

AUSTRALIAN VETERINARY EMERGENCY PLAN

# AUSVETPLAN

Response strategy

Peste des petits ruminants

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**

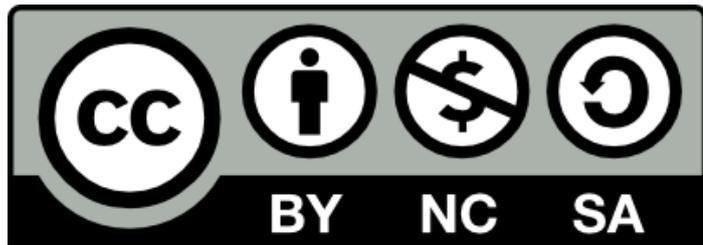
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ISBN 0 642 24506 1 (printed version)

ISBN 1 876 71438 7 (electronic version)

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### **Approved citation**

Animal Health Australia (2020). *Response strategy: Peste des petits ruminants* (version 5.0). Australian Veterinary Emergency Plan (AUSVETPLAN), edition 5, Canberra, ACT.

### **DISEASE WATCH HOTLINE: 1800 675 888**

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#### **Edition 1**

1991

#### **Edition 2**

Version 2.0, 1996 (major update to Edition 2)

#### **Edition 3**

Version 3.0, 2009 (major update to Edition 3)

Version 3.1, 2020 (minor updates to the information on management of wool in an emergency animal disease response).

#### **Edition 5**

Version 5.0, 2020 (not a full update, incorporation into the Edition 5 format)



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# 1 Introduction

## 1.1 This manual

### 1.1.1 Purpose

This response strategy outlines the nationally agreed approach for the response to an incident – or suspected incident – of peste des petits ruminants (PPR) in Australia. It has been developed to guide decision making and so support the implementation of an efficient, effective and coherent response.

### 1.1.2 Scope

This response strategy covers PPR caused by PPR virus.

This response strategy provides information about:

- the disease (Section 2)
- the implications for Australia, including potential pathways of introduction, social and economic effects, and the critical factors for a response to the disease (Section 3)
- the agreed policy and guidelines for agencies and organisations involved in a response to an outbreak (Section 4)
- declared areas and premises (Section 5)
- quarantine and movement controls (Section 6)
- surveillance and establishing proof of freedom (Section 7).

The key features of PPR are described in the **Peste des petits ruminants Fact Sheet** (Appendix 1).

### 1.1.3 Development

The strategies in this document for the diagnosis and management of an outbreak of PPR are based on risk assessment. They are informed by the recommendations in the World Organisation for Animal Health (OIE) *Terrestrial animal health code* (Chapter 14.7) and the OIE *Manual of diagnostic tests and vaccines for terrestrial animals* (Chapter 3.7.9). The strategies and policy guidelines are for emergency situations and are not applicable to policies for imported animals or animal products.

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 response strategy should be read and implemented in conjunction with:

- other AUSVETPLAN documents, including the operational, enterprise and management manuals; and any relevant guidance and resource documents. The complete series of manuals is available on the Animal Health Australia website<sup>1</sup>
- relevant nationally agreed standard operating procedures (NASOPs).<sup>2</sup> 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
- 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 – EADRA<sup>3</sup>), where applicable.

## 1.3 Training resources

### **EAD preparedness and response arrangements in Australia**

The EAD Foundation Online course<sup>4</sup> provides livestock producers, veterinarians, veterinary students, government personnel and emergency workers with foundation knowledge for further training in EAD preparedness and response in Australia.

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<sup>1</sup> [www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents](http://www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents)

<sup>2</sup> [www.animalhealthaustralia.com.au/what-we-do/emergency-animal-disease/nationally-agreed-standard-operating-procedures](http://www.animalhealthaustralia.com.au/what-we-do/emergency-animal-disease/nationally-agreed-standard-operating-procedures)

<sup>3</sup> <https://animalhealthaustralia.com.au/what-we-do/emergency-animal-disease/ead-response-agreement>

<sup>4</sup> [www.animalhealthaustralia.com.au/emergency-animal-disease-training-program](http://www.animalhealthaustralia.com.au/emergency-animal-disease-training-program)

## 2 Nature of the disease

Peste des petits ruminants (PPR) is an acute or subacute viral disease of goats and sheep characterised by fever, necrotic stomatitis, enteritis, bronchopneumonia, high morbidity and high mortality. The disease spreads rapidly between in-contact animals. Clinical signs are very similar to those of rinderpest, a disease of cattle that is caused by a closely related virus.

### 2.1 Aetiology

PPR virus is a member of the genus *Morbillivirus* of the family *Paramyxoviridae*. Viruses in the same genus include the causative agents of canine distemper, phocine (seal) distemper, human measles and rinderpest. The PPR virus was believed to have evolved from the rinderpest virus, but is now recognised as a distinct virus.

Four major genetic lineages of PPR virus are distinguishable by nucleic acid sequencing (Rossiter 2005). PPR virus antibody detection using competitive enzyme-linked immunosorbent assay (ELISA) is widely used to determine the geographic origin of field strains of PPR virus.

### 2.2 Susceptible species

#### *Goats and sheep*

Goats and sheep are the main natural hosts for PPR. Goats appear to be more susceptible and suffer a more severe clinical disease than sheep. In some cases, sheep living in close proximity to infected goats have remained clinically unaffected.

Different goat breeds, as well as individual animals, vary in their susceptibility to PPR. Among African breeds, the guinean breeds are more susceptible than sahelian breeds (Lefevre and Diallo 1990). European breeds are readily susceptible. Age is also important, with animals aged 3–18 months being more severely affected than adults or unweaned young.

If infection occurs in Australia, both sheep and goats will probably be severely affected because they would have no acquired immunity. However, it is possible that clinical signs may be less obvious in either species.

#### *Other animals*

Subclinical infection, with subsequent antibody production, has been reported in cattle by natural and experimental infection, but cattle do not transmit PPR virus.

Red deer, *Cervus elaphus*, have been infected in a natural outbreak. White-tailed deer, *Odocoileus virginianus*, are susceptible to experimental infection and may develop lesions similar to those seen in sheep and goats. Some deer may become subclinically infected with virus and show no visible signs (Hamby and Dardiri 1976).

Pigs can be subclinically infected with PPR but they do not transmit the virus. They are not considered to be important in the epidemiology of PPR (Nawathe and Taylor 1979).

Antibody seroprevalence of up to 10% has been detected in camels with natural transmission of PPR virus under field conditions in Ethiopia (Abraham et al 2006). Experimental infection of camels in

Saudi Arabia with PPR virus resulted in only subclinical infection or mild respiratory disease; infection was transmitted to other camels and goats but not to sheep (El-Hakim 2006).

Although PPR has been observed in some species of gazelle, ibex, and wild sheep, wild animals do not seem to play a very important role in the epidemiology of PPR.

### **2.2.1 Zoonotic potential**

Humans are not affected by the disease.

## **2.3 World distribution**

For the latest information on the distribution of PPR, refer to the World Organisation for Animal Health (OIE) World Animal Health Information Database.<sup>5</sup>

### **2.3.1 Distribution outside Australia**

PPR is endemic in the sub-Saharan region of Africa, extending to the Arabian Peninsula, the Middle East and the Indian subcontinent. For the latest information on the distribution of PPR, refer to the website of the World Organisation for Animal Health (OIE) World Animal Health Information Database (WAHID)<sup>6</sup>.

### **2.3.2 Occurrence in Australia**

PPR has never been recorded in Australia.

## **2.4 Epidemiology**

Our knowledge of the epidemiology of PPR is fragmentary, but some assumptions can be made from the information available for rinderpest.

### **2.4.1 Incubation period**

The incubation period is usually 4–6 days but may range between 3 and 10 days.

#### **OIE incubation period**

For the purposes of the OIE *Terrestrial animal health code*, the incubation period for PPR is 21 days.

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<sup>5</sup> [www.oie.int/animal-health-in-the-world/the-world-animal-health-information-system/the-oie-data-system](http://www.oie.int/animal-health-in-the-world/the-world-animal-health-information-system/the-oie-data-system)

<sup>6</sup> [www.oie.int/animal-health-in-the-world/the-world-animal-health-information-system/data-after-2004-wahis-interface/](http://www.oie.int/animal-health-in-the-world/the-world-animal-health-information-system/data-after-2004-wahis-interface/)

## 2.4.2 Persistence of agent and modes of transmission

### General properties

PPR virus is sensitive to a wide range of disinfectants due to its large size, lipid-containing virus envelope and sensitivity to both acid and alkali conditions. In general, the alkalis (sodium carbonate, sodium hydroxide), and the halogens (chloride) are suitable for disinfecting buildings, wooden structures, concrete surfaces, equipment and vehicles. For personal disinfection, citric acid, alcohols and iodophors are suitable. Further information, including dilution rates, is available in the **AUSVETPLAN operational manual *Decontamination***.

### Environment (including windborne spread)

All members of the *Paramyxoviridae* family are very heat sensitive (Diallo et al 2007). Information for PPR virus is not available, but it is assumed that the survival characteristics (eg pH, temperature) of PPR virus are similar to those of rinderpest virus. These are as follows:

- a half-life of 5 minutes in cattle blood, spleen or lymph node at 56°C
- survival in culture for at least 4 months at -20°C, 8 weeks at 4°C, 1 week at 20–25°C and >2.6 days at 37°C
- rapid inactivation at temperatures above 70°C (but there is no confirmation that rinderpest virus is destroyed by pasteurisation in milk)
- greatest stability (at 4°C) at a pH of 7.2–7.9, with a half-life of 3.7 days; the virus was rapidly inactivated below pH 4.0 or above pH 11.0 (Rossiter 2005)
- rapid inactivation by ultraviolet light and desiccation within 4 days.

### Live animals

Virus is present in all secretions and excretions from infected animals for approximately 10 days after the onset of fever. Animals that have been infected with PPR either die or acquire firm immunity. There appears to be no chronic carrier state.

Infection spreads to new areas by the movement of infected animals. Transmission between animals is usually by direct contact. Infected animals shed virus in expired air, in all secretions and excretions (including semen and urine) at the onset of the fever, and in the faeces at the onset of diarrhoea. Most infection is through short-range aerosol spread from sneezing and coughing. Infection is primarily acquired via the respiratory system.

At night under cool conditions, infection can be spread via aerosols over a distance of about 10 metres.

### Animal products

#### Meat, meat products and casings, including use as animal feed

Information is not available for PPR virus but it is assumed that, like rinderpest virus, it would be rapidly inactivated by the putrefaction in the carcass of an animal dying from PPR or by a pH of 5.5 in hung meat. Rinderpest virus is reported to remain infectious in salted or frozen meat for several months and may also persist for some time in refrigerated meat (NZMAF 1991ab). In the case of PPR, such persistence would not be important in spreading the disease, because the cycle back to sheep or goats is unlikely to be completed; pigs are not susceptible to infection.

### **Milk and dairy products, including use as animal feed**

PPR virus may be present in the milk of infected animals. Feeding this milk to kids or lambs may therefore spread the infection.

Rinderpest virus can be present in milk from 1–2 days before clinical signs develop and for as long as 45 days after recovery. Goat or sheep milk may be similarly infected with PPR virus.

### **Semen and embryos from live susceptible animals**

The virus is present in semen and embryos and is likely to be transmitted in this manner (see the **AUSVETPLAN enterprise manual *Artificial Breeding Centres***). Due to insufficient information on the likely transmission of PPR virus, the International Embryo Transfer Society has been unable to make a recommendation regarding the safety of in vivo derived embryos.

### **Equipment, including personal items**

The virus survives poorly outside the host, making indirect transmission of virus by fomites most unlikely.

### **Arthropod vectors**

Insects are not known to spread PPR.

## **2.5 Diagnostic criteria**

PPR should be suspected when goats or sheep are affected with an acute febrile diarrhoea accompanied by erosions of the mouth lining and high morbidity and mortality. If rapid spread from animal to animal is occurring, and animals of all ages are sick and dying, then the picture is highly suggestive of PPR.

### **2.5.1 Clinical signs**

#### **Animals**

##### *Goats*

The clinical disease is acute, with a sudden onset of fever, peaking on the second or third day at 40–42°C, before slowly returning to normal. The fever usually lasts 3–5 days.

With the onset of fever, the animals suffer loss of appetite and become severely depressed. An early watery nasal discharge develops and may become profusely catarrhal, containing mucus and pus. This can lead to encrustation, blocking of the nostrils and respiratory distress. The nasal lining may become necrotic. Conjunctivitis with discharge from the eyes causes matting of the eyelids.

The mouth lining is slightly engorged, with small, red, necrotic mouth lesions appearing within a few hours of the onset of fever (Scott 1981), although Dardiri et al (1976) reported 3–4 days between fever and the appearance of erosions. Small areas of necrosis usually first appear on the lining of the lower gums. In severe cases, these spread rapidly to the dental pad, hard palate, cheeks and buccal papillae

and tongue (including the anteriodorsal area). The necrotic tissue sloughs, leaving irregular shallow erosions and remnant tags of necrotic epithelium. In some animals, the mouth lesions may be mild and heal within 48 hours. Such animals are likely to recover.

Most animals develop severe diarrhoea or dysentery about 2–3 days after the development of mouth lesions, resulting in rapid dehydration and loss of weight. Secondary bacterial infections are common. Pregnant animals may abort. Death usually occurs after a course of 4–12 days.

The morbidity rate in susceptible animals is usually 60–90%. The case mortality rate may be as low as 10%, depending on the PPR strain and the host species and breed (Wohlsein and Saliki 2006), but may range up to 90%.

Peracute cases may be seen in goats. These involve fever and sudden death, with no other signs. At postmortem examination, the only signs may be congestion of the ileocaecal valve and bronchopneumonia.

A subclinical or inapparent form is common in some regions due to the innate resistance of local breeds. The disease lasts 10–15 days with variable signs, often including respiratory distress.

### *Sheep*

The clinical signs in sheep are the same as in goats but generally less severe. The disease may be present in goats without affecting sheep living in close proximity.

## **2.5.2 Pathology**

### **Gross lesions**

Postmortem findings in acute cases include a dehydrated carcass with faecal soiling; necrotic lesions in the mouth and nose; congestion of the ileocaecal valve; linear engorgement and blackening (zebra striping) of folds of the caecum, proximal colon and rectum; enlarged spleen; and oedema of lymph nodes, especially the mesenteric lymph nodes. The rumen, reticulum and omasum rarely show lesions. Unlike in rinderpest, primary bronchopneumonia is a common finding that is specific for the virus and important diagnostically (Brown et al 1991). Pleuritis and hydrothorax may be found.

### **Microscopic lesions**

Distinct changes similar to many morbillivirus infections are seen histologically, including multinucleated giant cells, especially in the lungs, and eosinophilic intranuclear and/or intracytoplasmic inclusion bodies.

## **2.5.3 Differential diagnosis**

The following diseases should be considered in a differential diagnosis of PPR:

- rinderpest
- bluetongue
- foot-and-mouth disease
- contagious bovine pleuropneumonia
- heartwater
- pasteurellosis

- other exanthematous conditions (i.e. involving eruptions on the surface of the body).

Many reports in the literature of rinderpest in small ruminants are now thought to be descriptions of PPR. Some strains of rinderpest can cause clinical disease — transient fever, sometimes accompanied by slight ocular and nasal discharges — in sheep and goats, but usually these animals are affected subclinically (Wohlsein and Saliki 2006).

## 2.5.4 Laboratory tests

### Samples required

Virus is present for approximately 10 days after the onset of fever and can be isolated during the acute stage of the disease when clinical signs are still apparent.

Swabs of the conjunctival sac, and from the nasal, buccal and rectal mucosae, as well as clotted and whole blood (with EDTA anticoagulant), should be submitted. Lymph node or spleen biopsies should also be considered. Specimens for virus isolation are best taken from animals with a high temperature and before diarrhoea has started (for example, from the early, less obvious cases).

At postmortem, fresh samples of spleen, lymph nodes and affected sections of alimentary tract mucosa should be collected for virus isolation. Samples of tonsil, tongue, spleen, lung, lymph nodes and affected parts of the alimentary tract should be collected for histopathology. Postmortem samples should be collected only from animals slaughtered for the purpose or very fresh carcasses.

### Transport of specimens

Specimens should be submitted in accordance with agreed state or territory protocols. Specimens should initially be forwarded to the state or territory laboratory for appropriate analysis, and assessment of whether further analysis will be required by the CSIRO Australian Centre for Disease Preparedness (CSIRO-ACDP), Geelong.

If the state or territory laboratory deems it necessary, duplicate samples of the specimens should be forwarded to CSIRO-ACDP for emergency disease testing, after the necessary clearance has been obtained from the chief veterinary officer (CVO) of the state or territory of the suspect case, and after the CVOs of Victoria and Australia have been informed about the case and the transport of the specimens to Geelong (for the first case). Sample packaging and consignment for delivery to CSIRO-ACDP should be coordinated by the relevant state or territory laboratory.

For further information, see the **AUSVETPLAN management manual *Laboratory preparedness***.

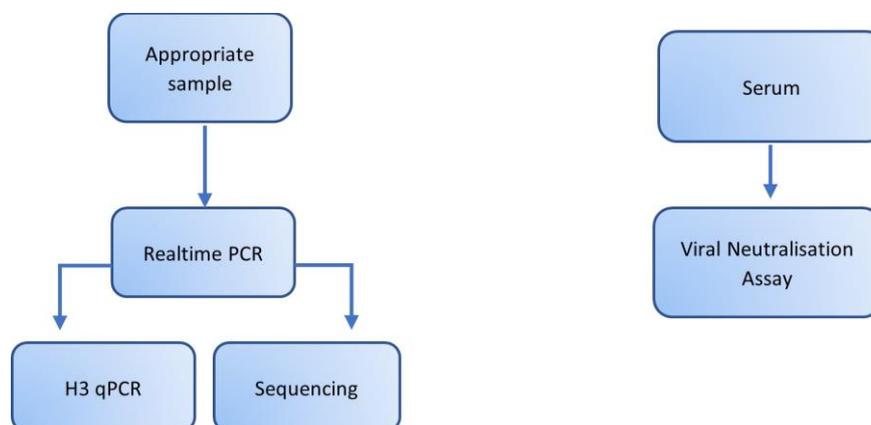
## 2.5.5 Laboratory diagnosis

Laboratory confirmation of PPR in Australia would be based on real-time reverse transcriptase PCR (RT-PCR) with sequencing, and virus isolation in selected cases. A number of other test modalities are used in other countries, including antigen ELISAs, AGIDs and various penside tests; none of these are currently available in Australia as PCR methods are preferred for rapid screening.

Serological assessment would be initially based on the virus neutralization assay. ELISA methods are available overseas and would be rapidly validated for local use in the face of an increased demand for testing.

## CSIRO-ACDP tests

The testing method used by CSIRO-ACDP is shown in Figure 2.1. Further details of tests currently available at CSIRO-ACDP are shown in Table 2.1.



**Figure 2.1** The current approach to diagnostic testing at CSIRO-ACDP for PPR.

**Table 2.1** Laboratory tests currently available at CSIRO-ACDP for the diagnosis of PPR

Test	Specimen required	Test detects	Time taken to obtain result
Agent detection			
Realtime PCR	Swabs, blood, tissues or cultured virus	Viral RNA	4-5 hours
Agent characterisation			
Sequencing	Swabs, blood, tissues or cultured virus	Viral genome	2 days
Virus isolation	Swabs, blood or tissues	Virus	5-10 days
Serology			
Virus neutralisation	Serum	Antibody	4-5 days

Source: Information provided by CSIRO-ACDP, 2020 (refer to CSIRO-ACDP for most up-to-date information).

## 2.6 Resistance and immunity

Susceptible sheep and goats of all ages and breeds can be infected with PPR virus and develop the acute disease. In countries free from the disease, the introduction of PPR into the totally susceptible population is likely to produce high morbidity and mortality, and the disease is likely to spread rapidly. However, there is always the possibility of mild disease as a result of lower susceptibility of individual animals or groups.

### *Innate and passive immunity*

Breeds of goats show varying degrees of resistance to PPR (see Section 2.2). Maternal immunity provides protection for 3–4 months.

### *Active immunity*

Infection with PPR provides lifelong immunity in recovered animals.

## 2.7 Vaccination

A homologous attenuated PPR virus vaccine is recommended by the OIE for use in countries following the 'OIE pathway' for rinderpest surveillance in order to avoid confusion. The vaccine is produced at the Institut d'Élevage et Médecine Vétérinaire in France, and gives lifelong immunity against virulent PPR virus in goats.

New PPR recombinant marker vaccines are under development that will enable differentiation between infected and vaccinated animals for serosurveillance (Diallo et al 2007). However, two of these are recombinant vaccines using attenuated capripox virus.

## 2.8 Treatment of infected animals

There is no specific treatment for PPR.

## 3 Implications for Australia

### 3.1 Potential pathways of introduction

Since PPR virus survives poorly outside the host, the most likely route of introduction of the virus into Australia is by the importation of infected sheep or goats. However, importation of small ruminants from endemic countries is not permitted, so the risk of introduction is remote. The illegal introduction of contaminated semen or embryos would present a risk.

It is unlikely that the virus would survive in sheep transport ships returning to Australia from the Middle East.

### 3.2 Social and economic effects

An outbreak of PPR in Australia would be expected to cause high mortality on the infected premises. The implementation of a stamping-out policy may not lead to the loss of many more stock on infected premises than from the disease itself.

An uncontrolled outbreak of PPR would cause serious stock and financial losses in the goat and sheep industries and local communities. Job losses both on farms and in support industries could follow.

If PPR became endemic, there would be continuing costs and losses due to animal mortalities, stamping out and the cost of preventative vaccination. Movement restrictions on livestock and products within the restricted area and control area (see Section 6) would cause loss of market opportunities and associated financial losses to nonaffected properties in the area and to support industries, such as the stock transport industry. Some industries not directly affected by PPR, such as the cattle industry, may also be affected by movement restrictions.

An outbreak of PPR would affect both local and export markets. Australia would lose its export markets for live sheep and goats and their products, at least in the short term until disease-free zones were well defined and accepted. If the disease spread, greater losses would be involved. However, not all products may be prohibited by Australia's trading partners.

### 3.3 Critical factors for an Australian response

Features of peste des petits ruminants (PPR):

- PPR is confined to sheep and goats.
- PPR is rapidly spread by direct contact. It has a short incubation period and a high mortality rate, so the disease should become apparent soon after introduction in a closely settled area.
- Infection spreads to new areas by the movement of infected animals.
- Tests are available for rapid detection, and the diagnosis of acute cases should be relatively simple.
- Recovered animals show solid immunity, and there is no known chronic carrier state in recovered animals.
- The virus survives for only a short time in the environment and is rapidly inactivated by disinfectants.

- A safe, reliable vaccine is available but, at present, distinguishing vaccinated from field-infected animals is difficult.
- There are no public health implications.

Features of susceptible populations:

- There is a low likelihood of undetected outbreaks in remote parts of Australia, where stock populations are sparse, or where less susceptible species such as sheep are infected subclinically.
- Disease may establish in feral goat or camel populations.
- Smallholders have little knowledge of disease control issues and the need to report illness in their animals.
- Fear of repercussions may deter smallholders from reporting disease.
- The first infected premises identified may not be the index case.
- The expected severe market disruption will reduce the value of all related industries.

Options for control and eradication

Managing the risks of PPR would be based on the identified critical factors:

- registration of all commercial and noncommercial livestock holdings, with biosecurity programs being compulsory
- early recognition and laboratory confirmation of cases to determine the extent of infection, using quickly instituted serosurveillance and animal tracing (using the National Livestock Identification System, where available), based on an epidemiological assessment
- rapid imposition of effective quarantine on infected and potentially infected premises to prevent direct and indirect contact between infected and at-risk animals
- elimination of infection from infected premises and infected animal populations by the rapid destruction of animals, the sanitary disposal of carcasses and decontamination
- swift declaration and effective policing of control areas to prevent movements of animals carrying or potentially carrying PPR virus
- elimination of infection from possibly infected feral animal populations by the rapid destruction of animals and the sanitary disposal of carcasses
- implementation of appropriate zones and compartments
- possible use of ring vaccination — infected animals would need to be able to be distinguished from vaccinated animals
- gaining of smallholder support.

The policy to be implemented is described in Section 4.

## 4 Policy and rationale

### 4.1 Introduction

#### 4.1.1 Summary of policy

Peste des petits ruminants (PPR) is an OIE-listed disease that has the potential for rapid spread and serious production loss and deaths within sheep and goat flocks. The disease is important for trade in sheep, goats and their products.

PPR is an Animal Health Australia Category 2 disease under the government–industry EAD Response Agreement for cost-sharing arrangements. Category 2 diseases are those for which costs will be shared 80% by government and 20% by industry.

The policy with regard to an outbreak of PPR is to eradicate the disease in the shortest possible time, while limiting economic impact, using *stamping out* supported by a combination of strategies, including:

- *early recognition* and laboratory confirmation of cases
- *quarantine and movement controls* of animals, products and other potentially contaminated items in declared areas, to minimise spread of infection
- *disposal* of destroyed animals and animal products likely to be contaminated, to remove the source of infection
- *tracing and surveillance* (based on epidemiological assessment) to determine the source and extent of infection, and subsequently to provide proof of freedom from PPR
- *decontamination and/or disposal* of fomites (facilities, equipment and other items) to eliminate the pathogen
- *zoning/compartmentalisation* to define infected and disease-free premises and areas, and to assist in regaining market access
- *an awareness campaign* to facilitate cooperation from the industry and the community.

Although vaccination has been used overseas to protect animals against PPR, it is unlikely that vaccine would be used in Australia.

#### 4.1.2 Cost-sharing arrangement

In Australia, PPR is included as a Category 2 emergency animal disease in the Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Responses (EAD Response Agreement – EADRA).<sup>7</sup> When cost sharing of the eligible response costs of an incident is agreed, Category 2 diseases are those for which costs will be shared 80% by government and 20% by industry.

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<sup>7</sup> Information about the EAD Response Agreement can be found at [www.animalhealthaustralia.com.au/what-we-do/emergency-animal-disease/ead-response-agreement](http://www.animalhealthaustralia.com.au/what-we-do/emergency-animal-disease/ead-response-agreement).

### 4.1.3 Criteria for proof of freedom

Under the OIE *Terrestrial Animal Health Code*, Australia would be considered free from PPR 6 months after the destruction of the last affected animal if a stamping-out policy is practised, with or without vaccination. In order to demonstrate that the disease has been successfully contained and eradicated, it is essential that Australia embarks on a systematic and accurate disease surveillance program during those 6 months (see **Appendix 2** for details).

Farmers, veterinarians and meat workers must be alert and report suspicion of disease, and these reports must be rigorously followed up. Dead animals from repopulated properties must be autopsied and appropriate samples taken for virus testing.

A sentinel restocking program is unnecessary because the virus will survive for only a short period in the environment. A farm could be safely restocked 15 days after destruction and disposal of the last clinical case. After restocking, premises would be placed under surveillance.

### 4.1.4 Governance

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 **AUSVETPLAN management manual *Control centres management (Parts 1 and 2)***.

## 4.2 Public health implications

There are no public health implications.

## 4.3 Control and eradication policy

The policy is to eradicate the disease in the shortest possible time using stamping out and quarantine and movement controls.

Tracing and surveillance to determine the extent of the infection and to define the free area are essential. Because the disease could be transferred to feral goats, these animals need to be included in any survey.

Public awareness and liaison with industry, the media and the public are key strategies.

### 4.3.1 Epidemiological assessment

Epidemiological investigation or assessment draws on multiple sources of information to build understanding of the disease and how it is behaving in an outbreak. This helps inform response decision making.

The key objectives for an epidemiological assessment will be to identify:

- the spatial distribution of infected and free animal populations
- potential vectors involved, including as potential amplifying hosts
- the source of infection

- the prevalence of infection
- pathways of spread and the likely size of the outbreak
- risk factors for the presence of infection and susceptibility to disease (including weather and insect populations).

Epidemiological assessment, and tracing and surveillance activities (see Section 4.3.3) in an EAD response are interrelated activities. Early findings from tracing and surveillance will be inputs into the initial epidemiological assessment (eg considering spatial distribution of infection). The outcomes of the initial epidemiological assessment will then guide decisions on subsequent tracing and surveillance priorities.

The outcomes of the epidemiological assessment will also be used to guide the selection of other appropriate response measures (including the application of movement controls) and assess the progress of disease control measures.

Ongoing epidemiological assessment is important for any EAD response to aid evaluation of the continued effectiveness and value of response measures. Ongoing epidemiological assessment will consider the outcomes of tracing and surveillance activities, and will contribute evidence to support any later claims of disease freedom.

## **4.3.2 Quarantine and movement controls**

### **Quarantine**

Strict quarantine and control of the movements of animals, animal products, people and other things will be used to prevent the spread of disease from the most dangerous premises to other premises. This will involve the declaration of IPs, DCPs and suspect premises (SPs), and the establishment of a restricted area (RA) and a control area (CA). Declaration of these areas will ensure that the disease areas and disease-free areas are well defined for domestic and international recognition and the continuation of trade. The RA must include any feral goat herds that may have had contact with infected or dangerous contact animals.

### **Movement controls**

The movement of susceptible animals into and out of IPs and DCPs will be prohibited except under permit. Movement of some products out of IPs and DCPs may be allowed under permit and after treatment. Quarantine and movement controls will also be imposed on SPs for at least 30 days, with the movement of animals allowed only under permit.

Movement controls on animals and products from the RA and CA will be strict while the disease is still believed to be spreading but will ease once the infection is contained and under control. No movement will be permitted from an IP of personnel, vehicles or equipment (unless they undergo decontamination) until 4 days after the last animal is destroyed. Sheep and goats may be sent for immediate slaughter for human consumption after the disease is controlled and it has been demonstrated that transmission has ceased on the IP (i.e. that the animals are no longer viraemic). They must go direct to an abattoir in the RA or CA and must not be held in the lairage any longer than the minimum time required for meat hygiene purposes (24 hours).

Wool or fibre will be permitted to leave SPs, TPs, IPs and DCPs if it can be shown that it was harvested well before the time the infection was deemed to have arrived on the premises and that no subsequent

contact with infected animals or things was possible, or that a sufficient passage of time (say 30 days) had rendered it risk free. It may also be treated to render it safe.

### **4.3.3 Tracing and surveillance**

Tracing and surveillance will be used to determine the distribution of the disease and the disease-free areas. Feral goats and camels, if present, will be included in the survey.

Trace-back will include all movements of sheep and goats, their products, people and things (including transport vehicles) onto the premises during the 21 days before the first case on the initial IP. Trace-forward will include all movements off the IP since 30 days before the first case.

Ruminants (especially cattle) not for slaughter will be identified for possible later serological testing.

See **Appendix 2** for further details on surveillance.

### **4.3.4 Zoning and compartmentalisation for international trade**

Where it is not possible to establish and maintain disease freedom for the entire country, establishing and maintaining disease-free subpopulations, through zoning and/or compartmentalisation,<sup>8</sup> may be considered.

In the case of a limited disease outbreak, a containment zone<sup>9</sup> may be established around the areas where the outbreak is occurring, with the purpose of maintaining the disease-free status of the rest of the country outside the containment zone.

All zoning applications would need to be prepared by the Australian Government in conjunction with the relevant jurisdiction(s) and agreed to by the CCEAD. Compartmentalisation applications would require input from the relevant industries. Recognition of both zones and compartments must be negotiated between the Australian Government and individual overseas trading partners. Zoning and compartmentalisation would require considerable resources that could otherwise be used to control an outbreak. Careful consideration will need to be given to prioritising these activities, because the resulting competition for resources could delay the quick eradication of the disease and recognition of disease freedom.

Agreements between trading partners take time to develop, consider and finalise, because of the need to provide detailed information on activities such as biosecurity, surveillance, traceability and diagnostics to support the approach that is developed. An importing country will need assurance that its animal health status is not compromised if it imports from an established disease-free zone in Australia. Trading partners may not accept a zoning or compartmentalisation proposal, regardless of the information provided. Eradication of disease may be achieved before zoning or compartmentalisation applications are finalised.

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<sup>8</sup> With zoning, disease-free subpopulations are defined primarily on a geographical basis. With compartmentalisation, disease-free subpopulations are defined primarily by management practices (such as the biosecurity plan and surveillance practices of enterprises or groups of enterprises).

<sup>9</sup> The OIE defines a 'containment zone' as an infected zone within a previously free country or zone, which includes all suspected or confirmed cases that are epidemiologically linked and where movement control, biosecurity and sanitary measures are applied to prevent the spread of, and to eradicate, the infection or infestation. The Australian Government Department of Agriculture and Water Resources commissioned a report on what would be required for the establishment of containment zones in Australia. This report is available at [www.ausvet.com.au/tools-resources](http://www.ausvet.com.au/tools-resources).

General guidelines for zoning and compartmentalisation are in Chapter 4.4 of the OIE *Terrestrial animal health code*.

### **4.3.5 Vaccination**

If a disease outbreak outstrips the resources available to control it by stamping out, ring vaccination may be used to provide a buffer zone of immune animals around the disease area until the outbreak can be brought under control.

If the disease becomes more widespread than anticipated, it may be necessary to use vaccine more extensively to assist with the continuing stamping-out strategy.

See **Section 2.7** for further details on vaccination.

### **4.3.6 Treatment of infected animals**

Infected or other susceptible animals will not be treated.

### **4.3.7 Treatment of animal products and byproducts**

Certain animal products from the RA will be permitted to be moved after they have been treated.

#### *Meat and meat products*

Because meat is not infectious for humans, animals from free premises within the RA and CA and animals not showing clinical signs on IPs and DCPs may move direct to slaughter for local consumption. The carcasses must not be chilled quickly but must be hung to ensure that the normal decrease in pH can occur to a level that will destroy the PPR virus.

#### *Milk and dairy products*

Sheep and goat milk and milk products from IPs will be destroyed and disposed of as appropriate. Milk and milk products that have left IPs during the 5 days before the first case will be traced and suitably heat treated. Marketing of milk from non-exposed animals on DCPs will be permitted, subject to heat treatment for milk powder, since pasteurisation alone may not inactivate PPR virus.

#### *Hides, skin, wool and other fibres*

Wool that is harvested within the period from diagnosis back to 21 days prior to the onset of clinical signs will be considered to be contaminated. Although it is unlikely that the virus will survive outside of the host for an extended time, all contaminated wool will be required to be decontaminated by chemical treatment or isolation and storage or where decontamination is not possible, disposed of by burial or burning.

Wool can be considered to pose no risk after 30 days have elapsed since the last exposure to contamination. Options where contaminated wool undergoes biosecure isolation and storage should be considered where suitable infrastructure is available. The storage time required, based on the susceptibility of the virus to desiccation and high temperatures should be 30 days during which time the bales remain *in situ* but isolated from contact.

Scouring of wool is effective at deactivating PPR virus. Scouring (application of a water-soluble detergent at 60-70°C) would be carried out in a commercial facility to which the wool would be transported under permit.

Unprocessed skins are considered a risk to the spread of disease and would therefore need to be treated or disposed of by burial or burning. At a commercial facility skins should be subjected to treatment for at least 28 days with salt (NaCl) containing 2% sodium carbonate (Na<sub>2</sub>CO<sub>3</sub>).

Further information can be found in the **AUSVETPLAN operational manual *Decontamination***.

### **4.3.8 Destruction of animals**

#### *Stamping out*

As soon as possible after the diagnosis of PPR, all sheep, goats and camels on an infected premises (IP) will be destroyed and disposed of, preferably on the premises. Action on properties to which dangerous contacts have been traced will depend on circumstances. If a dangerous contact premises (DCP) contains relatively few susceptible animals in addition to the dangerous contact animals, all will be destroyed. If, on the other hand, there is a large number of stock, with clear separation of groups, then only the dangerous contact animals need to be destroyed; the in-contact animals will be quarantined and observed for any signs of disease. This approach is possible because the virus survives for only a few days outside the host.

The same approach might be able to be applied to animals on an IP that are completely separated from infected animals, have had no contact with them, and are not showing any signs of disease. Such action would reduce compensation costs, and operational costs or losses for the producer.

The following risk factors will be considered in making a decision on whether animals are to be destroyed:

- results of transmission experiments at the Australian Centre for Disease Preparedness (ACDP)
- degree of contact that may have occurred with infected animals
- whether the disease will die out anyway if the mob is isolated from other animals
- risks from other susceptible species in contact populations (eg feral goats)
- the likely compensation bill
- the level of intervention required to control the disease in feral animal populations to avoid re-infection
- resources available.

### **4.3.9 Disposal of animals, and animal products and byproducts**

Carcases will be buried, composted or burned, or allowed to decompose provided that they are protected from scavengers such as dogs or feral pigs. Feedstuff and bedding that may have been contaminated will also be buried, composted or burned. Contaminated wool may also be burned; however, this should be via high temperature incineration on the Infected Premises or at an approved disposal site.

Further information on burning can be found in the **AUSVETPLAN operational manual *Disposal***.

### **4.3.10 Decontamination**

Vehicles that carry infected or suspect animals, and people leaving the IPs and DCPs, will be decontaminated. Although PPR virus does not survive outside the animal for more than a few days, decontamination is necessary for equipment, buildings, pens and other fomites with which infected or suspect animals may have had contact. Paddocks that cannot be disinfected will be 'spelled' for at least 15 days.

### **4.3.11 Wild animal management**

Feral goats and camels will need to be surveyed if they are present in the vicinity of the IP(s) and may have had contact with domestic sheep and goats. Because the eradication of feral goats or camels is unlikely to be achievable, a buffer area to contain the disease will be formed around the feral populations, either by depopulating the area of goats and sheep, or by ring vaccination.

It is unlikely that wild deer will become infected or play any part in the spread of PPR. However, as PPR has occurred in deer overseas (see Section 2.2), some clinical or serological surveillance of any deer in the area may need to be undertaken. If signs are found, wild deer in the immediate area will be controlled.

For more details on goat control, see the **AUSVETPLAN operational manual *Wild Animal Response Strategy***.

### **4.3.12 Vector management**

Vectors do not play any role in the transmission of PPR.

### **4.3.13 Public awareness and media**

A media campaign will emphasise the importance of inspecting sheep and goats regularly and of reporting suspicious lesions and unusual deaths promptly. The campaign will provide facts on the disease, control measures, movement restrictions and the safety of products as PPR is not a zoonosis.

For further information, see the ***Biosecurity Incident Public Information Manual***.

## **4.4 Other control and eradication options**

It is likely that an outbreak of PPR would be eradicated. If the size of an outbreak outstripped the resources available for control, and ring vaccination of all sheep and goats was not able to contain the disease, then PPR would have to be considered as being established in the sheep and goat populations.

Endemic PPR would be controlled by vaccination of all sheep and goats with an appropriate vaccine in areas where the disease occurred. Farmers would have to live with sporadic outbreaks and losses and with the need to vaccinate. Vaccination of the entire susceptible population should result in the virus dying out, thus allowing discontinuation of vaccination after only a couple of years.

## 4.5 Funding and compensation

Details of the cost-sharing arrangements can be found in the Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Responses.<sup>10</sup> Details of the approach to the valuation of, and compensation for, livestock and property in disease responses can be found in the **AUSVETPLAN operational manual *Valuation and compensation***.

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<sup>10</sup> [www.animalhealthaustralia.com.au/what-we-do/emergency-animal-disease/ead-response-agreement](http://www.animalhealthaustralia.com.au/what-we-do/emergency-animal-disease/ead-response-agreement)

## 5 Guidelines for classifying declared areas and premises

When an emergency animal disease (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 met (ie the index case<sup>11</sup>), the relevant chief veterinary officer (CVO) or their delegate will determine the premises classification and may declare the premises an infected premises (IP).

After the identification of the first IP, a restricted area (RA) and a control area (CA) may be declared.<sup>12</sup> 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 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 suspect premises (SPs) and trace premises (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, dangerous contact premises (DCP) or dangerous contact processing facility (DCPF). An SP or TP might also be assessed as negative and qualified as SP-AN or 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.

### 5.1 Declared areas

Maintaining movement restrictions on areas for long periods has important implications for resource management, animal welfare, business continuity, and socioeconomic impacts on producers and regional communities.

During the course of an EAD response, it may become necessary for a CA or RA to be expanded, as additional geographical areas or new foci of infection are identified. Later in the response, as control is achieved, mechanisms for gradually reducing the size of the CA and RA can be introduced.

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<sup>11</sup> The first case to come to the attention of investigators

<sup>12</sup> This is invariably the case with highly contagious diseases (eg foot-and-mouth disease, equine/avian/swine influenza, classical swine fever) but may not apply to less contagious diseases (eg Hendra virus, anthrax, Australian bat lyssavirus).

An EAD may involve multiple foci of infection, with several jurisdictions potentially involved. Since disease might be controlled at different rates in different areas, there may be the opportunity to progressively lift restrictions on an area basis. This would involve reclassifying previously declared areas (RAs and CAs), with a staged approach to lifting of movement restrictions. This is a key step in the recovery process and will have positive benefits on the community.

### **5.1.1 Restricted area (RA)**

An RA is a relatively small legally declared area around IPs and DCPs that is subject disease controls, including intense surveillance and movement controls.

An RA will be a relatively small declared area<sup>13</sup> (compared with a CA) drawn with at least 1 km radius 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. 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 CA.

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.

### **5.1.2 Control area (CA)**

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

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

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 10 km, encompassing the RA(s). It may be defined according to geography, climate and the distribution of relevant wild (including feral) animals. The boundary will be adjusted as confidence about the extent and distribution of the incident increases.

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<sup>13</sup> As defined under relevant jurisdictional legislation

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 permitted to move under permit within and out of the area.

## 5.2 Declared premises

Please also refer to the **AUSVETPLAN guidance document *Declared areas and premises classifications*** for more detail on premises status classifications.

### 5.2.1 Premises status classifications

#### **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.

#### **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).

#### **Trace premises (TP)**

Temporary classification of a premises that contains a 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).

#### **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.

#### **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.

#### **Approved disposal site (ADS)**

A premises that has zero susceptible livestock and that has been approved as a disposal site for animal carcasses or potentially contaminated animal products, wastes or things.

### **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.

### **Premises of relevance (POR)**

A premises in a control 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.

### **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.

### **Unknown status premises (UP)**

A premises within a declared area where the current presence of susceptible animals and/or risk products, wastes or things is unknown.

### **Zero susceptible species premises (ZP)**

A premises that does not contain any susceptible animals or risk products, wastes or things.

## **5.2.2 Qualifiers**

Please also refer to the **AUSVETPLAN guidance document *Declared areas and premises classifications*** for more detail on qualifiers.

### **Assessed negative (AN)**

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. SPs, TPs, DCPs or DCPFs, once assessed negative, can progress through the SP-AN, TP-AN, DCP-AN or DCPF-AN status to another status. The animals on such premises are subject to the procedures and movement restrictions appropriate to the declared area (RA or CA) in which the premises is located.

This classification is a description to document progress in the response and in the proof-of-freedom phase. The AN qualifier is a temporary status and only valid at the time it is applied. The time that the AN qualifier remains active will depend on the circumstances and will be decided by the jurisdiction. One day is considered a reasonable guideline. The AN qualifier should also provide a trigger for future surveillance activity to regularly review, and change or confirm, a premises status.

The AN qualifier can also function as a counting tool to provide quantitative evidence of progress, to inform situation reports in control centres during a response. It provides a monitor for very high-priority premises (SPs and TPs) as they undergo investigations and risk assessment, and are reclassified, as well as a measure of surveillance activity overall for ARPs and PORs.

The AN qualifier can be applied in a number of ways, depending on the objectives and processes within control centres. The history of each premises throughout the response is held in the information

system; the application of the AN qualifier is determined by the jurisdiction, the response needs and the specific processes to be followed in a local control centre.

### **Sentinels on site (SN)**

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).

The qualifier should not be applied to premises that have been resolved and have been allowed to restock (regardless of the stocking density chosen for initial restocking).

### **Vaccinated (VN)**

The VN qualifier can be applied in a number of different ways.

At its most basic level, it can be used to identify 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. The details would need to be developed and tailored to meet individual needs of jurisdictions and circumstances.

The AN and VN qualifiers may be used together if surveillance, an epidemiological assessment and/or laboratory assessment/diagnostic testing support the premises being assessed as negative, and susceptible animals on the premises have also been vaccinated against the EAD.

## **5.2.3 Other disease-specific classifications**

Not relevant.

## **5.3 Resolving premises and reclassifying declared areas**

Maintaining movement restrictions on areas for long periods has important implications for resource management, animal welfare, business continuity, and socioeconomic impacts on producers and regional communities.

During the course of an EAD response, it may become necessary for a CA or RA to be expanded, as additional geographical areas or new foci of infection are identified. Later in the response, as control is achieved, mechanisms for gradually reducing the size of the CA and RA can be introduced.

An EAD may involve multiple foci of infection, with several jurisdictions potentially involved. Since disease might be controlled at different rates in different areas, there may be the opportunity to progressively lift restrictions on an area basis. This would involve reclassifying previously declared areas (RAs and CAs), with a staged approach to lifting of movement restrictions. This is a key step in the recovery process and will have positive benefits on the community.

### 5.3.1 Reclassifying declared areas

The lifting of restrictions in declared areas is managed by jurisdictions according to their local legislation, regulations and processes.

The key principles for reclassifying a previously declared area during a response should include the following, noting that not all will be relevant for some diseases:

- The area should be epidemiologically distinct from other declared areas.
- All TPs and SPs have been investigated and reclassified, and all IPs, DCPs and DCPFs in the area have been reclassified as RPs.
- All tracing and surveillance associated with EAD control has been completed satisfactorily, with no evidence or suspicion of infection in the area.
- A minimum period of 42 days<sup>14</sup> has elapsed since predetermined disease control activities and risk assessment were completed on the last IP or DCP in the area or a risk assessment supports reclassification.
- An approved surveillance program (including the use of sentinel animals, if appropriate) has confirmed no evidence of infection in the RA (see below).
- For vector-borne diseases, vector monitoring and absence of transmission studies indicate that vectors are not active.

Lifting of restrictions is a process managed by the relevant CVO under jurisdictional legislation and consistent with the most current agreed Emergency Animal Disease Response Plan (EADRP). When the appropriate conditions are satisfied, an affected jurisdiction can, in consultation with the Consultative Committee on Emergency Animal Diseases (CCEAD), reduce the size of the RA or lift all restrictions. The previous part of the RA would then become part of the CA. Jurisdictions should be able to present documented evidence that the appropriate conditions have been met.

When an RA is lifted and becomes part of the CA, it will have a lower risk status, and the movement restrictions that apply will be consistent with those applying within the CA. Over time, all of the RAs will be reduced and lifted.

If more than one jurisdiction is affected, each will use its own appropriate legal jurisdictional mechanisms to lift the declaration of the RA or CA, coordinating with each other and consulting with the CCEAD to ensure wide communication and coordination.

After a further period of surveillance and monitoring, and provided that the additional surveillance and monitoring find no evidence of infection, a jurisdiction, in consultation with the CCEAD, could lift the CA. This would result in the lifting of all the remaining regulatory controls associated with the response.

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<sup>14</sup> The minimum period uses, or is based on, the disease-specific incubation periods defined by the OIE – two incubation periods is a common guideline.

## 6 Movement controls

### 6.1 Principles

The principles for the recommended quarantine practices and movement controls are as follows:

- Containment and eradication of peste des petits ruminants (PPR) is the highest priority. Therefore, 'normal business movements' are not allowed.
- Live animals pose the greatest risk of disease spread; therefore, their movements from all premises within the restricted area (RA) and control area (CA) must be strictly controlled.
- The outside area (OA) should remain as 'clean' as possible. Therefore, movement of animals from the RA to the OA is prohibited, and movement of products is generally prohibited. Movement of animals and products from the CA to the OA will also be restricted.
- Trace premises (TP) and suspect premises (SP) are temporary classifications, and every effort should be made to resolve the status of these premises as soon as possible.
- The numbers of susceptible animals within the RA should be minimised. Therefore, movements of animals into the RA will be limited and usually for slaughter only.
- Movement restrictions are more stringent within the RA than within the CA, and will be more stringent in the early stages of the response.
- Movement controls may be varied during a response from those listed here. However, this will involve a variation to the agreed Emergency Animal Disease Response Plan, with endorsement by the Consultative Committee on Emergency Animal Diseases (CCEAD) and the National Management Group (NMG).
- Recommended movement controls apply to any movement off a premises, whether on foot or by vehicle, that involves either public or private land.
- All movement control matrixes and narratives are for guidance.
- Application for a movement permit does not automatically mean that one will be granted.
- In emergency or exceptional circumstances, any proposed movement may be considered by the jurisdictional chief veterinary officer (CVO) on a risk-assessed case-by-case basis.
- Interstate movements will need to meet the import requirements of the receiving jurisdiction.

### 6.2 Guidelines for issuing permits

In an emergency animal disease (EAD) event, quarantine and movement controls must strike a balance between quick and effective disease control and business continuity. Therefore, it is not appropriate to simply prohibit all movement of animals and products. On the other hand, diligence needs to be applied to minimise the risk of further spread of the disease.

Recommended quarantine and movement controls in each AUSVETPLAN response strategy provide guidance on which movements can be allowed and under what conditions. This is based on an analysis of the disease risks that are presented by a specific movement, of a specific commodity, at a specific time during the EAD response phase. Each disease strategy will indicate whether a proposed movement is:

- allowed (under normal jurisdictional, including interstate, requirements)
- prohibited – except under the conditions of a general, special or emergency permit
- prohibited.

Permits may not be available until the relevant CVO provides approval for movements, and this may not be available in the early stages of a response. When assessing risk for the purposes of issuing a permit, the elements to consider may include:

- sources of risk
  - species of animal
  - type of product
  - presence of disease agent on both the originating and destination premises
  - current vector activity, if relevant
  - organisation and management issues (ie confidence in animal tracing and surveillance, biosecurity)
  - proposed use of the animals or products
  - proposed transport route
  - vaccination status of the animals, if relevant
  - treatment of animals and vehicles to prevent concurrent movement of vectors, if relevant
  - security of transport
  - security and monitoring at the destination
  - environment and natural events
  - community and human behaviour
  - risk of sabotage
  - technology
  - regulations and standards
  - available resources for compliance and enforcement
- areas of impact
  - livestock health (health of affected species, including animal welfare)
  - human health (including work health and safety)
  - trade and economic impacts (including commercial and legal impacts)
  - environmental impacts
  - organisational capacity
  - political impacts
  - reputation and image
- proposed risk treatment measures
  - vaccination
  - processing of product
  - disinfection or other treatment of animals, vehicles and fomites
  - vector control, if relevant
  - security
  - communication.

## 6.3 Types of permits

Permits are either general or special. They are legal documents that describe the animal(s), commodities or things to be moved, the origin and destination, and the conditions to be met for the movement. Either type of permit may include conditions. Once permit conditions have been agreed from an operational perspective, all permit conditions must be met for every permit. Both general and special permits may be in addition to documents required for routine movements between or within jurisdictions (eg health certificates, waybills, consignment notes, National Vendor Declarations – NVDs).

### **General permit**

General permits (GPs) are used for lower-risk movements, and create a record of each movement to which they apply. They are granted without the need for direct interaction between the person moving the animal(s), commodity or thing and a government veterinarian or gazetted inspector of stock. 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. GPs may not be available until the relevant CVO gives approval for general movements, and this may not be available in the early stages of a response.

### **Special permit**

Special permits (SpPs) are issued by the relevant government veterinarian or gazetted inspector of stock. They are used for higher-risk movements, and therefore require formal application and individual risk assessment. SpPs describe the requirements for movement of an animal (or group of animals), commodity or thing, for which a specific assessment has been conducted by the relevant government veterinarian or gazetted inspector of stock. A printed version of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements.

### **Emergency permit**

An emergency permit is an SpP that specifies strict legal requirements for an otherwise high-risk movement of an animal, to enable emergency veterinary treatment to be delivered, to enable animals to be moved for animal welfare reasons, or to enable any other emergency movement under exceptional circumstances. These permits are issued on a case-by-case basis under the authorisation of the relevant CVO.

### **Other movement requests**

Movements not reflected within any of the movement control matrixes or narratives may be considered by the relevant jurisdictional CVO on a risk-assessed case-by-case basis.

## 6.4 Recommended movement controls

### Declared premises

Table 6.1 shows the movement controls that will apply to IPs, DCPs, TPs and SPs in the event of a PPR incident.

**Table 6.1 Movement controls for declared premises**

Quarantine/movement controls	Infected and dangerous contact premises	Suspect and Trace premises
<b><i>Movement out of:</i></b>		
- sheep and goats	Prohibited; non-exposed animals may be allowed under permit for immediate slaughter once transmission has ceased	As for IPs/DCPs
- other susceptible animals	Allowed under permit, subject to appropriate decontamination or for slaughter for human consumption	As for IPs/DCPs
- skins, wool/fibre	Allowed under permit according to risk assessment	As for IPs/DCPs
- sheep and goat milk	Prohibited from IPs but may be allowed from non-exposed animals on DCPs under permit subject to processing	No restrictions
- crops and grains	Allowed under permit, subject to condition that it is not to be used for stockfeed	Subject to permit if to be used for stockfeed
- meat	Allowed under permit	No restrictions
<b><i>Movement in and out of:</i></b>		
- people	Allowed under permit, subject to appropriate decontamination	As for IPs/DCPs
- vehicles and equipment	Allowed under permit, subject to appropriate decontamination	No restrictions
<b><i>Movement in of:</i></b>		
- susceptible animals	Allowed under permit for restocking purposes, after decontamination finished	As for IPs/DCPs

## Declared areas

Table 6.2 shows the movement controls that will apply to RAs and CAs in the event of a PPR incident.

**Table 6.2 Movement controls for declared areas**

<b>Quarantine/ movement control</b>	<b>Restricted area (if declared)</b>	<b>Control area (if declared)</b>
<b><i>Movement out of:</i></b>		
– sheep and goats	Prohibited; non-exposed animals may be moved under permit for immediate slaughter at an abattoir in the RA or CA	As for RA
– other susceptible animals	Unrestricted, but cattle are subject to permit listing identification requirements	As for RA
– people	Allowed, subject to appropriate decontamination	Unrestricted
– sheep and goat milk and fibre products	Milk from infected and in-contact cattle to be destroyed. Allowed for processing from non-exposed animals, subject to permit	Unrestricted
– vehicles and equipment	Allowed, subject to appropriate decontamination	Unrestricted
<b><i>Movement within of:</i></b>		
– susceptible animals	Allowed, subject to permit	As for RA
<b><i>Movement through of:</i></b>		
– susceptible animals	Allowed, subject to permit	As for RA
<b><i>Movement in of:</i></b>		
– susceptible animals	Allowed under permit for restocking purposes	As for RA
<b><i>Movement along stock routes, rights of way:</i></b>	Prohibited	May be allowed under permit
<b><i>Risk enterprises:</i></b>		
– abattoirs	May continue to operate under permit but may not freeze sheep or goat meat	As for RA
– artificial breeding centres	May continue to operate under permit	As for RA
– dairy factories	May continue to operate under permit, but sheep or goat milk must be heat treated	As for RA
<b><i>Sales, shows, etc:</i></b>	Prohibited if sheep or goats involved	As for RA

## **7 Surveillance and proof of freedom**

### **7.1 Surveillance**

#### **7.1.1 Premises surveillance**

Infected premises

Daily physical surveillance of sheep and goats will be required for a period of 15 days, then weekly inspections for a further 2 weeks.

On IPs (and DCPs that have been destocked), restocking will be allowed after 15 days. On IPs where some ruminants or pigs remain, serological evidence that no infection is present after the slaughter of the infected mob will be required before restocking. Surveillance visits of all restocked premises should be made fortnightly for 2 months.

Suspect or dangerous contact premises

Daily physical surveillance of sheep and goats will be required for a period of 15 days, followed by weekly inspections for a further 2 weeks. These animals should be included in later serosurveillance.

### **7.2 Proof of freedom**

The OIE requirements for proof of freedom from PPR are described in article 14.8.2 of the OIE Terrestrial Code.

PPR can be detected from physical examination of susceptible flocks, but evidence of freedom needs to be supported by serological testing. Properties considered to be at risk are all those in the RA, as well as any other properties that may have been designated DCPs or SPs by tracing of people, fomites, etc.

# Appendix 1

## PESTE DES PETITS RUMINANTS FACT SHEET

### *Disease and cause*

Peste des petits ruminants (PPR; literally 'plague of little ruminants') is a viral disease of sheep and goats that closely resembles rinderpest in cattle. The disease spreads rapidly among in-contact animals, with high rates of infection and death. The disease is caused by a virus belonging to the family *Paramyxoviridae*.

### *Species affected*

Sheep and goats are the main natural hosts of PPR virus. Goats appear to be more susceptible and suffer more severely than sheep. Pigs and cattle may be subclinically infected by the virus. Humans are not affected.

### *Distribution*

PPR is endemic in the sub-Saharan region of Africa, extending into the Arabian Peninsula, the Middle East and the Indian subcontinent. The disease has never been recorded in Australia.

### *Key signs*

Acute cases show sudden onset of fever, peaking at 40–42°C, severe depression and loss of appetite. Copious nasal discharges may become thick and yellow, forming a crust and blocking the nostrils, causing respiratory distress. The eyes also become infected, with the eyelids matting together. Tissues in the mouth swell, and ulcers form on the lower gums, dental pad, hard palate, cheeks and tongue. In mild cases, these erosions may heal within 48 hours. Severe diarrhoea develops within 2–3 days of the appearance of lesions in the mouth, resulting in severe dehydration and emaciation. Bronchopneumonia, evidenced by coughing, is common. Pregnant animals may abort. Deaths usually occur within 4–12 days of the onset of fever (Rossiter 2005). Affected animals either die or develop effective immunity.

### *Spread*

Spread of PPR between areas is usually by movement of infected animals. The incubation period is 4–6 days. The virus is present in all secretions and excretions of incubating and sick animals, and transmission is by direct contact or infected respiratory aerosols over short distances. Infection rates in susceptible animals are between 60% and 90%. Case mortality rate may be as low as 10%, depending on the PPR strain and the host species and breed (Wohlsein and Saliki 2006), but may range up to 90%. Indirect transmission on fomites is unlikely, and animals do not appear to become chronic carriers.

### *Persistence of the virus*

PPR virus remains in all secretions and excretions for about 10 days after the onset of fever. It is inactivated by the putrefaction of the carcass and by a pH of 5.5 in hung meat, but remains viable at 4°C for at least 8 days and infective in salted and frozen meat for several months. The virus has a poor survival rate outside the host. It is rapidly inactivated by UV light, inactivated by drying out within 4 days, and sensitive to a wide range of disinfectants.

## Appendix 2

### PROCEDURES FOR SURVEILLANCE AND PROOF OF FREEDOM

The OIE requirements for proof of freedom from PPR are described in article 14.8.2 of the OIE Terrestrial Code.

PPR can be detected from physical examination of susceptible flocks, but evidence of freedom needs to be supported by serological testing. Properties considered to be at risk are all those in the RA, as well as any other properties that may have been designated DCPs or SPs by tracing of people, fomites, etc. Surveillance procedures for each type of declared area are as follows.

#### **Infected premises**

Daily physical surveillance of sheep and goats will be required for a period of 15 days, then weekly inspections for a further 2 weeks.

On IPs (and DCPs that have been destocked), restocking will be allowed after 15 days. On IPs where some ruminants or pigs remain, serological evidence that no infection is present after the slaughter of the infected mob will be required before restocking. Surveillance visits of all restocked premises should be made fortnightly for 2 months.

#### **Suspect or dangerous contact premises**

Daily physical surveillance of sheep and goats will be required for a period of 15 days, followed by weekly inspections for a further 2 weeks. These animals should be included in later serosurveillance.

#### **Restricted area**

On other properties in the RA, surveillance visits should be made as soon as possible after detection of the first IP in the RA and then 1, 2, 3 and 4 weeks later.

At surveillance visits, every group of sheep and goats must be inspected and numbers accounted for. In extensive grazing areas, where the degree of contact between groups of animals in a flock may be low, care must be taken to ensure that all groups of animals are present and healthy.

Once the disease has been contained, all flocks within the RA should be serologically sampled to provide a 95% confidence level that the disease is not present at a 10% prevalence. Flocks giving seropositive results should be further tested for evidence of infection.

#### **Control area**

All reports of disease will need to be investigated. Random sampling should be carried out about 1 month after the last IP has been restocked and then 2 months later.

# Glossary

## Standard AUSVETPLAN terms

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, hoofs, 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 disposal site	A premises that has zero susceptible livestock and has been approved as a disposal site for animal carcasses, or potentially contaminated animal products, wastes or things.
Approved processing facility	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	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, Water and the Environment 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> . Nationally agreed resources that guide decision making in the response to emergency animal diseases (EADs). It outlines Australia's preferred approach to responding to EADs of national significance, and supports efficient, effective and coherent responses to these diseases.
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

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 state/territory) 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.
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.
Disinsection	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
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 a pathogen into an 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	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	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 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: <a href="http://www.oie.int/international-standard-setting/terrestrial-code/access-online">www.oie.int/international-standard-setting/terrestrial-code/access-online</a> .
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: <a href="http://www.oie.int/en/standard-setting/terrestrial-manual/access-online">www.oie.int/en/standard-setting/terrestrial-manual/access-online</a> .
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 not considered at the time of classification 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.
Proof of freedom	Reaching a point following an outbreak and post-outbreak surveillance when freedom from the disease can be claimed with a reasonable level of statistical confidence.
Quarantine	Legally enforceable requirement that prevents or minimises spread of pests and disease agents by controlling the movement of 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 and 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
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	The emergency operations centre that directs the disease control operations to be undertaken in a 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. or

	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	<p>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:</p> <p>(i) Milk, milk products or milk by-products either of Australian provenance or legally imported for stockfeed use into Australia.</p> <p>(ii) Material containing flesh, bones, blood, offal or mammal carcasses which is treated by an approved process.<sup>1</sup></p> <p>(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.</p> <p>(iv) Material used under an individual and defined-period permit issued by a jurisdiction for the purposes of research or baiting.</p> <p><sup>1</sup> In terms of (ii), approved processes are:</p> <ol style="list-style-type: none"> <li>1. rendering in accordance with the 'Australian Standard for the Hygienic Rendering of Animal Products'</li> <li>2. under jurisdictional permit, cooking processes subject to compliance verification that ensure that a core temperature of at least 100 °C for a minimum of 30 minutes, or equivalent, has been reached.</li> <li>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'</li> <li>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.</li> </ol> <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', it includes:</p> <ul style="list-style-type: none"> <li>• feeding, or allowing or directing another person to feed, prohibited pig feed to a pig</li> <li>• allowing a pig to have access to prohibited pig feed</li> <li>• the collection and storage or possession of prohibited pig feed on a premises where one or more pigs are kept</li> </ul>

	<ul style="list-style-type: none"> <li>supplying to another person prohibited pig feed that the supplier knows is for feeding to any pig.</li> </ul> <p>This definition was endorsed by the Agriculture Ministers' Council through AGMIN OOS 04/2014.</p>
Trace premises (TP)	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).
Tracing	The process of locating animals, people or other items that may be implicated in the spread of disease, so that appropriate action can be taken.
Unknown status premises (UP)	A premises within a declared area where the current presence of susceptible animals and/or risk products, wastes or things is unknown.
Vaccination	Inoculation of individuals with a vaccine to provide active immunity.
Vaccine	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.
- 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

## Standard AUSVETPLAN abbreviations

<b>Abbreviation</b>	<b>Full title</b>
ACDP	Australian Centre for Disease Preparedness
AN	assessed negative
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 Technology Society
IP	infected premises
LCC	local control centre
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

<b>Abbreviation</b>	<b>Full title</b>
SpP	special permit
TP	trace premises
UP	unknown status premises
ZP	zero susceptible stock premises

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