 Animal health

Routine inspection of cattle on entry and daily disease monitoring and follow-up provide confidence that signs of disease would be detected.

Contingency planning is well developed, ensuring an alert and trained workforce capable of early reporting and prompt site control in the event of an emergency.

People expert in monitoring cattle health in feedlots will be present on site and can be included in health monitoring activities during an EAD response.

Pen rider horses will need to be managed to ensure that they do not mechanically move the EAD out of the feedlot.

Special permits may be needed to allow movement of more pen rider horses onto the feedlot to avoid overwork of existing horses.

5.1.5 Disposal methods

Waste

Manure has potential to harbour disease agents and movement of manure off site presents a risk. However, movement is generally under tight control, and the manure is treated so that survival and transmission of EAD agents are unlikely. Nevertheless, contamination of manure and effluent is relevant to the control of foot-and-mouth disease, rinderpest and some other EADs, and requires attention, depending on the circumstances of the outbreak.

Regularly cleaned pens significantly improve animal health and welfare.

Many feedlots will have on-site equipment and expertise for pen cleaning. This can be used to minimise the number of extra personnel and pieces of equipment that are brought on site.

Many feedlots will have a capability to compost manure and other waste material from pens. This can be used where composting is a suitable method for control of the EAD in question.

Many feedlots can spread composted manure onto land on the same property, minimising the cost of disposal.

Effluent may contain infective disease agents. It may be possible to contain it for the duration of any quarantine period, or to treat and decontaminate it within the existing systems.

Existing effluent containment systems may be used to contain run-off from cleaning and decontamination activities.

Carcasses

Feedlots are experienced in regularly dealing with the carcasses of small numbers of cattle. Many will have a contingency plan to manage the disposal of large numbers.

However, at many sites there will be logistical, physical and environmental limitations to disposal of large numbers of cattle carcasses.

An existing plan may already be available for mass disposal on site.

Even if approval has been obtained for mass disposal on site, the relevant environment protection agency should be involved and provide a representative for the disposal team.

5.1.6 Water supply

Water security is important to feedlots. Sufficient capacity is required to supply cattle; to clean vehicles, yards etc; and for decontamination.

On-site water quality is likely to be good, which facilitates the use of the water for cleaning and mixing with disinfectants for decontamination.

Appendix 1

EMERGENCY ANIMAL DISEASES THAT AFFECT CATTLE

Many emergency animal diseases (EADs) could affect an Australian beef cattle feedlot, but only a small number are of such concern that details are given here. A full list of the EADs that may affect cattle is provided in table A1. More details on each are available in the relevant response strategy or policy brief.

The EADs described below are widely considered to be those that are likely to have a major impact on feedlots. In several cases, it is the international or domestic (or both) perception of the presence of the disease in Australia that would have the greatest impact on feedlots because of the adverse effect on trade.

Many other EADs are listed in AUSVETPLAN, and the specific response strategy or policy brief must be consulted where there is a heightened risk of an incursion and especially in the event of an outbreak of any EAD. Managers should also familiarise themselves with the key operational plans developed by their state or territory primary industries department.

Anthrax

Anthrax is caused by a bacterium, *Bacillus anthracis*, and is a serious zoonosis requiring great care when people handle potentially affected animals and carcasses.

Sudden deaths in feedlot cattle resulting from infection with *Bacillus anthracis* would only occur if newly arrived cattle were infected on the source property.

Experience has shown that trade to some markets will be disrupted during a major outbreak.

Anthrax spores have the potential to contaminate soil for many years, especially if they are below the surface of the soil.

Bluetongue

Bluetongue is a viral disease, primarily of sheep, transmitted by specific species of biting midges (*Culicoides* spp.).

Few cattle feedlots are located in areas where the bluetongue viruses currently circulate. Clinical disease or production loss in cattle is most unlikely.

Treatments used to control the midges could require cattle to be treated with an insecticide such as Ivermectin. This could have implications for marketing, given the long withholding periods for such chemicals.

Other costs could arise from the control measures. There is also potential for a reduction in exports of live animals and ruminant products, at least until the outbreak is well defined and detailed information can be provided to trading partners.

Quarantine and movement controls will reduce market access options, and the costs of exports might increase due to the costs of testing.

Bovine spongiform encephalopathy

Bovine spongiform encephalopathy (BSE) is a fatal neurological disease of adult cattle, characterised by a long incubation period (minimum of 18 months, but more likely to be 2.5–8 years) followed by progressive degeneration.

Because BSE is very slow to develop, detection of clinical disease in feedlot cattle is unlikely even if the agent were present.

The detection of BSE in Australia would affect access to international markets for meat and meat products, and reduce domestic consumption of beef.

Foot-and-mouth disease

Foot-and-mouth disease (FMD) is an acute, highly contagious viral disease of cloven-hoofed animals. It is characterised by fever and the formation of fluid-filled blisters and erosions in the mouth and nostrils, on the teats, and on the skin between and above the hoofs.

FMD would have a severe impact on feedlots because of the closure of markets and the impact of disease control strategies on operations.

Movement controls would prevent many feedlots from turning off cattle. Feedlots may need to retain all animals on feed until restrictions are lifted.

Infected and suspect feedlots would be subject to stamping out, which involves quarantine, slaughter of all infected and exposed susceptible animals, and the disposal of carcasses and contaminated animal products. Decontamination to eliminate the virus on infected premises would follow.

Vaccination may be used to minimise the spread of FMD but is associated with several disadvantages.

Rinderpest

Rinderpest (cattle plague) is a highly contagious viral disease that is characterised by high fever, nasal and ocular discharges, laboured breathing, severe and often bloody diarrhoea, and usually death. It is spread mainly via aerosols between animals in direct contact.

Rinderpest would be readily detected in a feedlot because of its characteristic clinical signs and rapid spread.

Cattle movements may be constrained.

Screw-worm fly

The screw-worm fly (SWF) is a 'blowfly'. The larval stages are obligate parasites of warm-blooded animals, feeding on living tissues in open wounds and causing debility and some deaths. Infestations are usually associated with traumatic injury or husbandry procedures such as dehorning.

Early SWF strike can be difficult to detect. Even if animals undergo daily monitoring, myiasis may not be detected until advanced lesions are present.

The effects on feedlots could include disruption to markets, production losses and the effects of disease control actions such as movement controls and tracing, surveillance and preventative chemical treatments.

The withholding periods associated with chemical treatments have implications for feedlot management.

Table A1.1 Emergency animal diseases that affect cattle

Anthrax
Bluetongue
Bovine brucellosis
Bovine spongiform encephalopathy
Bovine tuberculosis
Contagious bovine pleuropneumonia
East coast fever
Foot-and-mouth disease
Haemorrhagic septicaemia
Heartwater
Jembrana disease
Lumpy skin disease
Rabies
Rift Valley fever
Rinderpest
Screw-worm fly
Surra
Swine vesicular disease
Vesicular exanthema
Vesicular stomatitis

Appendix 2

RESPONSE PLAN WHEN ENTERPRISE IS IN A DECLARED AREA

In addition to the impacts described in Section 5, feedlots located in restricted areas (RAs) and control areas (CAs) will be affected by the more intensive disease control actions applied to at-risk properties to further restrict the spread of the disease.

Feedlot managers should arrange discussions with the local disease control centre (LDCC) as soon as possible to maximise all parties' understanding of priorities and constraints, and to ensure that proposed feedlot operations are in accordance with response procedures.

Continued operation of a disease-free enterprise in a declared area

General principles

Disease tracing

Tracing the movements of exposed and potentially exposed animals, and identifying all infected and potentially infected herds will be a high priority in the response to an emergency animal disease (EAD) such as foot-and-mouth disease (FMD). This activity will continue until the extent of the outbreak is determined. Feedlots that purchase cattle from many sources have a high risk of being caught up in this process and having their disease status classified as suspect or trace until the situation is clarified. This would mean that movements off the feedlot would almost certainly cease, and movements onto the feedlot would be under strict conditions or not permitted.

Disease surveillance

Feedlots in declared areas will be affected by the activities of surveillance teams seeking to define the extent of the disease, detect new outbreaks and establish disease-free zones. Within an RA, surveillance will be by inspection of livestock on properties. Surveillance within a CA may involve abattoir surveillance, serological surveys and investigation of reports of suspected disease.

Factors such as potential spread by wind or wild animals could result in increased surveillance. The intervals between property inspections and between surveys will depend on the incubation period of the disease and the risk of exposure. The causative organism for some diseases, such as lumpy skin disease, Rift Valley fever and screw-worm fly, can survive in the environment, resulting in prolonged eradication and an extended period of surveillance.

Use of vaccines

Many feedlots will be familiar with vaccination against anthrax. In the event of an incursion of other EADs such as bluetongue, lumpy skin disease or Rift Valley fever, vaccination may also be feasible for incoming store cattle. In certain circumstances, the risk of infection entering the feedlot may be reduced by vaccinating all animals in the feedlot. However, vaccines for the above diseases are unlikely to be available immediately following detection of an outbreak, and any vaccination carried out would need to be in accordance with the agreed response plan.

The use of vaccine for FMD is a part of the AUSVETPLAN Disease Strategy for that disease. How and when the vaccine would be used would be determined on a case-by-case basis by the Consultative Committee on Emergency Animal Diseases (CCEAD) and would depend on a combination of complex factors, including the nature and extent of the outbreak, the assessed risk to cattle in the feedlot, the availability of vaccines, the potential to salvage vaccinated animals and other cost–benefit factors.

Treatments

Treatment to reduce the potential for the spread of infection may be used for some EADs if approved by the CCEAD. For example, treatment of cattle with Ivermectin would destroy any *Culicoides* midges (the vector for bluetongue virus) feeding on the cattle and thus aid the control of bluetongue.

Ivermectin could also have a preventive effect against screw-worm fly for 16–20 days. Treatment could be used at the time of any husbandry procedure that results in wounds predisposing cattle to fly attack. However, the withholding periods for Ivermectin (and other medicines) may constrain their use. For example, cattle treated with Ivermectin must be withheld from slaughter for 42 days. Feedlot managers would need to consider how such a treatment and withholding regime could be applied in their circumstances and whether the potential disadvantages to the timing of marketing were warranted. An alternative strategy of enhanced daily disease monitoring to provide early warning of infestations and subsequent individual treatment could be discussed with the disease control authorities.

Minimising risks during continued operation

Feedlots located within a declared area can take a number of steps to enhance their existing biosecurity programs, reducing the potential for entry of a disease agent. This would need to be done in conjunction with the LDCC. The following sections describe some specific areas for additional attention.

Livestock

Depending on the disease, a feedlot may be able to continue to operate if an abattoir is included in the declared area. However, it may not be practical to process the number of cattle that are ready to market. Realistically, if the presence of an EAD results in any loss of access to export markets, the opportunities to market finished cattle will be limited.

Even where cattle are permitted access to a feedlot, business decisions on the marketability of finished cattle will be required. The ability to source disease-free cattle of the appropriate specification within a declared area is likely to be severely constrained. Although cattle may be able to be sourced from outside a declared area, permits for them to move to the feedlot may be difficult to obtain.

Where cattle are allowed entry to a feedlot, they should be isolated in pens as far as possible from other cattle pens to reduce the risk of disease transmission.

Stock management

Avoiding mixing stock from different pens can reduce the likelihood of disease spread. For example, cattle released from hospital pens should be grouped in pens separate from other cattle, and any cattle identified as high risk for any reason should be kept separate or slaughtered, as appropriate.

Precautions can also be taken to prevent contact of feedlot stock with stock outside the feedlot.

Vehicles

Entry of vehicles onto the feedlot during the time of declaration should be restricted to essential vehicles. A systematic decontamination procedure for vehicles that must enter the perimeter may need to be introduced. Before vehicles are allowed entry onto the feedlot, their previous locations should be checked to ensure that they have not entered any other at-risk property.

If the disease can be spread by contaminated materials, the movement of vehicles within the feedlot would need to be minimised and routes rigidly controlled to avoid potential spread. If the routes for cattle lanes and transport of feed intersect, then these areas may need to be cleaned following use by cattle.

Equipment and materials

Depending on the disease, the entry of equipment and materials to feedlots within a declared area may need to cease. If such entry is necessary, a systematic decontamination procedure should be introduced.

Feed and feed ingredients may need to be sourced from outside a declared area if the disease is contagious. To minimise disease spread, vehicles carrying feed should be dedicated to the task and to the particular feedlot.

Personnel

The entry of people should be further restricted to those with a clear need to enter. Footbaths and washing facilities will be necessary for some diseases.

Feedlot staff and their families living on site or nearby will need to undertake special cleaning and disinfection precautions to ensure that they do not move any disease agent from the feedlot.

Building and structures

When a feedlot is within a declared area, a general clean up may need to be undertaken to reduce the potential for disease spread. This includes cleaning away any accumulations of rubbish, managing areas that might house vermin, fine tuning procedures for manure removal and effluent control, checking perimeter fencing, and strengthening other biosecurity measures. A pest control program should be undertaken, noting that most rodenticides (based on anticoagulants) take up to two weeks to provide control.

Appendix 3

RESPONSE PLAN WHEN ENTERPRISE IS AN INFECTED OR DANGEROUS CONTACT PREMISES

There are many uncertainties associated with managing a feedlot that has infected animals or has had contact with an infection such as foot-and-mouth disease (FMD). However, there is also a large body of information about the policies that apply and the actions that the disease control authorities will take.

The primary objectives of the strategy for FMD are to:

- prevent contact between infected and susceptible animals
- contain the infection to the infected premises
- prevent the production of large volumes of virus by infected animals
- minimise the amount of virus in the environment.

These objectives can best be achieved through quarantine and movement controls, stamping out, and the early establishment of zoning in compliance with internationally agreed standards, so that export markets can be reclaimed as soon as possible. Vaccination may be used under certain circumstances where it is considered that it will assist eradication or where the disease is widespread. Zoning may help to reduce the time for international markets to accept exports from free areas.

Elimination of the disease agent on infected premises (IPs) or dangerous contact premises (DCPs) is usually achieved by the destruction and disposal of all animals. Exceptions include an incursion of screw-worm fly and insect-borne viral diseases such as bluetongue, where appropriate treatment of infestations can be instituted.

For other diseases, including those spread primarily by close contact (such as rinderpest), it may be possible to use internal quarantine barriers to manage the spread of disease. To achieve effective isolation of noninfected areas from infected or suspect areas, internal quarantine areas should:

- have no direct contact with other animals, equipment and vehicles
- not be exposed to effluent or run-off from other parts of the premises
- have animals handled and fed last
- be handled by dedicated staff, or have staff undertake a decontamination procedure before handling other stock
- allow sick stock to be separated by 50–200 metres from other livestock.

Feedlot managers should note that the activities described in the following sections will be under the control of the state or territory disease control authorities, and will be managed by a site supervisor. A specific team of technicians (an infected premises operations team; IPOT) will carry out most actions. Feedlot managers will need to work closely with the site supervisor.

The feedlot manager should nominate a livestock controller to oversee the handling and moving of all livestock in accordance with the plans developed by the IPOT. An equipment and vehicles controller to oversee the management of feed and feed ingredients should also be nominated.

In all cases, the first step will be to place an IP or DCP under a formal quarantine notice, as defined in the relevant state or territory legislation. The terms of such quarantine will vary depending on the circumstances, but generally will formally restrict all cattle movements and require the owner or manager to take specific steps to manage the disease.

Given the nature of feedlots and the large number of cattle that may be involved, the above activities will require significant organisation and resources, and are likely to take a considerable time to complete.

Close attention should be given to the public relations aspects of all processes to reduce negative impressions of the EAD response.

The description of the processes of valuation, destruction, disposal and decontamination in this manual is provided to raise awareness of what will occur. Detailed information is provided in the relevant AUSVETPLAN operational procedures manuals.

Continued operation of an enterprise classified as an infected or dangerous contact premises

Management of a feedlot that has been declared an IP or DCP will require the feedlot manager to collaborate with the site supervisor and obtain approval for actions affecting the response. Although the site supervisor is responsible for all disease control actions on the premises, the feedlot manager and senior staff will need to assist in applying appropriate disease control measures, as well as continuing to care for the cattle.

Vehicle movements

While cattle remain on the feedlot, vehicles — including feed trucks, cattle trucks, personal vehicles, excavators and front-end loaders — will need to enter and leave the premises. If the disease can be spread by fomites, vehicle movements must be minimised and tightly controlled; this may involve restricting the entry of passenger vehicles. It may be possible to develop a procedure to prevent incoming grain carriers from crossing paths with other vehicles, personnel or equipment. This would minimise the need for decontamination.

Vehicle movements within the feedlot should also be tightly managed to minimise the potential for disease spread. Decontamination of trucks used to distribute feed may pose a significant problem.

A stringent procedure for disinfecting vehicles leaving the enterprise may be required, supervised by the IPOT.

People movements

Visitors to the feedlot should be restricted to those associated with the disease control program. It may be preferable for employees to remain on site as much as possible during the clean-up period to reduce the opportunities for transferring disease elsewhere.

Disinfection to safely remove any contamination from personnel and their clothing may be necessary in order to prevent the spread of many diseases; this would be under the control of the IPOT. Records of the destinations of all persons requiring decontamination would be maintained.

Destruction of animals

In an outbreak of a rapidly spreading disease such as FMD, it will be necessary to destroy a large number of cattle quickly to reduce the potential for further spread of the virus. Speed is essential in most outbreaks, because live animals will continue to produce and possibly spread the disease agent. It is essential that animals are destroyed humanely.

Guidance on acceptable techniques for humane destruction of cattle is provided in the **Destruction of Animals Manual**. The aim is to achieve euthanasia in a single treatment by a rapid loss of consciousness, leading to death with no return to consciousness and with an acceptable (minimal) level of stress to the animal before its death.

During an emergency, resources must be obtained to enable activities such as destruction and disposal to be scaled up, and to ensure that they are completed quickly and achieve the objective of minimising further disease spread. Although the logistics of destroying large numbers of animals may at first seem insurmountable, considerable experience has been gained during the management of major outbreaks, such as the 2001 outbreak of FMD in the United Kingdom. Managers may find it valuable to conduct an exercise where they calculate the rate of destruction that can be achieved using their existing resources and thus obtain an estimate of what further resources would be needed to achieve the objective. They should also recognise that the disease control managers are responsible for managing the destruction of livestock, including the supply of resources and any additional facilities and equipment required.

A range of destruction methods is outlined in the **Destruction of Animals Manual**, including use of firearms with free bullets, use of captive bolt firearms, and lethal injection. More than one destruction technique may be used on any one premises. Safety, practicality, availability, efficiency, layout of the premises and equipment available on site are all taken into account by the IPOT when choosing the methods. Trained personnel authorised by the government authority will undertake the task. They will be briefed on humanitarian and safety aspects of destruction before beginning work.

Destruction of feedlot cattle would also have to be done in a manner that supports the disposal method(s) chosen for that site. Options include moving the cattle to temporary yards erected next to the disposal site — for example, a trench constructed as specified in the **Disposal Manual** or an area where mass composting can occur. If heavy equipment is required during the process, destruction will have to be in a place that allows easy access for such equipment.

Each feedlot will have characteristics that define the best way in which cattle should be destroyed. In addition to considering this issue as part of preparedness, a written plan outlining options for destruction of the cattle will be required when an infection with an EAD is confirmed. Feedlot managers can assist this process by considering in advance issues such as the destruction methods suitable for the site, the destruction site, the order of destruction, the estimated timeframe, and the personnel, facilities and equipment needed. This plan should include an assessment of the occupational health and safety (OH&S) risks associated with the procedure.

Salvaging animals for slaughter

Slaughtering cattle at an abattoir for food processing (human or pet food) or rendering are financially attractive options for disposal (depending on the disease involved and the policies adopted in the response). However, the logistical difficulties involved, the slaughtering capacity of the abattoir and the likely low value of the stock at the time of the outbreak mean that the opportunities for using this option are likely to be limited. It will be more attractive where the feedlot is close to a suitable facility

and the potential for financial savings is high. In the case of rendering, only facilities using a high-temperature batch rendering process with biologically secure separation of raw product and end product are likely to be approved.

There may be a role for rendering in outbreaks of EADs such as screw-worm fly where the number of animals requiring disposal is likely to be small. In an outbreak of a contagious EAD such as FMD, the large number of cattle to be processed is likely to mean that disposal by burial, burning or composting will be more effective in rapidly reducing disease spread. However, there may be opportunities to combine several methods to increase the overall efficiency of the disposal process. Combining disposal options should be considered, both during and before an emergency.

Disposal

Disposal is a significant part of any stamping-out response. Various options for on-site disposal are available, and the first reference document will be the **Disposal Manual**.

Disposal of large numbers of dead cattle will present major logistical problems. Primary methods for disposal include burial, burning and composting, but others may be used singly or in combination, depending on the local situation. Each method has positive and negative features. A combination of methods may prove most efficient, taking into consideration the available facilities, the disposal site, animal welfare and personnel safety. Disposal through an abattoir or by rendering may be considered as options, but this is unlikely to play a major role for most feedlots. The procedures used will be determined by the IPOT after consideration of all relevant factors and consultation with the feedlot manager.

Each method of disposing of cattle results in pollution of some kind. Burial may result in contamination of groundwater by the resulting liquid waste; burning produces airborne pollutants and is visually undesirable for the public; and composting may result in surface soil contamination and potential run-off into water courses. Consultation with the relevant environment protection agency should be a part of planning.

In all cases, provision will need to be made to clean and decontaminate vehicles and equipment leaving the disposal site.

Burial

Large numbers of all classes of cattle can be disposed of by burial if large areas of suitable land are available. Advantages of burial include the speed with which it can be initiated, the ability to fill and cover one part of a site while another is under construction, public acceptance and low risk of odours. Disadvantages include the need to have a suitable area of land available, the potential risk to groundwater, the possible need to treat leachate and gas, the need for ongoing site monitoring, the need for tight biosecurity for transporting animals to the site, the impact on future use or rehabilitation of the site, the large amounts of equipment that may be required and concerns over OH&S issues.

Burial can be conducted either off site or on site, if the property is large enough and has suitable soil and watertable characteristics. The feasibility of on-site burial should be discussed with local biosecurity and environmental protection officers. The feedlot EAD Response Plan should include information on whether burial on site is possible. If it is not, other burial options should be documented.

Existing landfill sites should be considered as they may be approved to receive animal carcasses and will have the necessary infrastructure to manage long-term containment issues. The risks associated with transport of carcasses in sealed vehicles to these sites can be managed.

Burial on site will be managed by the IPOT and the feedlot manager, who will need to consider a number of environmental, OH&S and land use matters before pit construction. Appropriate authorities (such as the state or territory environmental protection agency, workers' compensation authority and the local council) must be consulted.

The selection of the pit design will be a responsibility of the expert team that will consult with engineers and environmental protection agencies on construction of the pit and the need for any lining. The dimensions of the pit will depend on the equipment used, the site, and the number of cattle to be buried. Excavators are the most efficient equipment for the construction of long, deep, vertically sided pits. (Guidelines for pit dimensions and structure are provided in the **Disposal Manual**.) They also facilitate separation of topsoil from subsoil and can be used to fill the pit with carcasses and cover them with soil.

Burning

Construction of pyres for cremation will depend on the local conditions, available fuel supplies and the type of carcasses to be destroyed. Carcasses are placed on top of sufficient combustible material so that the arrangement of fuel and carcasses allows adequate air flow and achieves efficient combustion. Guidelines for pyre construction and quantity of fuel recommended are provided in the **Disposal Manual**.

The advantages of building pyres and burning cattle include the speed with which the process can be initiated, the low technology involved, the short-term monitoring required and the ability to use this method where a high watertable or unstable or rocky soil types preclude burial. However, there are many disadvantages, not least of which is very poor public perception, as seen during the FMD outbreak in the United Kingdom in 2001. Other disadvantages include the time and resources required to build a pyre, the time taken to burn carcasses thoroughly, the risk of a fire spreading, the large volume of fuel needed, rehabilitation of the site (including disposal of ash), public health considerations (including the effect on asthma sufferers) and the effect on air quality (including smell).

Pit burning, a variation of the pyre method, involves burning material in a pit aided by fan-forced air. The advantages include the efficient combustion achieved by the higher temperatures, better fuel economy and reduced likelihood of a fire spreading. Disadvantages include the large volumes of fuel required, the need for specialist operators, noisy operation and the limited volume of material that can be handled.

The logistics and efficiencies of all possible off-site and on-site locations for burning need to be fully examined and compared for each location.

Other novel local approaches to carcase disposal include industrial or power station furnaces or commercial incinerators.

Composting

Aerobic or 'dry' composting is a proven technique for disposing of animal waste and carcasses. Most feedlot managers will be familiar with this natural process, whereby beneficial microorganisms decompose and transform organic materials into a useful and biologically stable product that is safe

for the environment. The organic matter reduces odour, attracts few insects and absorbs leachate from the decaying carcasses. If carefully implemented and monitored, aerobic composting generates sufficient heat to destroy most disease agents.

Aerobic composting above ground requires the construction of windrows to allow oxygen to flow through the pile. The process requires large quantities of carbonaceous material such as sawdust, manure, straw and peanut hulls. Regular turning is required. The literature indicates that a ratio of about 3:1 (by volume) of carbonaceous material to cattle is required to compost animal waste.

Composting can be undertaken in an open area that allows access for the necessary machinery and equipment. It requires large areas of land, suitable transport to move cattle to the site, adjacent holding yards if the cattle are to be slaughtered on site, heavy machinery to construct and manage the compost, control of run-on and run-off from rainfall, consideration of the watertable and soil type, and management of potential pests such as birds, insects, foxes and feral pigs. A major problem in a large feedlot would be obtaining the required amount of carbonaceous material.

Useful information on managing the composting of large numbers of animals can be found on the New South Wales Department of Primary Industry website²⁸.

Although composting can be used to effectively dispose of cattle of all sizes and associated waste, it may be difficult to implement in an EAD response where there are large numbers of carcasses. This is because of the amount of carbonaceous material required, the time taken to complete the process and difficulties in ensuring a uniform process.

Decontamination

Decontamination refers to a combination of physical and chemical processes that kill or remove EAD agents or reduce them to noninfective levels. It would be carried out under the management of a specialised group from the IPOT.

Effective decontamination requires the cooperation of the feedlot manager and all personnel involved in the cleaning and disinfection procedures. If carried out effectively, it will reduce the period between slaughter and restocking on contaminated properties.

Eliminating agents from premises, clothing, vehicles, tools, carcasses or the environment requires a good understanding of the general properties of each disease agent, and the subtle ways each may persist in the environment and infect other animals.

Steel, cement, plastic and some wood structures — for example, feed and water troughs, posts, rails, wire and cable — can be readily decontaminated, but some wooden structures may be incapable of being properly disinfected.

Preparatory cleaning of surfaces by brushing with a detergent solution is effective in removing organic material and is an essential step before effective chemical decontamination.

Where decontamination of pens is necessary, manure should first be removed down to and possibly including the manure–soil interface, even though this is not normally done in daily operations. The top layer of remaining soil may be disinfected. For disease agents with poor persistence, it may be appropriate just to remove the manure from the pen and spell it for an appropriate period. Resting of pens may be necessary for some contagious diseases, with the period depending on the disease.

²⁸ www.dpi.nsw.gov.au/_data/assets/pdf_file/0009/249543/procedure-disposal-of-large-animals-by-composting.pdf

Depending on the particular emergency response, sentinel animals may be placed in pens for a defined period after decontamination is completed.

Disinfection of floors, especially those used by feed delivery vehicles, is important because of the potential for dissemination of infectious agents from these areas. Disinfection of walls, structures and surrounds may be required for persistent agents.

Disinfection of offices and other buildings may be necessary because the transit of people may result in areas at high risk of contamination. It may be prudent to transfer the relevant feedlot records to temporary premises so that tracing and other investigations can continue without disruption to other administrative activities.

It is likely that the IPOT will establish a preliminary clean-down area where items are cleaned with water and possibly detergents. Items are then presented to the entry/exit point clean and ready for final disinfection before leaving the premises. At both sites, fresh water, an ability to contain run-off and a hard base will be needed. Existing structures may be used or special areas may be created. The entry/exit point may be on the property boundary or at a defined line that differentiates the clean area from the dirty area. The IPOT and the feedlot manager should jointly select these sites.

A relatively small number of disinfectants are effective against broad groups of viruses and bacteria. Ultimately, the choice of disinfectant depends on the disease agent, availability of the disinfectant, how the disinfectant is to be applied and how an adequate wet contact time is to be maintained. This will be determined by the IPOT in discussion with the feedlot manager.

For additional information, consult the **Decontamination Manual**.

Appendix 4

VALUATION AND COMPENSATION

The *Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Responses* (2002) establishes a mechanism to facilitate rapid responses to certain emergency animal diseases (EADs), and their control and eradication or containment. The agreement provides a cost-sharing framework, and stipulates that:

- An EAD Response Plan developed by the affected jurisdiction must conform to the AUSVETPLAN disease strategies and management manuals, including the **Valuation and Compensation Manual**.
- Cost sharing will apply in respect of compensation determined in accordance with the following principles:
 - Compensation is paid to the owner of any livestock or property that dies or is destroyed for the purpose of eradication or prevention of the spread of an EAD.
 - In the case of livestock, a second payment may become due on the date the property becomes eligible to be restocked, provided the total value of livestock is greater on that date than the initial amount of compensation paid for the livestock.
 - In determining the amount of compensation to be paid, no allowance shall be made for loss of profit, loss occasioned by breach of contract, loss of production or any other consequential loss whatsoever.

Payment of compensation for cattle that die or are necessarily destroyed as part of the control of an EAD (as well as for any other property that is destroyed) is an integral part of managing diseases such as foot-and-mouth disease (FMD). The relevant jurisdiction's legislation provides the power for the destruction of livestock and property and determines the process by which compensation is paid.

The valuation and compensation procedures described in the **Valuation and Compensation Manual** ensure that:

- payment of compensation for animals and property is rapid and equitable
- valuation procedures do not unnecessarily delay destruction and other eradication measures
- issues that may impinge on valuation procedures are clearly identified
- authorised valuers are aware of their roles and responsibilities.

Implementation requires the appointment of valuers for livestock and property. They are contracted to the relevant state or territory authority and operate under the direction of the infected premises operations team manager located in the local disease control centre. Valuers will have appropriate experience in valuing cattle or items, and will be trained in the procedures detailed in the manual.

The definition of 'owner' is relevant as the authorised valuer has to gain agreement to all valuations. Normally, this will not be a problem as the definition includes any legal representative of the owner. A formal definition of 'owner' is given in relevant state and territory legislation. Contract growers are not considered to be owners of the stock they are growing and do not receive compensation for cattle destroyed.

Some items are not eligible for reimbursement, including animals that die from causes other than the EAD, or that would not have been compulsorily slaughtered had they survived; consequential losses of any kind; and property, not intended for decontamination, that is inadvertently damaged during a control procedure.

Payment of compensation is a two-stage process. In the first stage, the value of animals is determined as if they were disease free and as if they were sold on the property where they are destroyed or have died (i.e. 'at the farm gate'). In determining a value for an animal, consideration is given to its age, sex, breed, body condition, live weight and other factors relevant to its class. The determination should reflect the value of comparable animals at the most recent local livestock market(s) before the valuation date. Where transport and selling costs would likely have been incurred in realising this value, those costs should be deducted from the value. Based on these determinations, an agreed value is reached and initial compensation is paid accordingly.

This process may not be appropriate for determining an accurate price for feedlot cattle. A specific procedure that recognises the availability of accurate records of purchase price and the quantity and value of feed applied up to the date of valuation is under consideration as an alternative.

The second stage of the process occurs during the restocking of the property after it has been released from all restrictions. If the cost of replacement stock of equal class to those destroyed is greater than the initial compensation paid, top-up compensation is available to make up the shortfall. If the replacement cost is equal or less, top-up compensation is not made available. A time limit may apply to the availability of top-up compensation following the release of the property from restrictions.

As with all financial transactions during an EAD response, valuation and compensation will be subject to audit and scrutiny.

Appendix 5

PREPARING A FEEDLOT EMERGENCY ANIMAL DISEASE RESPONSE PLAN

Emergency animal disease (EAD) preparedness entails preparing for all conceivable eventualities that will follow an EAD incursion or outbreak, by developing plans in advance to manage them or mitigate their effects.

A Feedlot EAD Response Plan takes preparedness a step further than the EAD Action Plan required under the National Feedlot Accreditation Scheme (NFAS). The response plan provides a feedlot with an additional mechanism to prepare to manage the feedlot once the presence of an EAD in Australia has been confirmed. In the process of developing such a plan, managers and staff develop and document practical actions that are specific to their feedlot, and will achieve a state of optimum readiness. During development of the plan, consultation with state or territory departmental officers trained in EAD responses is recommended.

The process of developing the plan needs to consider existing feedlot biosecurity and each of the disease control actions and processes that may apply, as described in this manual. In each case, the feedlot should examine the impact of an EAD response on the feedlot operations, including structural and environmental features, daily operations and cattle management.

Developing the plan is a two-stage process. The first is to examine the feedlot's existing biosecurity protocols to identify areas where measures that protect livestock operations from the introduction and spread of pests and diseases can be enhanced when an EAD is detected in Australia. This includes examining the security of the perimeter fencing, routes of entry and exit, control of people and vehicles, decontamination procedures, health monitoring and management.

The second step is to examine the three scenarios outlined in this manual:

- where an EAD outbreak has been detected in Australia
- where the feedlot remains disease free but is located in a declared area
- where the feedlot is confirmed as a dangerous contact premises (DCPs) or infected premises (IPs), and stock need to be removed.

In each case, additional EAD preparedness will ease the difficult decisions that will need to be made.

The following outlines some of the considerations that may be relevant, depending on the feedlot's circumstances and the nature of the EAD. **Feedlot managers must consider their own set of circumstances and not rely exclusively on this information.** They should also discuss the issues with their local animal health authorities.

Enhancing feedlot biosecurity in the face of an outbreak of an EAD

This section describes actions that every feedlot should undertake immediately there is a declaration of an EAD incursion into Australia.

Perimeter control. Consider the need for additional signage to deter people — including government and utility employees and contractors, campers and bushwalkers — from entering the property. It may be possible to increase the stock-free buffer area by asking neighbours to voluntarily remove cattle or by developing a contractual arrangement with them to purchase adjoining stock once an emergency is declared.

Stock purchases. Scrutinise carefully the source of all cattle and refuse entry to those that may be under suspicion for any reason. Increase the intensity of inspection on arrival and have a procedure

for immediate in-depth assessment of any animal that is suspect. Hold all arrivals in an area separate from the fattening pens for as long as practicable. Consider reducing the number of cattle in the feedlot while the emergency continues. If possible, provide greater separation between groups of cattle.

Stock monitoring. Review the clinical appearance of the EAD, and ensure that all staff involved in daily monitoring and handling of stock are aware of the clinical appearance and the importance of immediate notification of any suspect animal. Manage pen riders so that the isolation of pens of cattle that have had no direct contact with each other is maintained. This may require cleaning and disinfection of the horses' hooves between such pens.

Manure and effluent management. Review on-site controls restricting movement or access to manure and effluent. Ensure that only specified machinery has contact with manure and effluent, and that this machinery is not used elsewhere on the feedlot unless thoroughly cleaned and disinfected.

Dead stock management. Review procedures, especially postmortem examination and decontamination of the personnel involved. Where composting is routinely used for disposing of dead stock, consider burial as an alternative for the duration of the emergency response, depending on the disease in question and the recommended disposal procedures for that disease.

Stockfeed. Ensure that incoming hay and grain are sourced from disease-free properties. Also ensure that commodity vehicles have no contact with feedlot equipment or personnel, are cleaned and decontaminated on arrival, and that drivers who must leave their vehicle while on the feedlot undertake appropriate decontamination.

Vehicle movements. Scrutinise more closely vehicular traffic that may be coming and going, and allow only those movements that are critical to the continuing functioning of the feedlot. Ensure that vehicles and farm machinery are decontaminated before entry and, if necessary, repeat the procedure as they leave. Restrict the movement of vehicles and machinery within the feedlot, and wash and clean vehicles that must move between areas.

People movements. Re-examine the need for people to enter and leave the property, including contractors, agents, suppliers, neighbours and family members, and develop a list of the absolute maximum number and type of person that will be allowed entry. Consider the potential for essential visitors to park their vehicles outside the gates and to enter only after undergoing appropriate decontamination. Tightly control the areas people can go to (especially the fattening pens), and limit the need for employees to move between areas of the feedlot unless essential to the performance of their role.

Animal welfare. Estimate when concern over animal welfare may begin as a result of overcrowding if the feedlot is unable to turn off cattle for some time. Ensure the local disease control centre (LDCC) and industry liaison officers are informed of this estimate as early as possible.

Business continuity. Outline any options that may be available to the feedlot for alternative markets, releasing cattle back to pasture or any other possibilities that can be assessed at the time if it appears that movement from the feedlot to normal markets will be stopped for a significant time.

Planning to manage a feedlot with no suspicion of disease located in a restricted area or control area

In addition to the biosecurity enhancements described in the previous section, feedlots located within a restricted area or control area will need to consider the following issues.

Cattle movements. Plan on the basis of a worst-case scenario, where cattle can move neither on nor off the feedlot for a protracted period. Determine how the cattle on feed will be maintained in a healthy state until a decision is made about their ultimate destination or disposal. Under current welfare guidelines, the person in charge of the cattle has responsibility for their care and welfare. Welfare

requirements may mean that the normal daily regime in the feedlot needs to be changed. There may also be significant budgetary pressures, as the costs of continued feeding of the cattle on the feedlot are not shareable under national cost-sharing arrangements. Discuss any program with the LDCC and industry liaison officer so that the LDCC can assist wherever possible — for example, by assisting with permits for special cattle movements.

Disease tracing. Examine the impact of a trace from an IP or DCP to the feedlot. Determine whether additional management arrangements are necessary in the period until the status of the feedlot is determined and whether there are low-risk sources of cattle that could potentially be accessed during the emergency.

Disease surveillance. Consider how to manage government disease surveillance teams on the feedlot to facilitate their free movement with minimal risk of bringing disease onto the feedlot. Consider how they will move between pens of cattle with negligible risk of carrying disease agents on their clothing or equipment.

Using vaccines and treatments. If a vaccine or treatment is approved for use, all cattle in the feedlot would need to pass through a race where this can be carried out. Although vaccination teams can be formed by the disease control authorities, feedlot managers should consider how they can best use their staff to increase the efficiency of this process. It may be prudent to have at least one member of staff who is fully familiar with the process of vaccinating against the major EADs.

Chemical treatments. If concerns over the withholding periods for chemical treatments are such that the alternative of enhanced monitoring is used, an outline of the changes will be required to convince the animal health authorities that such a process will be effective.

Feedlot preparation. Plan for a general clean-up of the feedlot by identifying all areas where there may be accumulations of rubbish. Plan to carry out an enhanced pest control program.

Planning to manage a feedlot declared as an infected premises or dangerous contact premises

Depending on the disease, a feedlot declared as an IP or DCP will generally be condemned to having all cattle on the feedlot destroyed. Actions such as vaccination or internal quarantine to isolate diseased from healthy cattle may offer a reprieve, but all cattle may eventually be subjected to procedures (including destruction) that are necessary to assist eradication of the disease.

All further eradication procedures will be under the formal control of the infected premises operations team (IPOT). The feedlot manager will be a key adviser to the site supervisor. The normal roles of staff will be affected by the number of disease control personnel on the feedlot and the activities they undertake.

The actions described here are intended to provide a picture of the activities the IPOT will undertake and control. Managers need to be aware of these so that they can provide practical and effective advice to the site supervisor.

Planning for such a devastating outcome can conveniently be divided into two areas:

- actions that build upon, or are related to, the tighter biosecurity and other actions described above
- actions that are related to the processes of valuation, destruction, disposal and decontamination.

Managing staff

Feedlot managers need to plan for the effect on staff of a devastating event. This includes actions to reassure staff, retain skilled personnel, maintain biosecurity for the purposes of the EAD response,

and plan for a return to normal operations. Feedlot management should ensure a close working relationship with the IPOT to ensure that the majority of staff are retained for the duration of all response operations. Using staff knowledge of the site and its operations, facilities and equipment will maximise the efficiency and effectiveness of the actions. Managers should plan to fully brief and reassure staff, and ensure ongoing counselling where required.

Managing biosecurity

People movements. The IPOT will further restrict entry and exit to the feedlot and place a formal security team at the feedlot entrance. Since many additional people will need to enter the property to conduct the eradication procedures, consider the implications for continuing management of employees and cattle. All people entering and leaving will be under strict control.

Vehicle movements. Consider arranging for vehicles to park outside if there is no need for them to enter. Areas for parking should be identified. Vehicles and machinery that must enter will be logged, and their cleaning and decontamination will be under the control of the IPOT.

Stockfeed. Feed will need to be imported until sufficient hay and grain are held to feed all cattle until they are destroyed. Vehicles must have no contact with feedlot equipment or personnel, and must be cleaned and decontaminated before leaving.

Actions that will assist the eradication of an emergency animal disease

Although each of the following procedures are under the direct control of the IPOT, managers can undertake some planning that will improve understanding of what would occur and raise awareness among staff.

Valuation. Although there is no formal process to use feedlot records in determining the value of feedlot cattle, it is inevitable that these records will prove valuable to the valuer. Consider how to manage records so that the required information is available without affecting confidential information. Plan the order in which cattle may be valued so that the process can proceed in an efficient manner. Since compensation is paid to the owner of the cattle, ownership details will be required where cattle are present on contract.

Destruction. Consider the alternatives of destroying animals in yards and transporting carcasses to a disposal site, or moving live animals to a site where they can be contained in temporary yards adjacent to the area where disposal will occur. Do not destroy any animal without the permission of the site supervisor.

Disposal. Work with the IPOT to select the disposal methods of choice for the feedlot. If available, an area of land on the property may be used to either compost or bury large numbers of animals, and possibly the entire feedlot population. This may require obtaining interim approvals from environmental authorities to use that area for such a purpose.

Decontamination. The main ingredient in planning for decontamination is to ensure that the feedlot has sufficient water available to decontaminate the entire feedlot.

Sentinel animals. Depending on the disease, sentinel animals may be placed back in the feedlot after a defined period has elapsed after completion of decontamination. If this occurs, arrangements for the feeding, monitoring and management of these animals will be required.

Glossary

Standard AUSVETPLAN terms

Term	Definition
Animal byproducts	Products of animal origin that are not for consumption but are destined for industrial use (eg hides and skins, fur, wool, hair, feathers, hooves, bones, fertiliser).
Animal Health Committee	A committee whose members are the chief veterinary officers of the Commonwealth, states and territories, along with representatives from the CSIRO Australian Centre for Disease Preparedness (CSIRO-ACDP) and the Australian Government Department of Agriculture, Water and the Environment. There are also observers from Animal Health Australia, Wildlife Health Australia, and the New Zealand Ministry for Primary Industries. The committee provides advice to the National Biosecurity Committee on animal health matters, focusing on technical issues and regulatory policy. <i>See also</i> National Biosecurity Committee
Animal products	Meat, meat products and other products of animal origin (eg eggs, milk) for human consumption or for use in animal feedstuff.
Approved processing facility (APF)	An abattoir, knackery, milk processing plant or other such facility that maintains increased biosecurity standards. Such a facility could have animals or animal products introduced from lower risk premises under a permit for processing to an approved standard.
At-risk premises (ARP)	A premises in a restricted area that contains a live susceptible animal(s) but is not considered at the time of classification to be an infected premises, dangerous contact premises, dangerous contact processing facility, suspect premises or trace premises.
Australian Chief Veterinary Officer	The nominated senior veterinarian in the Australian Government Department of Agriculture and Water Resources who manages international animal health commitments and the Australian Government's response to an animal disease outbreak. <i>See also</i> Chief veterinary officer
AUSVETPLAN	<i>Australian Veterinary Emergency Plan.</i> A series of technical response plans that describe the proposed Australian approach to an emergency animal disease incident. The documents provide guidance based on sound analysis, linking policy, strategies, implementation, coordination and emergency-management plans.
Carcase	The body of an animal slaughtered for food.
Carcass	The body of an animal that died in the field.
Chief veterinary officer (CVO)	The senior veterinarian of the animal health authority in each jurisdiction (national, state or territory) who has responsibility for animal disease control in that jurisdiction. <i>See also</i> Australian Chief Veterinary Officer

Term	Definition
Compartmentalisation	The process of defining, implementing and maintaining one or more disease-free establishments under a common biosecurity management system in accordance with OIE guidelines, based on applied biosecurity measures and surveillance, to facilitate disease control and/or trade.
Compensation	The sum of money paid by government to an owner for livestock or property that are destroyed for the purpose of eradication or prevention of the spread of an emergency animal disease, and livestock that have died of the emergency animal disease. <i>See also</i> Cost-sharing arrangements, Emergency Animal Disease Response Agreement
Consultative Committee on Emergency Animal Diseases (CCEAD)	The key technical coordinating body for animal health emergencies. Members are state and territory chief veterinary officers, representatives of CSIRO-ACDP and the relevant industries, and the Australian Chief Veterinary Officer as chair.
Control area (CA)	A legally declared area where the disease controls, including surveillance and movement controls, applied are of lesser intensity than those in a restricted area (the limits of a control area and the conditions applying to it can be varied during an incident according to need).
Cost-sharing arrangements	Arrangements agreed between governments (national and states/territories) and livestock industries for sharing the costs of emergency animal disease responses. <i>See also</i> Compensation, Emergency Animal Disease Response Agreement
Dangerous contact animal	A susceptible animal that has been designated as being exposed to other infected animals or potentially infectious products following tracing and epidemiological investigation.
Dangerous contact premises (DCP)	A premises, apart from an abattoir, knackery or milk processing plant (or other such facility), that, after investigation and based on a risk assessment, is considered to contain a susceptible animal(s) not showing clinical signs, but considered highly likely to contain an infected animal(s) and/or contaminated animal products, wastes or things that present an unacceptable risk to the response if the risk is not addressed, and that therefore requires action to address the risk.
Dangerous contact processing facility (DCPF)	An abattoir, knackery, milk processing plant or other such facility that, based on a risk assessment, appears highly likely to have received infected animals, or contaminated animal products, wastes or things, and that requires action to address the risk.
Declared area	A defined tract of land that is subjected to disease control restrictions under emergency animal disease legislation. There are two types of declared areas: restricted area and control area.
Decontamination	Includes all stages of cleaning and disinfection.
Depopulation	The removal of a host population from a particular area to control or prevent the spread of disease.

Term	Definition
Destroy (animals)	To kill animals humanely.
Disease agent	A general term for a transmissible organism or other factor that causes an infectious disease.
Disease Watch Hotline	24-hour freecall service for reporting suspected incidences of exotic diseases — 1800 675 888.
Disinfectant	A chemical used to destroy disease agents outside a living animal.
Disinfection	The application, after thorough cleansing, of procedures intended to destroy the infectious or parasitic agents of animal diseases, including zoonoses; applies to premises, vehicles and different objects that may have been directly or indirectly contaminated.
Disinsectisation	The destruction of insect pests, usually with a chemical agent.
Disposal	Sanitary removal of animal carcasses, animal products, materials and wastes by burial, burning or some other process so as to prevent the spread of disease.
Emergency animal disease	A disease that is (a) exotic to Australia or (b) a variant of an endemic disease or (c) a serious infectious disease of unknown or uncertain cause or (d) a severe outbreak of a known endemic disease, and that is considered to be of national significance with serious social or trade implications. <i>See also</i> Endemic animal disease, Exotic animal disease
Emergency Animal Disease Response Agreement	Agreement between the Australian and state/territory governments and livestock industries on the management of emergency animal disease responses. Provisions include participatory decision making, risk management, cost sharing, the use of appropriately trained personnel and existing standards such as AUSVETPLAN. <i>See also</i> Compensation, Cost-sharing arrangements
Endemic animal disease	A disease affecting animals (which may include humans) that is known to occur in Australia. <i>See also</i> Emergency animal disease, Exotic animal disease
Enterprise	<i>See</i> Risk enterprise
Enzyme-linked immunosorbent assay (ELISA)	A serological test designed to detect and measure the presence of antibody or antigen in a sample. The test uses an enzyme reaction with a substrate to produce a colour change when antigen-antibody binding occurs.
Epidemiological investigation	An investigation to identify and qualify the risk factors associated with the disease. <i>See also</i> Veterinary investigation
Epidemiology	The study of disease in populations and of factors that determine its occurrence.
Exotic animal disease	A disease affecting animals (which may include humans) that does not normally occur in Australia. <i>See also</i> Emergency animal disease, Endemic animal disease

Term	Definition
Exotic fauna/feral animals	<i>See</i> Wild animals
Fomites	Inanimate objects (eg boots, clothing, equipment, instruments, vehicles, crates, packaging) that can carry an infectious disease agent and may spread the disease through mechanical transmission.
General permit	A legal document that describes the requirements for movement of an animal (or group of animals), commodity or thing, for which permission may be granted without the need for direct interaction between the person moving the animal(s), commodity or thing and a government veterinarian or inspector. The permit may be completed via a webpage or in an approved place (such as a government office or commercial premises). A printed version of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements. <i>See also</i> Special permit
In-contact animals	Animals that have had close contact with infected animals, such as noninfected animals in the same group as infected animals.
Incubation period	The period that elapses between the introduction of the pathogen into the animal and the first clinical signs of the disease.
Index case	The first case of the disease to be diagnosed in a disease outbreak. <i>See also</i> Index property
Index property	The property on which the index case is found. <i>See also</i> Index case
Infected premises (IP)	A defined area (which may be all or part of a property) on which animals meeting the case definition are or were present, or the causative agent of the emergency animal disease is present, or there is a reasonable suspicion that either is present, and that the relevant chief veterinary officer or their delegate has declared to be an infected premises.
Local control centre (LCC)	An emergency operations centre responsible for the command and control of field operations in a defined area.
Monitoring	Routine collection of data for assessing the health status of a population or the level of contamination of a site for remediation purposes. <i>See also</i> Surveillance
Movement control	Restrictions placed on the movement of animals, people and other things to prevent the spread of disease.
National Biosecurity Committee (NBC)	A committee that was formally established under the Intergovernmental Agreement on Biosecurity (IGAB). The IGAB was signed on 13 January 2012, and signatories include all states and territories except Tasmania. The committee provides advice to the Agriculture Senior Officials Committee and the Agriculture Ministers' Forum on national biosecurity issues, and on the IGAB.
National management group (NMG)	A group established to approve (or not approve) the invoking of cost sharing under the Emergency Animal Disease Response Agreement. NMG members are the Secretary of the Australian

Term	Definition
	Government Department of Agriculture, Water and the Environment as chair, the chief executive officers of the state and territory government parties, and the president (or analogous officer) of each of the relevant industry parties.
Native wildlife	<i>See</i> Wild animals
OIE Terrestrial Code	OIE <i>Terrestrial animal health code</i> . Describes standards for safe international trade in animals and animal products. Revised annually and published on the internet at: www.oie.int/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access .
OIE Terrestrial Manual	OIE <i>Manual of diagnostic tests and vaccines for terrestrial animals</i> . Describes standards for laboratory diagnostic tests, and the production and control of biological products (principally vaccines). The current edition is published on the internet at: www.oie.int/en/what-we-do/standards/codes-and-manuals/terrestrial-manual-online-access .
Operational procedures	Detailed instructions for carrying out specific disease control activities, such as disposal, destruction, decontamination and valuation.
Outside area (OA)	The area of Australia outside the declared (control and restricted) areas.
Owner	Person responsible for a premises (includes an agent of the owner, such as a manager or other controlling officer).
Polymerase chain reaction (PCR)	A method of amplifying and analysing DNA sequences that can be used to detect the presence of viral DNA.
Premises	A tract of land including its buildings, or a separate farm or facility that is maintained by a single set of services and personnel.
Premises of relevance (POR)	A premises in a control area that contains a live susceptible animal(s) but is considered at the time of classification not to be an infected premises, suspect premises, trace premises, dangerous contact premises or dangerous contact processing facility.
Prevalence	The proportion (or percentage) of animals in a particular population affected by a particular disease (or infection or positive antibody titre) at a given point in time.
Qualifiers	
– assessed negative	Assessed negative (AN) is a qualifier that may be applied to ARPs, PORs, SPs, TPs, DCPs or DCPFs. The qualifier may be applied following surveillance, epidemiological investigation, and/or laboratory assessment/diagnostic testing and indicates that the premises is assessed as negative at the time of classification.
– sentinels on site	Sentinels on site (SN) is a qualifier that may be applied to IPs and DCPs to indicate that sentinel animals are present on the premises as part of response activities (ie before it can be assessed as an RP).
– vaccinated	The vaccinated (VN) qualifier can be applied in a number of different ways. At its most basic level, it can be used to identify

Term	Definition
	premises that contain susceptible animals that have been vaccinated against the EAD in question. However, depending on the legislation, objectives and processes within a jurisdiction, the VN qualifier may be used to track a range of criteria and parameters.
Quarantine	Legal restrictions imposed on a place or a tract of land by the serving of a notice limiting access or egress of specified animals, persons or things.
Resolved premises (RP)	An infected premises, dangerous contact premises or dangerous contact processing facility that has completed the required control measures, and is subject to the procedures and restrictions appropriate to the area in which it is located.
Restricted area (RA)	A relatively small legally declared area around infected premises and dangerous contact premises that is subject to disease controls, including intense surveillance and movement controls.
Risk enterprise	A defined livestock or related enterprise that is potentially a major source of infection for many other premises. Includes intensive piggeries, feedlots, abattoirs, knackeries, saleyards, calf scales, milk factories, tanneries, skin sheds, game meat establishments, cold stores, artificial insemination centres, veterinary laboratories and hospitals, road and rail freight depots, showgrounds, field days, weighbridges, garbage depots.
Sensitivity	The proportion of truly positive units that are correctly identified as positive by a test. <i>See also</i> Specificity
Sentinel animal	Animal of known health status that is monitored to detect the presence of a specific disease agent.
Seroconversion	The appearance in the blood serum of antibodies (as determined by a serology test) following vaccination or natural exposure to a disease agent.
Serosurveillance	Surveillance of an animal population by testing serum samples for the presence of antibodies to disease agents.
Serotype	A subgroup of microorganisms identified by the antigens carried (as determined by a serology test).
Serum neutralisation test	A serological test to detect and measure the presence of antibody in a sample. Antibody in serum is serially diluted to detect the highest dilution that neutralises a standard amount of antigen. The neutralising antibody titre is given as the reciprocal of this dilution.
Slaughter	The humane killing of an animal for meat for human consumption.
Special permit	A legal document that describes the requirements for movement of an animal (or group of animals), commodity or thing, for which the person moving the animal(s), commodity or thing must obtain prior written permission from the relevant government veterinarian or inspector. A printed version of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements. <i>See also</i> General permit

Term	Definition
Specificity	The proportion of truly negative units that are correctly identified as negative by a test. <i>See also</i> Sensitivity
Stamping out	The strategy of eliminating infection from premises through the destruction of animals in accordance with the particular AUSVETPLAN manual, and in a manner that permits appropriate disposal of carcasses and decontamination of the site.
State coordination centre (SCC)	The emergency operations centre that directs the disease control operations to be undertaken in that state or territory.
Surveillance	A systematic program of investigation designed to establish the presence, extent or absence of a disease, or of infection or contamination with the causative organism. It includes the examination of animals for clinical signs, antibodies or the causative organism.
Susceptible animals	Animals that can be infected with a particular disease.
Suspect animal	An animal that may have been exposed to an emergency disease such that its quarantine and intensive surveillance, but not pre-emptive slaughter, is warranted. <i>or</i> An animal not known to have been exposed to a disease agent but showing clinical signs requiring differential diagnosis.
Suspect premises (SP)	Temporary classification of a premises that contains a susceptible animal(s) not known to have been exposed to the disease agent but showing clinical signs similar to the case definition, and that therefore requires investigation(s).
Swill	Also known as '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. ¹ (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. ¹ In terms of (ii), approved processes are: 1. rendering in accordance with the 'Australian Standard for the Hygienic Rendering of Animal Products' 2. under jurisdictional permit, cooking processes subject to compliance verification that ensure that a core temperature

Term	Definition
	<p>of at least 100 °C for a minimum of 30 minutes, or equivalent, has been reached.</p> <ol style="list-style-type: none"> 3. treatment of cooking oil, which has been used for cooking in Australia, in accordance with the 'National Standard for Recycling of Used Cooking Fats and Oils intended for Animal Feeds' 4. under jurisdictional permit, any other nationally agreed process approved by AHC for which an acceptable risk assessment has been undertaken and that is subject to compliance verification. <p>The national definition is a minimum standard. Some jurisdictions have additional conditions for swill feeding that pig producers in those jurisdictions must comply with, over and above the requirements of the national definition.</p>
Swill feeding	<p>Also known as 'feeding prohibited pig feed', includes:</p> <ul style="list-style-type: none"> • feeding, or allowing or directing another person to feed, prohibited pig feed to a pig • allowing a pig to have access to prohibited pig feed • the collection and storage or possession of prohibited pig feed on a premises where one or more pigs are kept • supplying to another person prohibited pig feed that the supplier knows is for feeding to any pig. <p>This definition was endorsed by the Agricultural Ministers' Council through AGMIN OOS 04/2014.</p>
Trace premises (TP)	<p>Temporary classification of a premises that contains susceptible animal(s) that tracing indicates may have been exposed to the disease agent, or contains contaminated animal products, wastes or things, and that requires investigation(s).</p>
Tracing	<p>The process of locating animals, persons or other items that may be implicated in the spread of disease, so that appropriate action can be taken.</p>
Unknown status premises (UP)	<p>A premises within a declared area where the current presence of susceptible animals and/or risk products, wastes or things is unknown.</p>
Vaccination	<p>Inoculation of individuals with a vaccine to provide active immunity.</p>
Vaccine	<p>A substance used to stimulate immunity against one or several disease-causing agents to provide protection or to reduce the effects of the disease. A vaccine is prepared from the causative agent of a disease, its products or a synthetic substitute, which is treated to act as an antigen without inducing the disease.</p>

Term	Definition
- adjuvanted	A vaccine in which one or several disease-causing agents are combined with an adjuvant (a substance that increases the immune response).
- attenuated	A vaccine prepared from infective or 'live' microbes that are less pathogenic but retain their ability to induce protective immunity.
- gene deleted	An attenuated or inactivated vaccine in which genes for non-essential surface glycoproteins have been removed by genetic engineering. This provides a useful immunological marker for the vaccine virus compared with the wild virus.
- inactivated	A vaccine prepared from a virus that has been inactivated ('killed') by chemical or physical treatment.
- recombinant	A vaccine produced from virus that has been genetically engineered to contain only selected genes, including those causing the immunogenic effect.
Vector	A living organism (frequently an arthropod) that transmits an infectious agent from one host to another. A <i>biological</i> vector is one in which the infectious agent must develop or multiply before becoming infective to a recipient host. A <i>mechanical</i> vector is one that transmits an infectious agent from one host to another but is not essential to the life cycle of the agent.
Veterinary investigation	An investigation of the diagnosis, pathology and epidemiology of the disease. <i>See also</i> Epidemiological investigation
Viraemia	The presence of viruses in the blood.
Wild animals	
- native wildlife	Animals that are indigenous to Australia and may be susceptible to emergency animal diseases (eg bats, dingoes, marsupials).
- feral animals	Animals of domestic species that are not confined or under control (eg cats, horses, pigs).
- exotic fauna	Nondomestic animal species that are not indigenous to Australia (eg foxes).
Wool	Sheep wool.
Zero susceptible species premises (ZP)	A premises that does not contain any susceptible animals or risk products, wastes or things.
Zoning	The process of defining, implementing and maintaining a disease-free or infected area in accordance with OIE guidelines, based on geopolitical and/or physical boundaries and surveillance, to facilitate disease control and/or trade.
Zoonosis	A disease of animals that can be transmitted to humans.

Abbreviations

Abbreviation	Full title
ACDP	Australian Centre for Disease Preparedness
AN	assessed negative
APF	approved processing facility
ARP	at-risk premises
AUSVETPLAN	Australian Veterinary Emergency Plan
CA	control area
CCEAD	Consultative Committee on Emergency Animal Diseases
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CVO	chief veterinary officer
DCP	dangerous contact premises
DCPF	dangerous contact processing facility
EAD	emergency animal disease
EADRA	Emergency Animal Disease Response Agreement
EADRP	Emergency Animal Disease Response Plan
EDTA	ethylenediaminetetraacetic acid (anticoagulant for whole blood)
ELISA	enzyme-linked immunosorbent assay
GP	general permit
IETS	International Embryo Transfer Society
IP	infected premises
LCC	local control centre
NASOP	nationally agreed standard operating procedure
NMG	National Management Group
OA	outside area
OIE	World Organisation for Animal Health
PCR	polymerase chain reaction
POR	premises of relevance
RA	restricted area
RP	resolved premises
SCC	state coordination centre
SP	suspect premises

Abbreviation	Full title
SpP	special permit
TP	trace premises
UP	unknown status premises
ZP	zero susceptible species premises

