



AUSTRALIAN LOT FEEDERS' ASSOCIATION



Guidance document on how to complete a Destruction, Disposal and Decontamination (DDD) Plan

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BIOSECURITY TOOLKIT



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Purpose

The purpose of this Guidance Document to support lot feeders to create and implement a [Destruction, Disposal and Decontamination Plan](#).

Objectives and scope

The objectives and scope of this document is to provide technical guidance on completing the [feedlot specific Destruction, Disposal and Decontamination Plan](#) (DDD Plan) to assist in protecting feedlot businesses and securing the supply chain during an emergency animal disease incursion. This document provides brief overviews of existing measures only, for a comprehensive understanding on emergency response arrangements please visit [Animal Health Australia](#).

What happens if an emergency animal disease is detected on your feedlot

Should an emergency animal disease be detected or suspected to be on your feedlot, you have a legal obligation to report the disease to your relevant state or the emergency animal disease hotline on 1800 675 888.

Once reported, the lead agency will attend your feedlot, take samples to confirm a diagnosis, and work with you to implement bio-containment measures to prevent the EAD from spreading off the feedlot.

Each significant EAD has a policy of how it will be managed should it enter Australia which is outlined in the AUSVETPLAN disease specific documents. This can include mass vaccination or stamping out activities (depopulation).

For this reason, feedlots must have a Destruction, Disposal and Decontamination plan that identifies where mass disposal may take place on the premises.

Feedlots should locate their DDD plan and their EAD Action plan and work with the lead authority to manage the situation to prevent further spread.

It is important to note that even though feedlots have comprehensive EAD Action plans and DDD plans you must follow the directions given by the lead agency even if it contradicts these plans.

Preparedness activities

Preparedness activities are integrated into the NFAS.

Each NFAS accredited feedlot must have a;

- [Feedlot Biosecurity Management Plan](#)
- [An EAD Action Plan](#)
- A [Destruction, Disposal and Decontamination Plan](#)
- A relevant number of staff trained in [Liaison Livestock Industry Online Training](#).

Steps to respond to an EAD for lot feeders

Checklist

Immediate response checklist

Step	Incident Response	Action taken
1	Report any suspected EAD immediately to your feedlot vet or the EAD Hotline 1800 675 888	
2	Comply with any regulatory/compliance requirements from the relevant authority	
3	Locate and implement the feedlots EAD Action Plan	
4	Locate the feedlots Destruction, Disposal and Decontamination (DDD Plan)	
5	Make updates to the DDD plan as required including provisions for any specific conditions	
6	Laise with the relevant authority on any permits, approvals or resources required to implement the feedlots DDD plan	

Managing infection

In the event that the EAD enters the feedlot increased biosecurity practices must be enacted under strict instructions from the relevant state lead agency to contain the infection.

This may also include depopulation and disposal activities to help manage infection and prevent its further spread.

The following section provides references to completing your feedlot DDD plan.

Completing a Destruction, Disposal & Decontamination Plan

Destruction (Depopulation)

Considerations for destruction

Depopulation programs require careful planning and should take the following items into consideration during planning phases;

- Methods of destruction
- Animal welfare and humane destruction
- Biosecurity (including minimising disease spread from the animal)
- Time frames for completion and disposal
- Resources required
- Licencing and or qualifications/skillsets required

Methods of destruction

Depopulating intensive cattle production enterprises can be challenging due to the limitations of humane methods in comparison to smaller species.

Presently the most effective method is lethal gun shot or captive bolt.

Other methods may become available in the future as technologies develop such as large volume barbiturate delivery.

Lethal injection may also be viable for smaller feedlots but will be impractical for larger feedlots.

The [AUVETPLAN Operational Manual for Destruction of animals](#) outlines further considerations.

Humane destruction

Presently the most efficient and common way to humanely kill cattle is lethal gunshot or captive bolt by trained and licensed persons where appropriate. Alternative methods must ensure animals are killed humanely in a manner that conforms with state legislation.

Where an animal has been euthanised, death must be confirmed by checking for the absence of breathing, heartbeat, and eye blink reflex immediately following, and again 5 minutes afterwards.

Killing animals on affected premises should be practical, efficient, and humane. It should induce loss of consciousness and death without causing pain, distress, anxiety, or apprehension. Young animals should be killed before older ones.

Selected methods should keep blood and other fluids within the carcass as much as possible to prevent transmission. It is not advisable to bleed the animal out or take samples unless directed by the lead agency.

Biosecurity

Any depopulation operation must take all reasonable steps to maintain biosecurity, the use of non-invasive methods of killing where necessary, personal protective equipment, and disinfectants will assist in reducing transmission potential.

From a biosecurity perspective, infected animals should be killed first, followed by contact animals and then the remaining animals to reduce spread potential. Animal welfare considerations may contribute to a change in order.

Time frames for disposal

All depopulation programs must consider disposal capacity to reduce both animal welfare concerns as well as transmission potential.

Disposal capacity includes use of machinery and/or transport to the disposal site therefore these factors must be taken into consideration when planning depopulation activities.

Time frames will also be indicative of feed supply required to meet animal welfare requirements of livestock that are awaiting depopulation.

Resources required

Feedlots should consider what resources are required to undertake effective depopulation programs including the following –

- Skilled persons required
- Qualified staff on hand
- Yards, races and livestock infrastructure required
- Machinery required to remove carcasses (large machinery and transport)
- Machinery required to dispose of carcasses (burial, composting etc)
- PPE required
- Destruction Equipment

Licensing or qualifications and training

All personnel involved in depopulation programs should be trained, skilled, and competent to carry out their roles.

Persons operating firearms must be licenced at a minimum. It is recommended that persons are also formally trained in the use of firearms to humanely destroy animals.

Feedlots should provide adequate rest and emotional support to operators and monitor their health after the completion of the culling operation.

Site selection for destruction

The factors that need to be considered in selecting a destruction site are:

- Facilities available on site
- Additional facilities and equipment required
- Animal security
- Proximity and ease of access and transport requirements to the disposal site
- Safety of all personnel on the site and in the immediate vicinity
- Acceptability to the owner/manager
- Likelihood of damage to property and services

Disposal

Disposal during EAD responses can include a range of items capable of spreading the EAD. This may include carcasses, rubbish, consumables, and items that cannot be decontaminated.

Disposal techniques are heavily influenced by the type and transmission potential of an EAD, and the availability of disposal options is a secondary factor.

Destruction processes and time frames can influence disposal processes and vice versa and should be undertaken together with effective real-time communication between the two teams to minimise disease spread and operational challenges.

ALFA have developed a Livestock Carcass Disposal Calculator which can be utilised to outline the top 3 disposal methods that are viable options for your feedlot.

Once the calculator has outlined potential disposal methods, this plan should outline the resources required to operationalise disposal methods.

Planning Resources

- [Disposal AUSVETPLAN](#)
- [AUSVETPLAN Livestock welfare and management manual v3.0](#)
- [Agriculture, forestry and fishing | WorkSafe.qld.gov.au](#)
- [Decontamination and disposal table](#)
- Livestock Carcass Disposal Calculator

Key considerations for disposal:

The following considerations

- The epidemiology of the EAD
- Types of materials require to be disposed of
- Feral animal management
- The size of the property
- Local considerations
- The availability of resources (human, equipment, machinery)
- The biomass required to be disposed of
- The availability of resources for the selected disposal method
- Environmental considerations

- Legislative requirements and or restrictions
- Suitability of the site for the chosen disposal method
- Effectiveness of disposal method
- Recovery and or restocking plans
- Method being used
- Logistics of disposal (including machinery access)
- Resources available for disposal methods
- Welfare and safety of people
- Biosecurity requirements
- Personal protective equipment
- Processes for storage where the EAD causes mortality rates that exceed capacity of disposal

Site Selection

Site selection and assessment will depend heavily on the characteristics of the EAD and its transmission followed by environmental conditions that may preclude a site from being suitable. For more information the [Decontamination and Disposal Table](#) outlines disposal preferences for each EAD based on their characteristics.

Under normal conditions The Environmental Protection Agency (EPA) have parameters that may be required to be met to undertake carcass disposal or manage environmental contamination as part of the feedlots licencing and development application processes.

It is strongly encouraged that these requirements be considered when selecting a site for mass disposal however where identified sites don't meet individual state requirements additional risk mitigation can be applied (such as bunding or lining of burial pits) to reduce the environmental risk or an emergency permit may be issued to allow a feedlot to undertake disposal where there are no other viable options. This lead agency will arrange the permit during the response whilst working with the feedlot to achieve disposal objectives.

The factors that need to be considered in selecting a disposal site are:

- Practicality and resources available to move items for disposal to the site
- Additional equipment required
- Site security including access by feral animals
- The ability to contain or control run off
- Proximity and ease of access and transport requirements from the destruction site
- Safety of all personnel on the site and in the immediate vicinity
- Environmental considerations
- Legislation
- Recovery requirements and food safety

For burial, the following should also be considered as guiding principles:

- Not within 300 metres of a potable water source including bore holes
- Not within 100 metres of any water course
- In low permeable and stable soil types
- When using burial as a method, ground water depth at the site will to be at least 5 metres from the bottom of the pit. E.g. an aquifer cannot be located within 10 metres from the surface.
- Away from underground and above ground infrastructure (powerlines, telephone lines, gas, water, sewage pipes). Qld stipulate 250m away.
- Elevated land but with a slope of less than 6% (3.5°) preferably less than 2% (1.15°) <5% is low risk, >5 is medium and requires some controls and 10% is high risk.
- Not within 250m of:
 - From any town or dwelling
 - A world heritage area
 - A national park or conservation area or indigenous cultural sites.
- Multiple pits should be sufficient distance apart to operate machinery between
- Pit lengths will depend on the area size available.

Where your site doesn't meet the criteria listed additional measures must be undertaken to reduce the risk.

This may include bunding the area too prevent surface area run off or lining burial pits with an impermeable lining to prevent leachate contamination.

It is important to document where a site doesn't meet the criteria and why so that these measures may be further considered to

See [Appendix 1 Decontamination and disposal table](#) for specific disposal techniques based on the EAD

Decontamination

Decontamination pre-planning is challenging where the EAD causative agent is unknown.

Planning resources

- [AUSVETPLAN decontamination manual](#)
- [Decontamination and disposal table](#)

Key considerations for decontamination

Decontamination procedures depend heavily on the characteristics of the EAD therefore it is important to understand the properties of the EAD and the disinfection processes that are likely to be effective, because pathogens vary greatly in their susceptibility to decontaminants.

Bacterial and fungal EADs can usually be decontaminated in the same way as viral diseases. Diseases caused by insects, parasites or prions require different strategies.

Decontamination of premises, clothing, vehicles, tools, carcasses or the environment in an EAD event requires an understanding of the:

- General properties of each disease agent
- Epidemiology of the disease, including transmission pathways
- Persistence of the disease agent outside the live host (e.g. within the environment or within animal waste or products)
- Susceptibility of the infectious agent to cleaning and chemical disinfectants.

Table 2.1 on page 14 of the [AUSVETPLAN decontamination manual](#) shows the Emergency Animal Disease Response Agreement (EADRA)-listed diseases and the type of disease-causing agents, from which their susceptibilities to common chemicals can be deduced.

More information on disease control, including vector control and decontamination, is provided in the relevant [AUSVETPLAN disease response strategy](#).

Key issues to be considered when developing a decontamination plan are outlined in the [AUSVETPLAN decontamination manual](#) which should be used to develop a decontamination plan specific to the feedlot.

Site Selection

On known contaminated premises, the decontamination site(s) must facilitate the movement of people, vehicles, plant, equipment and in some cases non-susceptible live animals (pets, livestock) onto and off the premises without becoming re-contaminated and potentially spreading the pathogen.

- A decontamination site may be a defined single site where all decontamination processes are undertaken or may be split into 2 separate sites depending on the primary purpose and the layout of the premises.
- The location of decontamination sites depends on site-specific factors such as the layout of the premises (e.g. where animals are housed in relation to the site), access to water, and the existing entry and exit points of the premises (e.g. driveways). Environmental effects must also be considered when selecting a site, such as the wash-down drainage, chemical toxicity and any environmentally sensitive areas near the site (e.g. dams, waterways, gardens).

- The size and requirements of the decontamination sites should be determined based on the frequency of use, amount of movement through the sites, and expected duration of operation.
- The main cleaning and disinfection site should preferably be inside or on the property boundary, away from livestock and any contaminated or potentially contaminated areas.

Sites for gross cleaning and subsequent or final cleaning and disinfection should:

- Be on a hard surface to prevent bogging (e.g. cement slab or a gravel pad)
- Be of sufficient size to accommodate the required or anticipated decontamination operations
- Have access to a reliable supply of clean, preferably potable water and, if necessary, power
- Enable the appropriate control of waste (e.g. access for waste collection and disposal)
- Be minimally affected by adverse weather be able to be successfully decontaminated at nominated frequencies and at the end of operations consider prevailing wind

Appendix 1 Decontamination and disposal table

The following table is based on [Persistence of Disease Agents in Carcasses and Animal Products](#) Williams March 2017)

Name of disease	AUSVETPLAN Policy	Disease Agent	Transmission	Infection after death	Disinfection/treatment	Preferred disposal
African horse sickness Listed Disease Phytosanitary Measures (SPS Agreement)	Eradication	Virus (C)	Vector Borne	Nil -The relative acid lability of the virus suggests that it would be inactivated by the pH changes accompanying rigor mortis.	AHSV is inactivated by: <ul style="list-style-type: none"> formalin (0.1%) for 48 hours beta-propiolactone (0.4%) and binary ethyleneimine. acetic acid (2%), potassium peroxymonosulfate/sodium chloride-VirkonS® (1%) sodium hypochlorite (3%) 	Carcasses and other materials from IPs should be disposed of in a manner that will prevent access to infectious material by scavenger animals.
Anthrax (major outbreaks) Zoonotic Present in Australia	Control	Bacteria <i>Bacillus anthracis</i>	Inhalation Ingestion Contact	All parts of the carcass and associated secretions are likely to be infective	Anthrax spores are generally resistant to alcohols, phenols, quaternary ammonium compounds, ionic or non-ionic surfactants, acids and alkalis	On site burning and burial of the ashes. Burial sites need to be permanently identified Off-site burial – carcasses to be wrapped and sealed for transport. Leaving animal in situ (intact) to putrefy after treating the carcass with 3.7% formaldehyde. The NLIS tag if present must be recorded before incineration
Aujeszky's disease	Eradicate - Stamping out	Virus (A)	Contact Inhalation Fomites	Possibly carcass and faeces / secretions.	ADV is inactivated by most disinfectants, including; Sodium hypochlorite 0.5% (seconds), phenolic derivatives 3% (10 minutes),	Carcasses and other materials from IPs should be disposed of in a manner that will prevent access to infectious material by scavenger animals.

					Formaldehyde 0.6% (within one hour), Lipid solvents such as ethyl ether, acetone, chloroform, and alcohol. I	
Avian Influenza H5N1 (limited information available)	Eradicate - Stamping out	Virus (A)	Contact Inhalation Ingestion	All parts of the carcass and associated secretions are likely to be infective	HPAI virus is destroyed by both heat and lipid solvents such as detergents, as well as formalin, sodium hypochlorite, 60-95% ethanol, quaternary ammonium compounds, aldehydes, phenols, acids, povidone-iodine	On site composting achieving high heat and deep burial. Offsite burial, incineration, composting or rendering. Manure can be disposed of by plastic covered composting piles to achieve 45-55 degrees.
Bluetongue Present in North Australia Subclinical in Cattle	Minimise economic impact and eliminate clinical disease if possible.	Virus (C)	Vector Borne Limited Culicoides species. C Brevitarsis.	BTV does not persist in carcasses, meat products, milk, hides or faeces. BTV may persist in semen.	BTV is readily inactivated by heat (50° C in 3 hours and 60° C in 15 minutes). BTV is unstable below pH 6.5 and above pH 8.0. Virus is readily inactivated by disinfectants containing acid, alkali, sodium hypochlorite and iodophors.	Since the virus does not survive in the environment or in animal products and byproducts all disposal methods can be considered.
Borna disease Subclinical in horses Zoonotic	Eradicate - Stamping out	Virus (A)	Contact with secretions	Borna virus is not thought to persist in carcasses and meat products but may persist in secretions including urine.	BDV is sensitive to lipid solvents and UV light.	Due to gaps in knowledge on the transmission of borna disease, disposal should favor burning or incineration.
Bovine brucellosis	Destocking, test and slaughter	Bacteria <i>Brucella abortus</i>	Ingestion (contaminated feed or water)	Brucella abortus may survive in the environment for: • up to eight months in aborted fetuses (in the shade)	B. abortus is sensitive to heat, sunlight, and standard disinfectants, including phenolics, halogens, quaternary ammonium compounds, and aldehydes at 0.5-1.0%.	Hygienic measures should include the disposal of aborted fetuses and membranes, removal and disposal of infected animals, and disinfection of areas contaminated by aborted fetuses and membranes. Cattle carcasses may

				<ul style="list-style-type: none"> • 2-3 months in wet soil • 1-2 months in dry soil • 3-4 months in faeces. 		also be rendered.
Bovine Spongiform encephalopathy (Classical) Zoonotic	Modified stamping out	Prion (No effective treatment or vaccine)	Ingestion (Particles)	All tissues, soils and environmental matter.	<p>The only completely effective methods is (20,000ppm) sodium hypochlorite solutions, applied for one hour.</p> <p>Boiling in 1M sodium hydroxide for at least one minute</p> <p>Gravity-displacement autoclaving in the presence of sodium hydroxide (e.g. 121° C for 30-60 minutes plus 1M or 2M NaOH).</p>	<p>Incineration or burning is preferred as per AUSVETPLAN Manual.</p> <p>Deep burial of ash or carcasses mixed with caustic materials to create an alkaline environment.</p> <p>Disposal sites are to be marked and recorded.</p>
Bovine tuberculosis due to Mycobacterium Bovis	-	Bacteria	Contact Ingestion Inhalation	Carcasses and meat products, milk skin, hides, semen and embryos and faeces.	<p>Formalin (3%), Lysol (2%), phenol (2.5%), activated chloramine (1- 3%), cresols and iodophors are effective.</p> <p>Alkaline hydrolysis</p>	Composting, Alkaline hydrolysis, deep burial in an alkaloid environment.
Contagious bovine pleuropneumonia	Eradicate - Stamping out	Bacteria <i>Mycoplasma mycoides</i>	Ingestion Fomite experimentally	Faeces and urine.	The organism is inactivated within 60 minutes at 50o C and within two minutes at 60o C	Disposal methods should prevent scavenger access.
Contagious equine metritis	Eradicate testing and treatment	Bacteria <i>Taylorella equigenitalis</i> No available vaccine.	Venereal Contact	Semen/embryos.	<p>pH below 4.5.</p> <p>Ten minutes of exposure to chlorhexidine diacetate (2%) or alkyltrimethylbenzylammonium chloride (10%)</p>	Disposal methods should prevent scavenger access.

Dourine	Eradicate - Stamping out	Protozoan <i>Trypanosoma equiperdum</i>	Venereal In utero Fomite Contact	Seminal fluid and genitalia mucous membranes.	Leave in situ.	Disposal methods should prevent scavenger access.
East coast fever (Theileria parva) Exotic strains of Theileria	Vector Eradication	Protozoan	Vector Borne via <i>Rhipicephalus appendiculatus</i>	Vector spread only	Destocking for 18 months to kill vector or paddock treatments.	Disposal methods should prevent scavenger access.
Encephalitides (tick-borne)	Eradicate - treatment / vaccinate	Virus (A)	Vector Borne	Carcasses where pH is higher than 6.0. Milk products. Lack of references found on faeces and semen/embryos.	sensitive to pH below 6.0. TBE is inactivated by UV and gamma radiation and by proteases, lipid solvents and detergents, as well as by low concentrations of aldehydes, halogens, hydrogen peroxide, and beta-propiolactone	Deep burial or other rather than leave in situ due to potential for ingestion risk. Disposal methods should prevent scavenger animal access.
Epizootic lymphangitis Zoonotic	Eradicate - Stamping out	Fungus <i>Histoplasma capsulatum var farciminosum</i>	Contact Fomite Insect vectors	Little information found.	Little information found.	Incineration / burning due to limitations in literacy.
Equine encephalosis (EE)	Eradication - Movement Control	Virus (C)	Vector Borne	Little information found.	pH sensitive in vitro with 0.5% trypsin, or with exposure to pH 3.0 for one hour at 37o C. The virus was totally inactivated after 5 minutes at 60o C, with "considerable loss" of infectivity at 56o C after one hour.	Incineration / burning due to limitations in literacy.
Equine encephalomyelitis	Eradication -	Virus (A)	Vector Borne	• Semen/ embryo's	The thermal deactivation point for alphaviruses is 58 °C and virus half-life	Incineration / burning due to

(WEE, EEE, VEE)	Movement Control Possible stamping out				is 7 hours at 37°C. The virus is quickly inactivated at acidic pH levels. These viruses are sensitive to sunlight and heat (moist or dry heat)	limitations in literacy.
Equine influenza	Contain and eradicate.	Virus (A)	Inhalation Contact Fomite	Respiratory secretions	Inactivated by exposure to UV light for 30 minutes or by heating at 50o C for 30 minutes. Quickly inactivated by; savlon, dettol, phenyl, alcohol, formalin, and potassium permanganate. 4% lysol. Antec Virkon®	Disposal methods should prevent scavenger animal access.
Equine piroplasmiasis Theileria Equi and Babesia caballi	Vector Eradication	Protozoan	Vector Borne Contact (with infected blood)	Vector spread only. Found in heart lung and kidney for up to 8 hours after death.	Destocking for 18 months to kill vector or paddock treatments.	<ul style="list-style-type: none"> Disposal methods should prevent scavenger animal access.
Foot-and-mouth disease	Eradicate- Stamping out	Virus (B)	Ingestion Fomites Inhalation Contact	Carcasses, milk and milk products, skins, hides, fibres, semen, embryos, faeces.	It is inactivated at temperature > 50o C. Heating meat to minimum core temperature of 100° C for 30 minutes inactivates the virus. FMD is inactivated by sodium hydroxide (2%), sodium carbonate (4%), citric acid (0.2%), acetic acid (2%) sodium hyperchlorite (3%) potassium peroxymonosulfate/sodium chloride (1%) and chlorine dioxide.	<ul style="list-style-type: none"> Disposal methods should prevent scavenger animal access. Burning must be completed with care to avoid airborne spread.
Getah virus	Eradication - Movement Control	Virus (A)	Vector Borne Mosquitos	Wide range of tissues including lymph nodes, lungs, spleen, liver and bone marrow	The thermal deactivation point for alphaviruses is 58 °C and virus half-life is 7 hours at 37°C. The virus is quickly inactivated at acidic pH levels. These viruses are sensitive to sunlight	Disposal methods should prevent scavenger animal access.

					<p>and heat (moist or dry heat)</p> <p>Inactivated by exposure to UV light for 30 minutes or by heating at 50o C for 30 minutes.</p> <p>Quickly inactivated by; savlon, dettol, phenyl, alcohol, formalin, and potassium permanganate. (</p> <p>4% lysol. Antec Virkon©</p>	
Glanders	Eradication - Stamping out	Bacteria <i>Burkholderia mallei</i>	Ingestion (of items contaminated by nasal discharges) Fomites	Urine, saliva, tears, faeces, nasal discharges and pus of infected animals and some risk of unprocessed skins of equids.	<p>Heating to 55o C for 10 minutes or by UV irradiation.</p> <p>Susceptible to many common disinfectants such as iodine, mercuric chloride in alcohol, potassium permanganate, benzalkonium chloride (1 part per 2000), sodium hypochlorite (500 ppm of available chlorine), 70% ethanol and 2% glutaraldehyde but is 30 seconds of contact of copper surfaces. 0.35% or 0.5% of stabilised peracetic acid used at temperatures between 23-30o C.</p>	<ul style="list-style-type: none"> Disposal methods should prevent scavenger animal access.
Hemorrhagic septicaemia	Eradication - Movement Control And vector eradication	Bacteria Coccobacillus Pasteurella multocida	Ingestion Inhalation Contact	Carcasses thought to be infective for a few days after death.	3% hydrogen peroxide is an effective disinfectant for <i>P. multocida</i>	Disposal methods should prevent scavenger animal access.
Hendra virus Zoonotic	Modified stamping out	Virus (A)	Ingestion Contact	Limited information available	<p>Hendra virus is a lipid envelope virus susceptible outside the host to desiccation and changes in temperature.</p> <p>Under natural conditions and after application of a conservative</p>	Disposal on-site by deep burial or composting is the preferred option.

					precautionary approach, contaminated areas and fomites will be considered decontaminated 10 days after the last known exposure to HeV	
Japanese encephalitis JE is present in Australia Zoonotic	Control	Virus (A)	Vector Borne	Japanese encephalitis virus is unstable in the environment outside of its hosts and most of its fomites are not implicated in its natural spread	<p>JEV is susceptible to detergents and certain common disinfectants (such as 1% sodium hypochlorite, iodine and iodophors)</p> <p>JEV is destroyed by heating for 30 minutes at temperatures above 56°C</p>	Disposal methods should prevent scavenger animal access.
Jembrana disease	Eradication - Movement Control	Virus (A)	Contact Vector Borne	Some organs such as spleen and milk.	sensitive to diethyl ether	Disposal methods should prevent scavenger animal access.
Lumpy skin disease	Eradicate - Stamping out	Virus (A)	Vector Borne	<p>LSDV may be found in the milk of infected animals.</p> <p>LSDV has shown infectivity in dried skin lesions on the animal for at least 33 days, and 18 days in scrapings from dry lesions at room temperature.</p>	<p>LSD Virus is susceptible to heat with inactivation at 55°C in 2 hours, and at 65°C in 30 minutes.</p> <p>Ether (20%), chloroform, formalin (1%) and some detergents e.g. Virus is susceptible to heat with inactivation at 55°C in 2 hours, and at 65°C in 30 minutes.</p> <p>Sodium dodecyl sulphate. LSD virus is also susceptible to phenol (2%/15 minutes), sodium hypochlorite (2-3%), iodine compounds (1:33 dilution), Virkon (2%) and quaternary ammonium compounds (0.5%). the detergent SDS, ether, and chloroform</p>	Where possible, disposal will be by burial, burning or composting onsite. If there is a delay between destruction and disposal, methods of vector control should be sprayed with sodium hypochlorite or Virkon (for their virucidal properties), or chemicals from the pyrethroid family (to prevent insects feeding on carcasses).
Potomac fever	Stamping out	Bacteria Neorickettsia	Bacteria Neorickettsia risticii	Nil	Decontamination involves managing water areas where transmission has	Disposal methods should prevent scavenger animal access and

		risticii	via fluke, aquatic snail or infected aquatic insect / fly		been caused by aquatic host.	contain vectors as required.
Rift Valley fever	Stamping out	Virus (A)	Vector Borne Contact with organs or fluids of infected animals	Milk and possibly tissues of infected animals.	Rapidly inactivated below pH 6.8. Virus is inactivated by lipid solvents (ether, sodium deoxycholate and chloroform) and low concentrations of formalin or calcium hypochlorite (residual chlorine should exceed 5000 ppm)	Disposal methods should prevent scavenger animal access.
Rinderpest (Extinct)	Stamping out	Virus (A)	Inhalation	Skin hair and fibres, milk products and carcass/meat within 24 hours of death.	Rinderpest virus is sensitive to light and UV radiation and desiccation. In general alkalis, halogen and phenolic compounds are good for disinfecting buildings, floors and equipment. AUSVETPLAN stipulate personal disinfection with either citric acid, alcohol or iodophors.	Disposal methods should prevent scavenger animal access including the first 24 hours after destruction.
Screw worm fly	Contain and eradicate	Insect	Screw Worm Fly lays eggs in an open wound	Skin hair and fibres may hold larvae	Animals may need to be destroyed on welfare grounds, treat with insecticide to kill any SWF eggs, pupae or larvae before disposal.	Disposal methods should prevent scavenger animal access.
Surra (Trypanosoma evansi)	Eradication	Protozoan No available vaccine.	Vector Borne (biological) and Mechanical via biting flies transferring blood (husbandry instruments or ingestion of contaminated products)	Fresh carcasses, milk, semen	Once the host is dead, conditions are rapidly untenable for the parasite, and that the chance of survival in a carcass beyond 2-3 days is nil	Disposal methods should prevent scavenger animal access.

Trichinellosis Zoonotic	Eradicate - Stamping out	Parasitic nematode (genus Trichinella) round worm. No available vaccine.	Ingestion of infected meat products.	Carcasses	Survival in a carcass beyond 1 week in summer and 6 weeks in winter. Feed sources may be required to be managed if it is suspected to be the source of infection.	Burning, incineration, composting or rendering
Vesicular stomatitis	Eradicate- Stamping out	Virus (A) No available vaccine.	Vector Borne black flies simuliidae, sand flies Lutzomyia and Culicoides spp. Contact	Milk via transfer from teats,	VSV is inactivated in 2 hours at pH 4-5. It is inactivated by temperatures over 50o C	On site burial or methods that prevent scavenger animal access.
Wesselsbron disease	Control - Movement Control / vaccination	Virus (A)	Vector Borne Mosquitos	Nil - vector spread	Wesselsbron disease virus has not been well characterised, but it has the properties typical of hemagglutinating flaviviruses. These are sensitivity to acidity (< pH 8.0), temperatures above 40o C, lipid solvents and detergents.	Disposal methods should prevent scavenger animal access.



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