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Department of Agriculture,  
Fisheries and Forestry

# National Lumpy Skin Disease Action Plan Progress Report 8 August to October 2024

Biosecurity Animal Division



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We acknowledge the Traditional Custodians of Australia and their continuing connection to land and sea, waters, environment and community. We pay our respects to the Traditional Custodians of the lands we live and work on, their culture, and their Elders past and present.

# Contents

|  |           |
|--|-----------|
| <b>Introduction</b> .....                              | <b>1</b>  |
| <b>Objective 1: International engagement</b> .....     | <b>2</b>  |
| <b>Objective 2: Border biosecurity and trade</b> ..... | <b>6</b>  |
| <b>Objective 4: Surveillance</b> .....                 | <b>11</b> |
| <b>Objective 5: Preparedness and response</b> .....    | <b>16</b> |
| <b>Objective 6: Awareness and communication</b> .....  | <b>20</b> |
| <b>Objective 7: Research and innovation</b> .....      | <b>21</b> |
| <b>Objective 8: Recovery</b> .....                     | <b>24</b> |
| <b>Glossary</b> .....                                  | <b>25</b> |

## Tables

|   |    |
|---|----|
| Table 1 Prioritisation matrix.....  | 1  |
| Table O1 Strengthen collaboration and engagement within the region to strategically address the risks of LSD.....   | 2  |
| Table O2 Augment industry-government collaboration and communication on the border biosecurity risks of LSD to Australia and strategically address technical market access barriers. .... | 6  |
| Table O3 Ensure that Australia’s national diagnostic network provides reliable LSD testing capability and capacity. ....  | 8  |
| Table O4 Optimise government and industry investment in LSD surveillance.....   | 11 |
| Table O5 Enhance the LSD preparedness and emergency response capacity and capability of industries and governments, and clearly define roles and responsibilities.....                    | 16 |
| Table O6 Facilitate stronger engagement between governments and industry through a comprehensive and adaptable communication strategy for LSD. ....                                       | 20 |
| Table O7 Improve Australia’s LSD preparedness and response through research priorities driven by industry and government needs, and ensure new knowledge is freely accessible. ....       | 21 |
| Table O8 Mitigate the economic and social effects of an outbreak of LSD by developing options for a recovery strategy.....  | 24 |

# Introduction

The National Lumpy Skin Disease (LSD) Action Plan (the Action Plan) was released on 13 October 2022 and sets out national priorities for actions to strengthen Australia's preparedness for an incursion of LSD. It was developed in partnership with governments, industries and other stakeholders. It is envisaged that the Action Plan will be implemented over a period of at least three years.

Of the 27 activities in the Action Plan, 5 have been completed, and 22 are underway and on track. This report provides an overview of each activity's status, priority and next steps. A prioritisation matrix is provided below.

**Table 1 Prioritisation matrix**

| Criteria                                  | High priority (one or more of the following)  | Medium priority (one or more of the following)  | Low priority (all of the following)   |
|---|---|---|---|
| Urgency                                   | Activity is highly time critical.   | Activity is less time critical.   | Activity is not time critical.  |
| Importance of project                     | Activity has a high impact on Australia's preparedness for LSD.   | Activity has a moderate impact on Australia's preparedness for LSD.   | Activity has a lower level of impact on Australia's preparedness for LSD.   |
| Risks to program delivery if not achieved | If not achieved, activity would have a high impact on the success of the program of work or has a high level of dependencies with other activities. | If not achieved, activity would have a moderate impact on the success of the program of work or has some level of dependencies with other activities. | If not achieved, activity would have a low impact on the success of the program of work and has limited dependencies with other projects. |

Note: Activities have been prioritised based on urgency and importance of the project and the risks to the success of the National LSD Action Plan program if the project is not delivered successfully.

# Objective 1: International engagement

**Table O1 Strengthen collaboration and engagement within the region to strategically address the risks of LSD.**

| Activity                              | Lead and key collaborators   | Description   | Status   | Priority progress update  | Next steps   |
|---------------------------------------|--|---|----------|---|--|
| 1.1. Support Indonesia's LSD response | <p><b>Lead</b><br/>Department of Agriculture, Fisheries and Forestry (DAFF), Department of Foreign Affairs and Trade (DFAT)</p> <p><b>Collaborators</b><br/>Meat &amp; Livestock Australia (MLA), the Australian Centre for Disease Preparedness (ACDP), overseas partners</p> | <p>This activity aims to ensure Indonesia receives ongoing financial and technical support for their LSD outbreak response to help control and contain the spread of the disease in alignment with the needs identified by the Indonesian Government.</p> | On track | <p><b>High priority</b></p> <p><b>Support for distribution of vaccines and equipment</b></p> <ul style="list-style-type: none"> <li>The Australian Government has provided 1,435,000 LSD vaccines to the Indonesian government, as well as syringes and needles.</li> <li>DAFF has provided a grant of \$1.2 million to fund an Australian Livestock Export Corporation Ltd (LiveCorp) project to partially reimburse the cost of foot-and-mouth disease (FMD) and LSD vaccination in buffer zones surrounding feedlots and facilities across Indonesia and support the welfare of smallholders within these communities.</li> <li>DFAT has purchased personal protective equipment and disinfectant for the Indonesian response.</li> </ul> <p><b>Laboratory capacity</b></p> <ul style="list-style-type: none"> <li>DAFF has provided \$1.7 million to the ACDP to deliver diagnostics and capacity building support to Indonesian government laboratories. The primary objective of the Regional Emerging Disease Support (REDS) program is to assist with the implementation and delivery of external quality assurance (QA) programs for LSD and FMD. The REDS program activities have been extended through to 30 June 2026 with additional scope and funding to include activities with relevant laboratories from the Indonesian Quarantine Authority (IQA).</li> <li>A REDS 2-week site visit to the Indonesian Disease Investigation Centre (DIC) Wates occurred 15-26 July 2024 and focussed on production of QA material for LSD proficiency testing (PT) program and aspects of quality management systems. For the PT program, two batches of positive material and a batch of negative material were produced and tested for enzyme linked immunosorbent assay (ELISA) and polymerase chain reaction (PCR). All batches passed quality testing. Training was provided on data analysis and performance evaluation for PT.</li> <li>During September and October 2024 virtual training was provided in PT data collation, analysis, PT performance assessment and report writing using mock data supplied by the REDS project lead. Central to this training was the identification of processes to ensure impartiality of DIC Wates as both a provider of the PT program and a participant.</li> <li>Changes to the designations and responsibilities of key personnel, mandated by the Indonesian Ministry of Agriculture (MoA) have occurred in September 2024 at DIC Wates. This may slow progress of the implementation of the LSD PT program as staff at</li> </ul> | <p><b>Support for distribution of vaccines and equipment</b></p> <ul style="list-style-type: none"> <li>The Australian Government (DAFF/DFAT) is working with MoA on further support as requested.</li> </ul> <p><b>Laboratory capacity</b></p> <ul style="list-style-type: none"> <li>The REDS program's focus continues to be implementation of PT programs for FMD and LSD by the Indonesian reference laboratories for the Indonesian veterinary laboratory network.</li> <li>Suitable material has been prepared for use in a PT program. The focus for PT now moves to finalisation of documentation, setting dates for testing, enrolling participants and distribution of PT panels.</li> <li>Assist DIC Wates with change management to ensure continuity and sustainability of the LSD external QA programs.</li> <li>DAFF will continue to support laboratory cooperation and capacity building for Indonesian laboratory staff through several activities such as</li> </ul> |

| Activity  | Lead and key collaborators  | Description   | Status          | Priority progress update   | Next steps   |
|---|---|---|-----------------|--|--|
|   |   |   |                 | <p><a href="#">Wates manage the changes, hand over key responsibilities and provide training to new staff for continuity and sustainability of programs.</a></p> <p><b>Technical assistance</b></p> <ul style="list-style-type: none"> <li>DFAT has provided \$2.2 million for technical assistance for a range of support including disease surveillance and epidemiology, field services and biosecurity surveillance, emergency management and operations, support for national/sub-national project teams and monitoring and evaluation.</li> <li>AHSP partners directly with the Indonesian MoA to strengthen health security systems and build One Health capabilities. This includes providing technical expertise, governance support and strategic planning to supporting Indonesia’s disease control and surveillance efforts.</li> </ul> <p><b>Other technical and advisory support</b></p> <ul style="list-style-type: none"> <li>\$1.4 million has been provided to support a collaborative project with the Food and Agriculture Organization of the United Nations (FAO) Indonesia office to deliver quarantine and emergency animal disease (EAD) response and control efforts in Indonesia. From July 2023 to March 2024, a DAFF officer was seconded to FAO to support this project (Activity 1.3). The program will conclude on 31 December 2024.</li> <li>Indonesian quarantine officers have been trained through the DAFF-funded Biosecurity Training Centre (BTC) at Charles Sturt University (Activity 1.2).</li> </ul>  | <p>laboratory placements, technical exchanges and participation in the REDS project.</p>   |
| <p>1.2. Build LSD preparedness, technical and diagnostic capability and surveillance in near neighbouring countries</p> | <p><b>Lead</b><br/>DAFF</p> <p><b>Collaborators</b><br/>Overseas partners, DFAT, Agriculture Victoria (AgVic)</p> | <p>This activity seeks to build on existing relationships with Papua New Guinea (PNG)’s National Agriculture Quarantine and Inspection Authority (NAQIA) and Timor-Leste’s Ministry of Agriculture and Fisheries (MAF) to improve their LSD</p> | <p>On track</p> | <p><b>High priority</b></p> <ul style="list-style-type: none"> <li>DAFF has funded LSD testing capacity in Timor-Leste, with both PCR nucleic acid testing and ELISA test capability now established in-country through ACDP.</li> <li>DAFF, Nossal Institute and NAQIA have finalised a rapid risk assessment for LSD for PNG, to focus awareness and surveillance activities. NAQIA has developed LSD and FMD preparedness work plans and DAFF is supporting a number of activities. An advanced LSD/FMD field diagnostic testing, sampling skills and vaccination workshop was delivered in conjunction with an FMD scenario exercise in June 2023. During the workshop, LSD awareness materials were launched with support from the DFAT-funded Pacific Horticultural and Agricultural Market Access Plus (PHAMA Plus) Program.</li> <li>PNG and Timor-Leste are now part of the DAFF-funded LSD regional vaccine supply agreement, giving these countries rapid access to an initial supply of quality LSD vaccines for a disease response should this be required in the future. DAFF has supported establishing a cool room in Dili which is currently housing priority animal disease vaccines. Interim cold-chain arrangements have also been established across 3 border municipalities in Timor-Leste.</li> <li>In June 2023, a DAFF veterinarian joined NAQIA in a survey of PNG’s southern border (Western Province) to assess risk pathways for LSD and other priority animal diseases.</li> <li>DAFF funded a Quarantine Capacity Building Project with Timor-Leste, in collaboration with the BTC. This project ran from January to July 2023. A 5-day in country needs</li> </ul> | <ul style="list-style-type: none"> <li>The development of a vaccination plan for LSD for PNG, including cold chain arrangements for EAD vaccines, is being supported by DAFF.</li> </ul> |

| Activity | Lead and key collaborators | Description   | Status | Priority progress update   | Next steps |
|----------|----------------------------|---|--------|--|------------|
|          |                            | <p>preparedness, technical and diagnostic capability, and surveillance.</p> |        | <p>assessments was conducted in January 2023 in Timor-Leste and in March 2023 in Indonesia to quantify the scope of work to be undertaken. A 10-day residential ‘train the trainer’ course was conducted for 10 quarantine officers from Timor-Leste at the BTC in April 2023, then during a follow-up workshop in Timor-Leste in July 2023 these officers trained their colleagues in recognising key animal disease including LSD, and in recognising risk commodities at the border.</p> <ul style="list-style-type: none"> <li>• A DAFF-funded awareness campaign and surveillance activity for LSD and other diseases was conducted from March to July 2023 in three border municipalities of Timor-Leste. Awareness materials were used as the focus of a series of village meetings, followed by active surveillance for these diseases. Over 1000 cattle were sampled across 98 villages. Data has been analysed and will be published by Timor-Leste’s MAF.</li> <li>• DAFF has funded the Northern Territory’s (NT) Berrimah Veterinary Laboratory to establish abattoir and sentinel surveillance for LSD and other priority animal diseases in Timor-Leste, in collaboration with MAF.</li> <li>• DAFF conducted a scoping exercise from 23-27 October 2023 to understand PNG’s quarantine operations training needs. DAFF officers joined colleagues from PNG to tour the airport, port, mail centre and approved quarantine facilities in Port Moresby. A training program has been developed to mitigate the risk of LSD and other priority diseases, and the first phase was delivered in Port Moresby in June 2024. The same training program was delivered in Timor-Leste in July 2024.</li> <li>• DFAT has been working with AgVic in Timor-Leste to improve laboratory capacity and disease surveillance efforts. An animal health surveillance system based on the EpiCollect platform has been deployed and is now in use which increases the diseases surveillance capacity for Timor-Leste. An animal disease testing laboratory was also installed in Dili in 2022 to increase the capacity to use modern molecular testing methodologies.</li> </ul> |            |

| Activity  | Lead and key collaborators   | Description  | Status   | Priority progress update  | Next steps  |
|---|--|--|----------|---|---|
| 1.3. Strengthen relationships in Southeast Asia | <b>Lead</b><br>DAFF, DFAT<br><b>Collaborators</b><br>Relevant state and territory governments, overseas partners | This activity includes establishing an Office of the Chief Veterinary Officer presence in northern Australia, led by the Australian Deputy Chief Veterinary Officer (Deputy ACVO). | On track | <b>High priority</b> <ul style="list-style-type: none"> <li>In November 2022, DAFF engaged with an Indonesian government delegation in Canberra on a range of topics highlighting Australian and Indonesian biosecurity co-operation. The meeting included senior parliamentarians and decision-makers on agriculture policies and laws from Indonesia’s Commission IV, as well as key Indonesian stakeholders, including the Director General of Livestock and Animal Health in the Indonesian MoA.</li> <li>A DAFF officer was seconded to FAO and based in Indonesia from July 2023 to January 2024. This officer provided a ready conduit between Indonesian and Australian experts and helped to establish and strengthen relationships that have extended beyond the posting.</li> <li>The Office of the Chief Veterinary Officer has established a presence in northern Australia, led by the ACVO.</li> </ul> | <ul style="list-style-type: none"> <li>DAFF is continually seeking to build relationships in Southeast Asia, including promoting engagement around LSD and other important animal health issues.</li> </ul>   |
| 1.4. Engage in international and regional fora  | <b>Lead</b><br>DAFF<br><b>Collaborators</b><br>Overseas partners   | This activity involves Australia’s ongoing engagement and contribution to international and regional fora on LSD.  | On track | <b>Medium priority</b> <ul style="list-style-type: none"> <li>DAFF attended the 12th FAO/World Organisation for Animal Health (WOAH) Regional Steering Committee Meeting of the Global Framework for the progressive control of Transboundary Animal Diseases (GF-TADs) for Asia and the Pacific in February 2023. Australia’s contributions to the GF-TADs Regional Strategy advocated that it captures diseases of significant concern to Australia including LSD and FMD. DAFF also advocated that the strategy focuses on addressing transboundary animal diseases at their source and boosts prevention and preparedness capabilities in LSD- and FMD-free countries at significant risk of an incursion e.g. Timor-Leste and PNG.</li> <li>A DAFF officer participated in the 4th LSD Coordination Meeting for Southeast Asia held 28-29 November 2023.</li> </ul>  | <ul style="list-style-type: none"> <li>This is an ongoing activity with Australian representatives regularly attending meetings of intergovernmental organisations, focused on LSD control and elimination in the Asia Pacific region.</li> <li>Australian representatives will continue to engage in international and regional fora relating to the management, control and prevention of LSD.</li> </ul> |



# Objective 2: Border biosecurity and trade

**Table O2 Augment industry-government collaboration and communication on the border biosecurity risks of LSD to Australia and strategically address technical market access barriers.**

| Activity   | Lead and key collaborators  | Description   | Status   | Priority progress update   | Next steps  |
|--|---|---|----------|--|---|
| 2.1. Review import policy and LSD risk pathways                          | <b>Lead</b><br>DAFF<br><b>Collaborators</b><br>Peak industry organisations  | This activity will include undertaking robust science-based risk analyses for the import of products from LSD-affected countries to ensure the risk of LSD is managed and achieves Australia's appropriate level of protection. | On track | <b>High priority</b> <ul style="list-style-type: none"> <li>In response to the spread of LSD in Southeast Asia, DAFF has reviewed import permits for products from LSD affected countries and suspended those of concern.</li> <li>A review of the risk of entry of LSD from non-regulated pathways has been undertaken (Activity 5.1.a).</li> <li>In December 2023, DAFF published the final review of Australia's current entry requirements for LSD in fresh beef (skeletal muscle) and beef products. The final review advises that certification of country freedom from LSD to cover importation of fresh beef derived exclusively from bovine skeletal muscle from approved countries is unnecessary on biosecurity grounds. Negotiation of revised health certificates continues.</li> </ul> | <ul style="list-style-type: none"> <li>Reviewing import policy is an ongoing priority and DAFF maintains contemporary science and risk-based import policies.</li> <li>DAFF is actively considering its import policy settings for a range of commodities by regarding the available science and nature of the biosecurity risks.</li> <li><a href="#">The final report of the review of the import policy for dairy products for human consumption is anticipated to be released in the first quarter of 2025. The final report confirms that risk management measures are not required for LSDV, as evidence demonstrated that pasteurisation is effective at inactivating LSDV.</a></li> </ul> |
| 2.2. Develop a strategic approach to minimising export trade disruptions | <b>Lead</b><br>DAFF<br><b>Collaborators</b><br>DFAT, the Australian Livestock Exporters' Council, LiveCorp, MLA, other industry groups, state | This activity will take a strategic approach to minimising disruptions to trade by analysing which export markets and products would be   | On track | <b>High priority</b> <ul style="list-style-type: none"> <li>In consultation with industry, and state and territory governments, DAFF finalised the LSD trade preparedness strategy. This strategy identifies priorities to mitigate trade losses that could result from an outbreak of LSD.</li> <li>DAFF has commenced implementing the LSD trade strategy, which included a comprehensive review of current export certification across multiple commodities to identify certificates that do not align with internationally recognised scientific standards.</li> <li>DAFF, in consultation with industry, has identified key priorities for engagement to pre-emptively mitigate these trade risks, and has already progressed this work with several markets.</li> </ul>                        | <ul style="list-style-type: none"> <li>DAFF continues to make positive progress in accordance with the identified priorities. This includes pre-emptively identifying certification where animal health statements could better align with science-based recommendations.</li> <li>This is an ongoing, high priority activity with regular consultation with key industry groups.</li> <li>DAFF is reviewing existing EAD materials to identify gaps for preparedness. This includes the</li> </ul>   |

|  |                           |   |  |   |  |
|--|---------------------------|---|--|---|--|
|  | and territory governments | affected if there is an LSD incursion in Australia. |  | <ul style="list-style-type: none"> <li>• Whilst trading partner reactions cannot be anticipated in the event of an LSD incursion, to date approximately \$700 million worth of exports previously at risk could now continue without disruption.</li> <li>• Consultation with jurisdictions, industry and AHA is continuing to clarify and promote consistency in national zoning approaches to minimise disruptions to international trade in the event of an EAD. DAFF led a dedicated second workshop for industry stakeholders, AHA and participating jurisdictions in June 2024 covering zoning for trade in the event of EAD outbreaks. The aim of the workshop was for the Commonwealth, state and territory governments and industry to develop a shared understanding of the concept of zoning for disease control and trade, and a common approach for the implementation of zoning following an EAD outbreak.</li> <li>• Trade in live cattle exports was maintained to key regional export markets following temporary disruptions related to questions regarding Australia’s LSD status in 2023.</li> <li>• As mentioned in Activity 1.1, DAFF has agreed on a laboratory cooperation and capacity building program for IQA laboratories and staff. The first component of this program, a visit by ACDP experts to the IQA central laboratory occurred in June 2024.</li> </ul> | <p>preparation of communication ‘toolkits’ to ease burden if these diseases are detected in Australia.</p> <ul style="list-style-type: none"> <li>• Following the workshop held by DAFF in June 2024, Victoria (Vic) supported by DAFF, will organise a workshop for jurisdictions to consider the operational challenges of implementing zoning in further detail.</li> </ul> |
|--|---------------------------|---|--|---|--|

# Objective 3: Diagnostic capability and capacity

**Table O3 Ensure that Australia’s national diagnostic network provides reliable LSD testing capability and capacity.**

| Activity  | Lead and key collaborators  | Description  | Status   | Priority progress update   | Next steps  |
|---|---|--|----------|--|---|
| 3.1. Improve national and regional LSD diagnostic capability and capacity | <p><b>Lead</b><br/>ACDP, Laboratories for Emergency Animal Disease Diagnosis and Response (LEADDR)</p> <p><b>Collaborators</b><br/>DAFF</p> | <p>National testing capability for LSD will be transferred from ACDP to all state and territory government laboratories through the existing LEADDR network. Regional testing capacity is also being supported by ACDP (Activity 1.2).</p> | On track | <p><b>High priority</b></p> <ul style="list-style-type: none"> <li>In March 2023, a report on potential materials for network quality controls (NQC) of LSD testing (PCR) and a schedule for the roll-out of serological capabilities to LEADDR laboratories was supplied to DAFF.</li> <li>NQC material for LSD PCR testing was developed and transferred to LEADDR in May 2023 to support QA amongst LEADDR laboratories. The first 2 rounds of Capripox PCR PT (testing for LSDV) have been completed.</li> <li>LSD positive serum for NQC and PT samples for serological testing (ELISA) has been sourced and prepared, for initial use. In March 2024 LEADDR laboratories completed the first round of testing for Capripox serology.</li> <li>An import permit now exists for the Innovative Diagnostics (ID) Capripox ELISA kit. ID Screen Capripox ELISA kits have been sent to all LEADDR laboratories participating in the serological testing, and the first round of ELISA PT is completed.</li> <li>As of October 2024, the LEADDR network have successfully completed PT for three rounds of LSDV PCR and two rounds of Capripox ELISA.</li> <li>A series of laboratory workshops and practical exercises, named Exercise Waterhole, were held from September to November 2023, to assess the ability of Australia’s laboratory network to respond to an outbreak of LSD while also responding to other animal disease threats. These exercises assessed the effectiveness of the information management systems currently in use in Australia and provided opportunities to identify areas for improvement in laboratory capacity and capability.</li> <li>Under a whole of government EAD preparedness program, Vic is strengthening its laboratory capacity for both rapid and sustained responses to disease outbreaks.</li> <li>A comprehensive literature review on the feasibility of environmental DNA/RNA (eDNA/RNA) testing of a number of viruses, including LSD, was completed by the National eDNA Reference Centre in September 2023. <a href="#">A report highlighting the existing assays and suitability for testing the technology as a complimentary surveillance method has been submitted to DAFF. A copy of the report can be obtained by contacting: <a href="mailto:scienceandresearch@aff.gov.au">scienceandresearch@aff.gov.au</a>.</a></li> <li>The Northern Australia biosecurity sequencing project at Berrimah Veterinary Laboratory continues to build high-throughput sequencing capacity in northern Australia through several collaborative diagnostic and surveillance projects.</li> </ul> | <ul style="list-style-type: none"> <li>LEADDR laboratories are submitting NQC results for both Capripox PCR and ELISA testing with the aim of harmonising results within the network</li> </ul> |

| Activity   | Lead and key collaborators                                    | Description   | Status          | Priority progress update   | Next steps   |
|--|---|---|-----------------|--|--|
| <p>3.2. Improve the diagnostic testing options at ACDP</p> | <p><b>Lead</b><br/>ACDP<br/><b>Collaborators</b><br/>DAFF</p> | <p>There are a range of diagnostic testing options available for LSD at ACDP. Despite this, the development of new and improved diagnostic tests is important for detecting and managing an LSD incursion in alternative ways and progressing research.</p> | <p>On track</p> | <p><b>Medium priority</b></p> <ul style="list-style-type: none"> <li>Negative samples have been collected to support development of serological tests (ELISA) in Australian animals.</li> <li>A project at ACDP on LSD whole genome sequencing database and workflow development has been finalised. ACDP now has access to robust and repeatable whole genome sequencing procedures for timely LSDV detection and characterisation.</li> <li>After securing the appropriate regulatory approvals, ACDP participated in an international Capripox (inactivated) PT round for serology and molecular diagnostic workflows in July 2023 and will also be participating in the 2024 international PT program.</li> <li>An immunohistochemical (IHC) staining protocol to identify LSDV in tissues using rabbit antibodies has been completed. This successfully highlighted LSDV in infected/positive control fixed tissue sections. The antibodies also successfully highlighted sheep pox and goat pox viruses in appropriate fixed samples.</li> <li>A series of cell lines was also established for the production of monoclonal antibodies against the LSDV P32 antigen. One clone has been identified as being better suited for IHC. A large batch of this antibody has been prepared and affinity purified for diagnostic use. <a href="#">This antibody has been successfully used to highlight LSDV in infected formalin-fixed, paraffin-embedded tissue sections as part of an IHC staining protocol.</a></li> <li>Commercialisation of an indirect ELISA for LSDV is underway. A commercial partner has been secured, relevant material has been transferred and development of a beta kit is progressing.</li> <li>Verification of virus isolation methods for LSDV using cell culture is continuing. A virus neutralisation test for LSDV has been implemented and is undergoing verification.</li> <li>ACDP has utilised its international networks to obtain a recombinant, field relevant strain of LSDV to support ongoing preparedness activities.</li> <li><a href="#">A project at ACDP is assessing several 'Differentiating Infected from Vaccinated Animals' (DIVA) assays to ensure emerging variant and recombinant wild-type strains of LSDV in animals can be effectively differentiated from the attenuated vaccine strain.</a></li> </ul> | <ul style="list-style-type: none"> <li>Further collection of negative samples through DAFF's Northern Australian Quarantine Strategy (NAQS) will occur to support development of serological tests (ELISA).</li> <li>Further rounds of IHC, using the large batch of affinity purified monoclonal antibody, will be undertaken to optimise the detection of viral antigen in fixed tissues.</li> </ul> |

| Activity                               | Lead and key collaborators   | Description   | Status   | Priority progress update  | Next steps   |
|--|--|---|----------|---|--|
| 3.3. Explore point-of-care LSD testing | <p><b>Lead</b><br/>ACDP, the Sub-Committee on Animal Health Laboratory Standards (SCAHLs) and the Animal Health Committee (AHC)</p> <p><b>Collaborators</b><br/>DAFF and state and territory governments</p> | This activity will explore the development and use of novel point-of-care (POC) tests to screen for potential LSD cases during an outbreak situation. | On track | <p><b>Medium priority</b></p> <ul style="list-style-type: none"> <li>The AHC POC testing task group was established in 2021 to examine national policy issues related to POC testing for both notifiable and endemic diseases.</li> <li>DAFF engaged a consultant to support the AHC working group in 2022. A broad range of stakeholder consultation was undertaken covering technical, operational and policy issues relating to the use of POC testing in Australia for all animal diseases. Their final report, including recommendations, was submitted to AHC in January 2023.</li> <li>The AHC POC testing task group was reformed in August 2023 with nominated representatives from the Commonwealth, all Australian jurisdictions, ACDP, AHA, Wildlife Health Australia (WHA), and James Cook University (JCU). The task group continues to meet monthly and is expecting to finalise their work by the end of 2024. The AHC POC testing task group has drafted a nationally consistent definition of POC tests <a href="#">and overarching principles for use</a>.</li> <li>New South Wales (NSW) have developed capacity to undertake POC testing for LSDV in the event of an outbreak using portable PCR machines.</li> <li>Vic has developed several loop mediated isothermal amplification (LAMP) POC primer sets for a test directed against LSD. They have been trialled against clinical LSD samples in Shimla, India with success and the test has been further developed to increase its speed.</li> <li>On behalf of jurisdictional government and industry stakeholders, ACDP continues to undertake assessment of LSD POC diagnostics suitable for field deployment.</li> <li>Queensland's (Qld) Department of Agriculture and Fisheries has developed a portable PCR test combined with a lateral flow device which was verified by ACDP in early 2023 and is ready for in-field trials internationally.</li> <li>SA has acquired LAMP POC testing machines and work is continuing to explore potential use in the field during EAD responses.</li> </ul> | <ul style="list-style-type: none"> <li>The AHC POC testing task group is progressing <a href="#">draft principles for the assessment and use of POC tests</a>. This includes a guidance document outlining the potential applications where a POC test may be used. It is anticipated that this will go to AHC for consideration soon.</li> <li>Vic's selected LAMP POC primer set is awaiting further negotiations to be completed to enable activity and access to stored clinical LSD samples in Himachal Pradesh in Northern India.</li> </ul> |

# Objective 4: Surveillance

**Table O4 Optimise government and industry investment in LSD surveillance.**

| Activity  | Lead and key collaborators   | Description  | Status   | Priority progress update  | Next steps  |
|---|--|--|----------|---|---|
| 4.1.a.<br>Develop a national LSD surveillance strategy                | <b>Lead</b><br>AHC, AHA<br><b>Collaborators</b><br>DAFF, CSIRO/ACDP, Australian Meat Industry Council, peak industry organisations | This activity aims to develop a national LSD surveillance strategy that will assist with detecting an LSD incursion as early as possible.                    | On track | <b>Medium priority</b> <ul style="list-style-type: none"> <li>In August 2023, and in response to regional trade issues related to live animal exports DAFF published a <a href="#">comprehensive report demonstrating Australia's freedom from LSD</a>, which collated data on disease investigations for cattle with skin lesions, feral animal surveillance undertaken by NAQS, inspections at export abattoirs and pre-export inspection of cattle and buffalo prepared for export.</li> <li><a href="#">The National Veterinary Epidemiology and Surveillance Advisory group is drafting a workplan for evaluating Australia's surveillance for LSD and delivery of a surveillance strategy. The evaluation will include the consideration of work already conducted in individual jurisdictions, consultations with industry, regular updates to AHC, and recommendations for future surveillance</a></li> <li><a href="#">AHA participates in and contributes to the LSD Surveillance Strategy Working Group and the over-arching AHC Epidemiology and Surveillance Advisory Group, both of which are led and chaired by DAFF.</a></li> </ul>                       | <ul style="list-style-type: none"> <li><a href="#">A description of the current surveillance system and workplan for the strategy will be provided to AHC.</a></li> </ul>   |
| 4.1.b.<br>Develop a wild and free-roaming bovid surveillance strategy | <b>Lead</b><br>State and territory governments<br><b>Collaborators</b><br>NAQS, NT Cattlemen's Association, other industry groups  | This activity aims to develop a surveillance strategy to identify the locations, numbers and population dynamics of wild and free roaming bovid populations. | On track | <b>Medium priority</b> <ul style="list-style-type: none"> <li>Wild animal surveillance for a potential LSD incursion is already part of the NAQS program. Further surveillance is undertaken by state and territory governments, including through the National Significant Disease Investigation Program.</li> <li>NAQS targeted surveillance strategy includes routine LSD serology on feral bovids (cattle, buffalo, banteng). Since routine testing commenced March 2022, there have been 167 feral bovids tested from 15 surveys in the NT and Western Australia (WA). All tests have returned negative serological results. Exclusion testing also occurs on any bovid skin lesions and internal lesions, which are clinically suggestive of LSD. Of the 167 feral bovids tested for serological exposure to LSD, 92 animals with lesions were tested for live LSDV using PCR. No PCR positives have been detected either.</li> <li>WHA is exploring the feasibility of developing a network to engage with feral animal managers on matters of wildlife health. Such a group may ultimately have value for this program, but work is still preliminary.</li> </ul> | <ul style="list-style-type: none"> <li>As outlined in activity 4.1.a, the National Veterinary Epidemiology and Surveillance Advisory Group will consider current national LSD surveillance activities.</li> <li>NAQS will continue with LSD targeted surveillance in feral bovid populations, expanding surveillance into any feral cattle that may be inhabiting national parks in Qld.</li> </ul> |

| Activity  | Lead and key collaborators   | Description   | Status   | Priority progress update  | Next steps  |
|---|--|---|----------|---|---|
| 4.1.c.<br>Review arthropod vector monitoring programs | <b>Lead</b><br>DAFF, state and territory governments<br><br><b>Collaborators</b><br>CSIRO, AHA | This activity will review Australia's current arthropod vector monitoring programs (including in near neighbouring countries) and investigate if there are opportunities or the need to adapt these programs to be relevant to LSDV surveillance. | On track | <b>Medium priority</b> <ul style="list-style-type: none"> <li>• Vic's collaborative research project with ACDP is continuing to evaluate vectors of importance for spread and maintenance of LSD within Vic. Work on this project commenced in June 2023 and is continuing as planned.</li> <li>• DAFF has contracted ACDP for the assessment of buffalo fly as a vector for LSD in Australia. This project aims to gain a greater understanding of buffalo fly's ability to transmit LSD. <a href="#">Proof of concept for the project was confirmed in October 2024</a>. The project is predicted to be completed in April 2025.</li> </ul> | <ul style="list-style-type: none"> <li>• The collaborative research project is continuing throughout 2024 and into 2025. A milestone report is currently being reviewed and will be available shortly.</li> </ul> |

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| <p>4.2. Undertake training and awareness activities</p> | <p><b>Lead</b><br/>DAFF, state and territory governments</p> | <p>This activity seeks to develop training programs and raise awareness of the increased risk of LSD and other animal disease threats in the Australian livestock population.</p> | <p>On track</p> | <p><b>Medium priority</b></p> <ul style="list-style-type: none"> <li>• The Northern Australia Coordination Network (NACN) was established with \$4.3 million in funding to bring together NT, Qld, WA and Commonwealth governments in partnership with key industries and local communities to improve Australia’s surveillance and preparedness coordination in the north. All NACN partners are working together to deliver communications, training, awareness and surveillance activities across northern Australia to help further develop capability to protect Australia from EADs including LSD.</li> <li>• <a href="#">NACN is supporting the Northern Australian Biosecurity Strategy Network (NABSnet) through the procurement of a veterinary advisor based in far north Queensland to work alongside the existing NABSnet veterinary advisor, supporting private veterinarians performing significant disease investigations across northern Australia, which includes LSD exclusions.</a></li> <li>• Regular presentations are given on NAQS surveillance, with a focus on current priority diseases. Audiences include producer groups, veterinarians, state and territory government stakeholders.</li> <li>• Fee-for-service community animal health reporting activities occur through Indigenous ranger groups. These include reporting to highlight unusual sickness in cattle or buffalo residing within indigenous controlled lands.</li> <li>• Topwatch! Public awareness material is distributed at agricultural shows, schools, producer forums and to rangers, with personnel available for any questions. This material includes calendars, brochures and factsheets highlighting the risk posed by various diseases including LSD.</li> <li>• Regular engagement and discussion with NABSnet veterinarians encourages LSD exclusions and reporting. The network provides ongoing support for veterinarians in northern Australia via regular newsletters, contact through the NABSnet Veterinary Adviser, online resources and subsidies for significant disease investigations and EAD exclusions, and an annual masterclass, which was most recently held in Darwin in March 2024.</li> <li>• The NABSnet northern Australia Cattle Skin Survey has been extended until June 2025, to provide evidence on what is typically causing skin lesions in cattle in northern Australia. Since the Skin Survey began in May 2023, there have been <b>73</b> submissions with over <b>141</b> samples submitted. All samples have tested negative for LSD and the most common histological diagnosis has been dermatitis likely due to insect hypersensitivity.</li> <li>• <a href="#">In late July 2024, the European Commission for the Control of Foot-and-Mouth Disease (EuFMD) delivered a webinar for Australian participants, on the European experience of LSD control, using vaccination as a control measure.</a></li> <li>• NSW Department of Primary Industries (NSW DPI) conducted an exercise based on LSD in February 2024, to test “just in time” training modules that were developed for surveillance and tracing response staff. A NSW multi-agency exercise to test existing</li> </ul> | <ul style="list-style-type: none"> <li>• Planning is underway for a NACN WA, NT and Qld cross-border LSD response exercise for <a href="#">early 2025</a>. The exercise will test cross-border arrangements for a hypothetical incursion of LSD into northern Australia. <a href="#">A workshop to explore novel solutions to enhance EAD surveillance in northern Australia and increase capability for early detection and reporting of priority animal diseases is being organised for early 2025.</a></li> <li>• All jurisdictions will continue to deliver engagement and awareness activities, highlighting the risk of EADs like LSD. This ensures producers and other relevant stakeholders know who to contact when they encounter unusual signs of disease.</li> <li>• The agreement between DAFF and EuFMD has been extended until December 2026. Under this agreement, EuFMD will deliver 2 more virtual real-time training courses, on FMD, LSD and sheep and goat pox, to Australian veterinarians. They will also deliver multiple webinar events and virtual simulation exercises for previous real-time training participants.</li> </ul> |
|---|--|---|-----------------|---|--|



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|  |  |  | <p>disposal planning was held in February 2024 with the Engineering functional area leading the exercise and DPI staff participating.</p> <ul style="list-style-type: none"> <li>• NSW DPI and Local Land Services have been undertaking a targeted surveillance and engagement program in NSW saleyards since October 2022. This work focuses on examining cattle for signs consistent with LSD or FMD and undertaking confirmatory sampling. So far 473 inspections have been performed across 30 saleyards. The initial review of the data suggests that this surveillance over time could potentially provide important supporting evidence for absence of disease if an incursion were to occur elsewhere in Australia.</li> <li>• NSW DPI released <a href="#">issue 5</a> of EAD Vet Wrap in <a href="#">September 2024</a> – a quarterly newsletter to keep veterinary professionals up to date with EAD preparedness activities and provide updates on what is happening in NSW and beyond. The next issue of EAD Vet Wrap is expected in <a href="#">December 2024</a>. <a href="#">The September issue highlighted resources available through the National Biosecurity Training Hub including a suite of EAD Response Training modules. The 5 modules cover surveillance, tracing, movement controls, destruction and disposal, and field veterinary operations.</a></li> <li>• Under its whole of government EAD preparedness program, Vic has been undertaking extensive work to raise awareness with livestock keepers to ensure they are aware of biosecurity risks and best practices and have in place enduring measures and practices to effectively manage biosecurity risks. Vic has held 82 biosecurity planning workshops targeted at mixed farming businesses and remote areas to assist with the development of 436 farm biosecurity plans, has held 82 awareness events for 5,767 producers, and 123 events for 1,520 other stakeholders, and has had 1,865 enrolments in eLearning modules to support the sector’s awareness of EAD events.</li> <li>• Qld officers have completed training to upskill in disease investigation procedures and techniques to increase capability and capacity for an EAD response. These training sessions are being conducted annually. A pilot disease investigation workshop was delivered to cattle industry staff, promoting EAD awareness and reporting and is being adapted for delivery to local government.</li> <li>• Qld is conducting <a href="#">twice yearly</a> EAD investigation training workshops for private veterinarians in collaboration with the University of Queensland (UQ) School of Veterinary Science and JCU.</li> <li>• Biosecurity Qld has conducted 12 face-to-face and virtual response readiness training courses for staff, elected officials, and emerging leaders of agricultural peak industry bodies.</li> <li>• SA officers are undertaking training and awareness activities to a wide range of stakeholders including private veterinarians, abattoirs, livestock agents, producers, stock feed manufacturers and transporters. SA continues to engage in staff training utilising NSW "Just in time" training and EuFMD modules which also cover LSD. SA officers continue to visit saleyards across the state with enhanced awareness for LSD.</li> </ul> |  |
|--|--|--|---|--|

| Activity | Lead and key collaborators | Description | Status | Priority progress update  | Next steps |
|----------|----------------------------|-------------|--------|---|------------|
|          |                            |             |        | <ul style="list-style-type: none"> <li>• SA officers have finished distribution of glovebox skin sampling kits and training of producers in remote areas of SA. This will enable them to take samples that can be sent to a laboratory for testing.</li> <li>• WA has completed training for private practitioners including EAD awareness and sample submissions. WA has commenced an EAD Veterinary reserve training program.</li> <li>• To test the Australian Capital Territory's (ACT) biosecurity response capability 'Exercise Capital Standstill', an FMD exercise scenario involving multiple government directorates was run in May 2024. This exercise was beneficial to understanding the ACT's capacity to respond to a major EAD incident.</li> </ul> |            |

# Objective 5: Preparedness and response

**Table O5 Enhance the LSD preparedness and emergency response capacity and capability of industries and governments, and clearly define roles and responsibilities.**

| Activity  | Lead and key collaborators  | Description  | Status    | Priority progress update  | Next steps   |
|---|---|--|-----------|---|--|
| 5.1.a. Undertake risk mapping of the likelihood of entry, establishment and spread of LSD | <b>Lead</b><br>DAFF<br><b>Collaborators</b><br>State and territory governments, AHC, other partners | This activity aims to undertake risk mapping of geographical areas that may have a higher likelihood of entry, establishment and spread of LSD.  | Completed | <b>High priority</b> <ul style="list-style-type: none"> <li>DAFF commissioned a risk assessment examining the potential for an incursion through non-regulated pathways (such as windborne spread) by external consultants. This work will guide future modelling and vector studies and aid in targeting future surveillance activities.</li> <li>The risk assessment and modelling has been released on <a href="#">DAFF's website</a> and <a href="#">published</a> in the Journal of Preventative Veterinary Medicine.</li> <li>A summary of this risk assessment and modelling work was presented to industry representatives at a webinar on 4 May 2023. A recording of this presentation is available through the <a href="#">National Farmers Federation</a>.</li> </ul>  | Completed in <a href="#">May 2023</a>  |
| 5.1.b. Develop epidemiological modelling systems for LSD                                  | <b>Lead</b><br>DAFF<br><b>Collaborators</b><br>State and territory governments, AHC, other partners | This activity will focus on the development of systems for the epidemiological modelling of vector-transmitted disease outbreaks. The system will be used to integrate data from jurisdictional and national datasets. | On track  | <b>High priority</b> <ul style="list-style-type: none"> <li>A new LSD epidemiological model has been developed using the Australian Animal Disease Spread (AADIS) platform to assess areas in Australia where LSD may spread and compare different control strategies, including the use of vaccination.</li> <li>A report on the AADIS modelling work is being finalised and a communication plan developed for its release. Release of the findings from the AADIS modelling work has been delayed due to competing priorities (HPAI response and preparedness).</li> <li><a href="#">UQ has made technical improvements to the development of a geospatial risk assessment model that includes a wind dispersion sub-model. The research team has prepared a scientific manuscript which is currently going through coauthor review prior to submission to a peer reviewed journal. This model will aim to optimise Australia's onshore and offshore surveillance and response plans by anticipating potential LSDV entry points through analysing data across the biosecurity continuum.</a></li> </ul> | <ul style="list-style-type: none"> <li>DAFF will work with stakeholders to decide on how the AADIS model may be expanded to cover a greater range of control options.</li> </ul> |

| Activity  | Lead and key collaborators  | Description   | Status           | Priority progress update  | Next steps  |
|---|---|---|------------------|---|---|
| 5.2.a. Develop a national LSD vaccination strategy                | <p><b>Lead</b><br/>AHC, AHA</p> <p><b>Collaborators</b><br/>CSIRO, Cattle Australia, the AHC Vaccine Expert Advisory Group (VEAG), other partners</p> | <p>This activity will establish a national LSD vaccine working group to develop a national LSD vaccination strategy, including options on how to best apply vaccination during a response and how to identify vaccinated animals.</p> | <p>On track</p>  | <p><b>High priority</b></p> <ul style="list-style-type: none"> <li>• A Vaccination Operational Task Group (VOTG) has been established under the Sub-Committee on Emergency Animal Disease (SCEAD) and is responsible for developing national recommendations for the use of vaccination during an outbreak. Membership of the national VOTG consists of all jurisdictions, the Commonwealth and AHA.</li> <li>• The VOTG will develop implementation plans about how LSD vaccination could be used, in the event of an LSD outbreak, using the most plausible scenarios which will be modelled through the AADIS-LSD model and other work (Activity 5.1.b).</li> <li>• The VOTG <b>has met virtually eight times and</b> continues to meet regularly and has progressed the operational plans required to roll out the approved LSD vaccine for the use in an outbreak.</li> <li>• <b>A recommendation report regarding the composition of vaccination teams and supplies needed is being drafted in late 2024. Existing NASOPs have been reviewed and will be further developed as generic documents based on species.</b></li> <li>• Jurisdictions have also been developing their own policies and LSD vaccination plans.</li> </ul> | <ul style="list-style-type: none"> <li>• The VOTG has been tasked with developing operational plans for using vaccination against other important livestock diseases but is prioritising LSD through to June 2024. Once AADIS models have been finalised on different LSD outbreak scenarios, operational plans can be formulated based on the potential vaccine requirements.</li> <li>• <b>Final recommendations from the group will be presented to AHC at the next face to face meeting in March 2025.</b></li> </ul> |
| 5.2.b. Access an LSD vaccine appropriate for use within Australia | <p><b>Lead</b><br/>DAFF</p>   | <p>Commercially available LSD vaccines will be evaluated to assess their suitability for emergency use in Australia.</p>  | <p>Completed</p> | <p><b>High priority</b></p> <ul style="list-style-type: none"> <li>• International suppliers of homologous LSD vaccines were contacted in 2022 to determine if they could produce a vaccine in compliance with quality standards that could be certified by a competent authority recognised by Australia.</li> <li>• A suitable vaccine was identified and the Australian Pesticides and Veterinary Medicines Authority (APVMA) has issued a <b>Consent to Import and</b> Emergency Use Permit for the vaccine produced by MSD Animal Health.</li> <li>• A DAFF import permit has been issued for the MSD Animal Health LSD vaccine, to ensure the vaccine can be imported into Australia if it is ever needed.</li> </ul>   | <p>Completed in November 2024</p>   |

| Activity   | Lead and key collaborators  | Description   | Status   | Priority progress update   | Next steps  |
|--|---|---|----------|--|---|
| 5.2.c. Investigate options for the timely supply of LSD vaccines | <b>Lead</b><br>DAFF, AHA<br><b>Collaborators</b><br>State and territory governments, peak industry organisations        | This activity aims to investigate options to secure access to LSD vaccines in the event of an outbreak, including the possibility of investment in an LSD vaccine bank modelled on the Australian FMD Vaccine Bank. | On track | <b>High priority</b> <ul style="list-style-type: none"> <li>In June 2023, DAFF entered into a Regional LSD Vaccine Supply Arrangement with an international LSD vaccine manufacturer, MSD Animal Health, to supply 300,000 doses of LSD vaccines to Australia or other regional countries if required.</li> <li>In October 2023, DAFF officers met with representatives from AHA to discuss the Regional LSD Vaccine Supply Arrangement and the possibility of a co-funded LSD vaccine supply arrangement for use in Australia in the event of an outbreak.</li> <li>In November 2023, DAFF presented on the Regional LSD Vaccine Supply Arrangement at the AHC Stakeholder Forum. In March 2024, DAFF presented on the same topic to government and industry stakeholders.</li> </ul> | <ul style="list-style-type: none"> <li>DAFF will continue to investigate options for the timely supply of LSD vaccines with relevant collaborators.</li> </ul>  |
| 5.3. Review the national LSD response strategy                   | <b>Lead</b><br>AHA, AHC, DAFF, AUSVETPLAN Technical Review Group<br><b>Collaborators</b><br>Peak industry organisations | This activity aims to ensure the national LSD response strategy is fit-for-purpose and well aligned with the national LSD vaccination strategy.   | On track | <b>High priority</b> <ul style="list-style-type: none"> <li>In 2022, a joint government and industry exercise was developed by AHA to test components of the latest version of the AUSVETPLAN Response Strategy for LSD.</li> <li>Following the 2022 exercise (Exercise LSD2), the AUSVETPLAN <i>Response strategy: Lumpy skin disease</i> underwent updates with AHC endorsing the updated manual in October 2023. A number of items identified in the exercise were determined to be out of scope of AUSVETPLAN and were referred to other responsible parties for completion.</li> </ul>  | <ul style="list-style-type: none"> <li>The revision and update of the AUSVETPLAN Response Strategy for LSD partly completes this activity. Once the LSD vaccination strategy is developed, an alignment of benefits and outcomes will be undertaken.</li> </ul> |

| Activity   | Lead and key collaborators   | Description  | Status   | Priority progress update   | Next steps   |
|--|--|--|----------|--|--|
| 5.4. Prepare to manage exported livestock in transit and in preparation for export during an incursion | <b>Lead</b><br>DAFF<br><br><b>Collaborators</b><br>AHC, LiveCorp, MLA, live animal exporters | This activity involves the development of a framework for contingency plans (including preparedness, logistics, biosecurity and welfare) for Australian livestock consignments which are within the export process, including those that are loading or those that have departed but not yet arrived in their destination country. | On track | <b>Medium priority</b> <ul style="list-style-type: none"> <li>DAFF is continuing to develop a policy framework for broader export livestock incident management procedures. These incidents include the detection of a disease such as LSD and FMD in Australia as they relate to livestock exports.</li> <li>DAFF is working with interested stakeholders to develop operating principles for managing livestock conveyances, including the possible return of vessels carrying livestock to Australia and other contingency arrangements.</li> <li>In December 2023 changes were made to the <i>Export Control (Animals) Rules 2021</i> to allow DAFF to require the moving or loading of livestock for export to stop in circumstances where the Secretary reasonably suspects that an animal disease, infection or infestation is present in Australia. The changes are designed to prevent or significantly reduce the potential health and welfare impacts to livestock about to be, or in the process of being, loaded for export, and mitigate potential damage to Australia’s reputation as a trusted trading nation more broadly.</li> <li>DAFF received <a href="#">\$8.8 million</a> over 2 years to support the continuation of the livestock export trade, including funding to develop a national approach to manage livestock in transit and when they may need to return to Australia.</li> </ul> | <ul style="list-style-type: none"> <li>DAFF will continue to engage with stakeholders to progress identified steps and update internal export livestock incident management procedures.</li> </ul>   |
| 5.5. Investigate arthropod vector control options  | <b>Lead</b><br>DAFF<br><br><b>Collaborators</b><br>State and territory governments           | This activity will review Australia’s current arthropod vector control options (including in near neighbouring countries) and investigate if there are opportunities to improve these or put in place plans to prevent the spread of disease.  | On track | <b>Medium priority</b> <ul style="list-style-type: none"> <li>A National Vector Management Advisory Group (NVMAG) has been established under AHC, tasked with developing an LSD vector management plan in the event of an outbreak. The group has completed a list of available chemical control products for LSD vectors.</li> <li>The LSD Vector Management Guide has been finalised and accepted by DAFF. This manual provides technical information to inform the development of operational plans for managing vector (insect) populations involved in transmitting LSDV. It is designed to be used as an evidence-based reference to assist Australian governments to develop tailored operational plans for vector management once the extent and nature of an outbreak is understood. The related paper for SCEAD and AHC has been prepared.</li> </ul>  | <ul style="list-style-type: none"> <li><a href="#">The LSD Vector Management Guide has been endorsed by SCEAD and will be sent to AHC for their information. It was agreed that the guide will be published on the AHA website.</a></li> </ul> |

# Objective 6: Awareness and communication

**Table O6 Facilitate stronger engagement between governments and industry through a comprehensive and adaptable communication strategy for LSD.**

| Activity   | Lead and key collaborators   | Description  | Status                                     |
|--|--|--|--|
| 6.1 Develop a comprehensive and sustained LSD communication plan to raise awareness and understanding of the disease, risk and preparedness activities | <p><b>Lead</b><br/>The National Biosecurity Committee Engagement Network (NBCEN), peak industry organisations</p> <p><b>Collaborators</b><br/>DAFF</p> | This activity will develop a comprehensive and sustained LSD communication plan to raise awareness and understanding of the disease, risk and preparedness activities. | Completed in <a href="#">November 2023</a> |
| 6.2. Develop a communication plan for use during an LSD emergency response   | <p><b>Lead</b><br/>NBCEN</p>   | This activity will develop a communication plan that could be used during an incursion of LSD.   | Completed in <a href="#">February 2024</a> |

# Objective 7: Research and innovation

**Table O7 Improve Australia's LSD preparedness and response through research priorities driven by industry and government needs, and ensure new knowledge is freely accessible.**

| Activity  | Lead and key collaborators  | Description   | Status   | Priority progress update   | Next steps   |
|---|---|---|----------|--|--|
| 7.1. Set national priorities for LSD research, engagement and communication | <b>Lead</b><br>DAFF, the National Animal Biosecurity Research, Development and Extension (RD&E) Strategy (AHA), AHC | This activity will seek to bring together industry, government and other stakeholders to identify, prioritise and undertake important LSD-related research and preparedness activities. | On track | <b>Low Priority</b><br><ul style="list-style-type: none"> <li>A workshop is being planned by DAFF, with support from AHA, to identify knowledge gaps and prioritise RD&amp;E opportunities.</li> </ul> | <ul style="list-style-type: none"> <li>This workshop was postponed due to competing priorities. It will be revisited in <a href="#">2025</a>.</li> </ul> |



| Activity                                     | Lead and key collaborators  | Description  | Status          | Priority progress update  | Next steps   |
|--|---|--|-----------------|---|--|
| 7.2. Investigate new technology LSD vaccines | <p><b>Lead</b><br/>ACDP, Elizabeth Macarthur Agricultural Institute (EMAI)</p> <p><b>Collaborators</b><br/>DAFF, state and territory governments, industry, MLA</p> | <p>This activity will seek research interest in developing alternative vaccine technologies that can be deployed both in Australia and internationally to control the further spread of LSD.</p> | <p>On track</p> | <p><b>Medium Priority</b></p> <ul style="list-style-type: none"> <li>• DAFF conducted an open market discovery process, seeking responses from potential vaccine manufacturers about the possible development of novel LSD and other livestock vaccines and the potential for Australian-based vaccine production capability.</li> <li>• NSW, Qld and Commonwealth governments through MLA, have invested in a \$4.95 million project to support research into messenger ribonucleic acid (mRNA) vaccines for livestock, including LSD. This project aims to deliver an mRNA LSD vaccine construct that has undergone in-vivo efficacy testing.</li> <li>• mRNA vaccines have been shown to give high serological response and protection against challenge with Border disease virus in sheep. Progress has been made on mRNA dose and formulation optimisation.</li> <li>• NSW government has invested a further \$8.8M in this program with matching funds (60:40) from the MLA Donor Company. mRNA vaccine production capacity is being developed by UNSW RNA Institute and built into the NSW RNA pilot facility.</li> <li>• Tiba Biotech have made mRNA constructs effective at generating serological responses in mice-based antigens considered to be most likely to induce neutralising antibody responses against LSDV. NSW DPI has tested 6 vaccine constructs in rabbits and cattle at EMAI. Collaborators at the Canadian Food Inspection Agency (CFIA, Winnipeg) have shown virus neutralising antibodies from these animals. CFIA has tested vaccines in sheep and demonstrated serological responses. <a href="#">Virus neutralising antibody responses in sheep and cattle suggested improved efficacy with combinations of antigens.</a></li> <li>• Qld's government and UQ continue to work collaboratively to develop a prototype single-dose microencapsulated subunit vaccine for LSD with DIVA capabilities.</li> </ul> | <ul style="list-style-type: none"> <li>• EMAI <a href="#">assessed</a> vaccines that contain multiple antigens to identify superior immune responses. The best performing vaccines will be tested for efficacy in cattle in Germany. <a href="#">Ethics approval has been submitted for the efficacy studies.</a></li> </ul> |

| Activity  | Lead and key collaborators  | Description  | Status   | Priority progress update   | Next steps  |
|---|---|--|----------|--|---|
| 7.3. Develop modelling tools to support LSD preparedness and response | <p><b>Lead</b><br/>DAFF, Centre of Excellence for Biosecurity Risk Analysis (CEBRA)</p> <p><b>Collaborators</b><br/>State and territory governments</p> | This activity will seek investment in other modelling tools to hone Australia’s LSD preparedness and response (in addition to epidemiological modelling tools developed under Activity 5.1.b). | On track | <p><b>Medium Priority</b></p> <ul style="list-style-type: none"> <li>To strengthen national real-time modelling capabilities during an outbreak response, a stakeholder workshop was held in August 2022 to identify gaps and priorities for real-time modelling activities during an outbreak response, using LSD as the test case. Outputs from the workshop will guide the development of modelling tools and workflows to support decision making during an emergency response.</li> <li>A package of decision support tools for outbreak responses was developed in June 2024, including epidemiological analyses and an epidemiological forecasting model.</li> <li>A new follow-on project “Enhancing Models for Rapid Decision-Support in EAD Outbreaks” has begun to support the uptake and operationalisation of epidemiological models for decision-making during outbreak response. This project is funded by the Australian Research Data Commons.</li> </ul> | <ul style="list-style-type: none"> <li>Follow-on work under a new project “Enhancing Models for Rapid Decision-Support in EAD Outbreaks” is underway from 2024 to 2026.</li> <li>A workshop is planned for 2025 to showcase recently completed work and assess needs and operationalisation of decision support tools such as epidemiological models for national and jurisdictional government use.</li> </ul> |

# Objective 8: Recovery

**Table O8 Mitigate the economic and social effects of an outbreak of LSD by developing options for a recovery strategy.**

| Activity  | Lead and key collaborators  | Description   | Status                                     |
|---|---|---|--|
| 8.1. Develop options for an LSD recovery strategy | <b>Lead</b><br>DAFF, in consultation with other Australian Government agencies as appropriate | This activity will develop options for a LSD recovery strategy in consultation with other Australian Public Service agencies as appropriate, to assist in overall preparedness in the event of an LSD outbreak. | Completed in <a href="#">November 2023</a> |

# Glossary

| Acronym    | Definition  |
|------------|---|
| AADIS      | Australian Animal Disease Spread  |
| ACDP       | Australian Centre for Disease Preparedness                                    |
| ACT        | Australian Capital Territory  |
| ACVO       | Australian Chief Veterinary Officer   |
| AgVic      | Agriculture Victoria  |
| AHA        | Animal Health Australia   |
| AHC        | Animal Health Committee   |
| AHSP       | Australia Indonesia Health Security Partnership                               |
| APVMA      | Australian Pesticides and Veterinary Medicines Authority                      |
| AUSVETPLAN | Australian Veterinary Emergency Plan  |
| BTC        | Biosecurity Training Centre   |
| CFIA       | Canadian Food Inspection Agency   |
| CSIRO      | Commonwealth Scientific and Industrial Research Organisation                  |
| DAFF       | Department of Agriculture, Fisheries and Forestry                             |
| DFAT       | Department of Foreign Affairs and Trade                                       |
| DIC        | Indonesian Disease Investigation Centre                                       |
| DIVA       | Differentiating Infected from Vaccinated Animals                              |
| EAD        | Emergency animal disease  |
| ELISA      | Enzyme-linked immunosorbent assay   |
| EMAI       | Elizabeth Macarthur Agricultural Institute                                    |
| eDNA/RNA   | Environmental deoxyribonucleic acid/ribonucleic acid                          |
| EuFMD      | European Commission for the Control of Foot-and-Mouth Disease                 |
| FAO        | Food and Agriculture Organisation of the United Nations                       |
| FMD        | Foot-and-mouth disease  |
| GF-TADs    | Global Framework for the progressive control of Transboundary Animal Diseases |
| HPAI       | <a href="#">High pathogenicity avian influenza</a>                            |
| ID         | Innovative Diagnostics  |
| IHC        | Immunohistochemical   |
| IQA        | Indonesian Quarantine Agency  |
| JCU        | James Cook University   |
| LAMP       | Loop mediated isothermal amplification  |
| LEADDR     | Laboratories for Emergency Animal Disease Diagnosis and Response              |
| LiveCorp   | Australian Livestock Export Corporation                                       |
| LSD        | Lumpy skin disease  |
| LSDV       | Lumpy skin disease virus  |
| MAF        | Timor-Leste's Ministry of Agriculture and Fisheries                           |
| MLA        | Meat & Livestock Australia  |
| MoA        | Indonesian Ministry of Agriculture  |
| mRNA       | Messenger ribonucleic acid  |

|         |   |
|---------|---|
| NABSnet | Northern Australian Biosecurity Strategy Network                            |
| NACN    | Northern Australia Coordination Network                                     |
| NAQIA   | Papua New Guinea's National Agriculture Quarantine and inspection Authority |
| NAQS    | Northern Australian Quarantine Strategy                                     |
| NBCEN   | National Biosecurity Committee Engagement Network                           |
| NQCs    | Network quality controls  |
| NSW     | New South Wales   |
| NSW DPI | New South Wales Department of Primary Industries                            |
| NT      | Northern Territory  |
| NVMAG   | National Vector Management Advisory Group                                   |
| PCR     | Polymerase chain reaction   |
| PNG     | Papua New Guinea  |
| POC     | Point-of-care   |
| PT      | Proficiency testing   |
| QA      | Quality assurance   |
| Qld     | Queensland  |
| RD&E    | Research, Development and Extension   |
| REDS    | Regional Emerging Disease Support   |
| SA      | South Australia   |
| SCAHLs  | Sub-Committee on Animal Health Laboratory Standards                         |
| SCEAD   | Sub-Committee on Emergency Animal Disease                                   |
| SSBA    | Security-Sensitive Biological Agent   |
| UQ      | University of Queensland  |
| Vic     | Victoria  |
| VOTG    | Vaccine Operational Task Group  |
| VRTT    | Virtual Real Time Training  |
| WA      | Western Australia   |
| WHA     | Wildlife Health Australia   |