Animalplan 2022 to 2027 Progress Report 3
May 2024

Acknowledgement of Country

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

Introduction

Animalplan 2022 to 2027 (Animalplan) is Australia's first national action plan to strengthen our production animal health system. It follows on from the success of AQUAPLAN, the national plan for aquatic animal industries.

Animalplan will strengthen Australia's arrangements for managing animal health in agriculture by increasing productivity and reducing production losses incurred as a result of agricultural pests and diseases.

Many government and industry organisations have already developed animal health strategic plans for a single industry, region or jurisdiction. Similarly, national strategies and plans also exist or are under development covering a range of areas, including both the Commonwealth Biosecurity 2030 roadmap and the National Biosecurity Strategy, and issue-specific strategies for surveillance, diagnostics, and antimicrobial resistance. Animalplan does not duplicate or supersede these plans. Rather, it references and links these in a single strategic action plan for terrestrial agricultural animal health.

Implementation of Animalplan activities is a shared responsibility between government and non-government organisations. The Animalplan Steering Committee, with representation from government and industry, is overseeing the implementation of Animalplan activities.

This report provides an overview of the progress of each Animalplan objective and activity.

Objective 1: Improve Australia's preparedness and ability to respond to emergency animal diseases.

Table 1 Activities to improve Australia's preparedness and ability to respond to emergency animal diseases.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
1.1. Continue to implement recommendations from emergency responses including EAD incursions, COVID-19, previous EAD simulation exercises and recent natural disasters	Animal Health Australia (AHA, to facilitate engagement across governments and industries); government agencies and peak industry organisations (to lead implementation of recommendations)	Recommendations from emergency responses are actioned to reduce emergency scenario risks to production animal industries	Yet to commence (projects 26, 27) In progress (projects 38, 39, 40, 52) Complete (project 38)	• **Enhancing decision making on emergency animal disease (EAD) operations (project 26):** The AHA Industry Forum EAD Working Group have developed a proposal that looks at building critical awareness around EAD issues, the impacts that could occur and developing resources and training to aid decision making and planning on a national cross-sectoral basis. • **EAD Crisis Management planning (project 27):** The proposal aims to conduct a stocktake of existing resources and to form a collaborative approach between government and industry (across a range of species) to develop new templates and resources that holistically address the actions and events that may take place in an EAD crisis. Resources developed will be made accessible to other industries. Some industries have since developed their own plans and are sharing them as part of the initial Crisis Management Plan project stocktake. • **Exercise Milky Way (project 39):** AHA developed and led Exercise Milky Way, an industry and government exercise to test the raw milk movement controls from the updated AUSVETPLAN response strategy for foot-and-mouth disease (FMD). Exercise participants confirmed that the raw milk movement controls in the AUSVETPLAN response strategy for FMD are functional and fit-for-purpose, and several suggestions were made to improve the practicality of implementing the movement controls during an outbreak. • **Exercise Paratus (project 40)**: The Department of Agriculture, Fisheries and Forestry (DAFF) is delivering Exercise Paratus; a multi-year exercise program that aims to enhance Australia's capability to respond to current and	• **Project 27:** Resources developed will be made accessible to industry and government to provide ongoing training and exercise support. This project is expected to finish in June 2025. • **Project 39:** AHA has advised government and industry representatives of the suggestions considered to fall within their respective areas of responsibility. Items impacting the AUSVETPLAN response strategy for FMD will be progressed by the AUSVETPLAN Technical Review Group or with a writing group when it is next convened (no forecasted date at this time). • **Project 40:** The lessons from the midpoint review will inform the next phase of the Exercise Paratus program, together with relevant recommendations of the taskforce report. It is intended the three remaining activities will escalate in scale and complexity and be delivered by mid-2024. Several lessons

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
				emerging biosecurity threats. The program concludes in June 2024, with consideration currently being given to lessons derived from the Exercise Paratus mid-point review and future emergency management capability needs to be addressed in DAFF's ongoing all-hazards emergency management capability development program. • **South Australian (SA) pig biosecurity project (project 52):** The results of a biosecurity bench-marking survey were presented and distributed to stakeholders. As part of a movement permit preparedness project, a digital form was developed to collect information on routine farm movements of pigs (including routes) and other products including feed, semen and waste. The form was released to the SA pig industry on 22 March 2024 and producers can complete the form as part of preparation to apply for movement permits during an EAD outbreak, by having relevant information readily available. A framework has been designed to identify farm biosecurity verification practices that could be used to support assurances of regulators during an EAD outbreak. The framework will provide guidance to the pig industry on the veracity of practices likely to be accepted by regulators. *Completed* • **AUSVETPLAN** *Response strategy: Lumpy skin disease* **(project 38):** The AUSVETPLAN *Response strategy: Lumpy skin disease (LSD)* was published on the AHA website following incorporation of relevant comments from Exercise LSD2. Items identified by exercise participants considered out of scope of AUSVETPLAN have been referred to relevant stakeholders for further consideration and action. Further updates on progress against agreed/accepted recommendations will be provided where relevant.	across the five key areas have been identified: • policy, processes and capability needs • national coordination, leadership and decision-making • operating supports (systems/infrastructure) • communication and situational awareness • exercise administration and delivery. • **Project 52:** Digital permit preparedness forms will be open to the pig industry until 1 May 2024. Information received will support governments to prepare for the anticipated volume and types of permits required and inform resource allocation during an EAD outbreak. Work on the biosecurity verification framework will continue to identify areas of biosecurity where tools and resources can support producers to reach the required standard of verification.
1.2. Continue to undertake simulation exercises for a variety of EAD scenarios, including identifying and addressing trade ramifications	AHA, Jurisdictions and peak industry organisations	Simulation exercises are completed to reduce industry risks in a variety of emergency scenarios	In progress (project 39)	• Project 39 has been mentioned under activity 1.1 but also aligns with activity1.2.	

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
1.3. Operationalise AUSVETPLAN manuals and documents across industry supply chains and structures	AHA, Jurisdictions and peak industry organisations	Agreed AUSVETPLAN manuals and documents are applied to reduce vulnerabilities in industry supply chains and structure	In progress (projects 26, 27, 32)	• **Disposal priority project focusing on pyrolysis and composting as methods for large animal disposal (project 32):** Composting and pyrolysis provide alternatives to deep burial and open-air burning that are biosecure and environmentally sound methods of carcass disposal. Further evaluation of these methods is required to ensure they are practical and operational in a large animal disease response. **Composting** The New South Wales Department of Primary Industries (NSW DPI) commenced two large animal carcass composting trials in November 2023 (cattle carcasses) and February 2024 (pig carcasses) respectively. The cattle carcass composting trial is comparing current industry practice with three alternative composting treatments. All of the treatments have achieved the temperatures required for pasteurisation. A novel aspect of the trial includes the insertion of temperature loggers within the carcasses to determine if these areas of the composting process are reaching thermophilic conditions. The pig carcass composting trial compares standard whole carcass composting with grinding of partially composted carcasses. All of the treatments thus far have achieved the time-temperature requirements for pasteurisation. Initial microbiological testing has demonstrated that the material complies with the microbiological thresholds outlined in AS4454 (2012). **Pyrolysis** A handover date for the bespoke mobile pyrolysis unit has been set for the first half of 2024, after which transportation to the testing site will be undertaken followed by testing of the unit including emissions testing. • Project 26 has been mentioned under activity 1.1 but also aligns with activity 1.3. • Project 27 has been mentioned under activity 1.1 but also aligns with activity 1.3.	

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps

1.4. Undertake projects, including commissioning and undertaking research, to further develop economic analyses and epidemiological modelling tools supporting rapid decision making in EAD responses for priority diseases	DAFF, government agencies	Existing and/or new decision support tools provide timely and appropriate information to effectively support EAD responses	In progress (projects 15, 17, 32) Completed (project 22)	• **Carcass Disposal - Destroy and Let Lie (project 15):** Biosecurity Queensland (QLD) - Stage 1 research has been completed. Stage 1 investigated if natural carcass decomposition processes (changes in tissue pH and temperature) could inactivate pathogens such as ASF virus (ASFV) in pigs, and FMD virus in cattle, pigs, sheep and goats under Australian conditions over the initial 48 hours post-death. An interpretive report has been prepared and a research manuscript is currently being prepared for publication in a scientific journal. Stage 2 research further investigating decomposition processes and potential ASFV inactivation in pigs over a longer time period has commenced.
				
				• **Feral pig modelling (project 17):** Biosecurity QLD's feral pig spatial modelling has improved understanding of feral pig distributions and their ecology which will enable cost-effective strategies for feral pig management. To date, three scientific papers have been published, one each in the _Australian Veterinary Journal_ (2022), _Wildlife Research_ (2023) and _Australian Mammalogy_ (2023). In addition to formal journal papers, the project has put together a comprehensive publicly available report on the effectiveness and efficiencies of feral pig control tools and an internal-only report on the capacity of QLD feral pig stakeholders to control feral pigs.
				
				• Project 32 has been mentioned under activity 1.3 but also aligns with activity 1.4.
					• **Project 15:** Stage 2 field research has been completed. Data analysis is underway. The project is due for completion in June 2024.
					
					• **Project 17:** The project is due for completion in June 2024. Two additional research papers are under preparation. Ongoing feral pig spatial modelling includes analysing:
					  • movement data before, during and after aerial shooting activities to support refinement of control measure strategies
					  • habitat use data from additional sites to validate habitat suitability maps and previously generated habitat preference findings to validate model applicability
					  • ongoing analysis of thermal imagery and camera trap data for comparison and interpretation to inform improved monitoring techniques.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
1.5. Implement innovative technologies and training to meet national EAD education and training needs	AHA, Jurisdictions, Australian Veterinary Association (AVA), CSIRO Australian Centre for Disease Preparedness (ACDP) and Veterinary Schools of Australia and New Zealand (VSANZ)	Improve EAD education and training needs for animal health professionals and supply chain participants	In progress (project 28) Completed (projects 25, 33, 41)	• **A syndromic surveillance system to detect emerging animal biosecurity threats (project 28):** NSW DPI is collaborating with researchers from Charles Sturt University (CSU) to undertake a social research project to identify key drivers and barriers to participation in syndromic surveillance. The recommendations developed by this project will be used to consider development of a syndromic surveillance platform by NSW DPI with the aim of earlier detection of new and emergency diseases. *Other relevant activities* • The National Biosecurity Training Hub was created as a centralised platform for online biosecurity training for industry, government and community. The hub was developed to build and support biosecurity preparedness and response capacity and capability. More information on the hub can be found here.	• **Project 28:** The recommendations developed by this project will be used to inform development of a syndromic surveillance platform by NSW DPI with the aim of earlier detection of new and emergency diseases.
1.6. Investigate existing systems or trial new systems for national EAD data management in multi-jurisdictional responses	DAFF and Jurisdictions	EAD data, including surveillance and traceability data, is captured, analysed, managed and shared across jurisdictions and utilised for decision making purposes	Yet to commence		
1.7. Implement activities identified in the National LSD Action Plan	As identified in the National LSD Action Plan	Governments, industries and other relevant stakeholders undertake coordinated and effective actions to mitigate the risks of LSD	In progress	• Quarterly updates on the National LSD Action Plan are provided on the DAFF website.	• As indicated in the quarterly updates on the DAFF website.

Objective 2: Improve Australia's surveillance and diagnostic capacity for animal pests and diseases.

Table 2 Activities to improve Australia's surveillance and diagnostic capacity and capability for animal pests and diseases.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps

2.1. Implement actions under National Animal Health Surveillance Business Plan (NAHSBP) and National Animal Health Diagnostic Business Plan (NAHDBP)	As identified in the NAHSBP and NAHDBP	National surveillance and diagnostic capability and capacity for animal diseases adequately manage biosecurity risks and support early detection	In progress (projects 2, 6, 7, 8, 9, 42, 51, 54, 55, 56, 57, 58, 59)
			
			 Completed (projects 1, 3, 4, 5, 6, 10, 18, 36)
				• **Evaluation of antibody-detecting immunoassays for LSD in cattle and buffalo (project 2):** This project continues to evaluate the suitability of 3 antibody detection enzyme linked immunosorbent assays (ELISA) for LSD testing in cattle and buffalo in Australia. Reference positive and negative serum samples, sourced overseas and in Australia, are set to be further analysed this year and using an upscaled commercial partner-supplied indirect ELISA, alongside existing ELISA capabilities. The ELISA kits will be made available for use by Australian laboratories via the Laboratories for EAD Diagnosis and Response (LEADDR) network. The launch is anticipated for late 2024.
				
				 • **Northern Australia biosecurity sequencing (NABSeq): High Throughput Sequencing (HTS) network and facility to enhance northern Australian biosecurity (project 6):** This project continues to build the NABSeq network through a number of collaborative HTS projects relating to disease detection resources and surveillance in the region. A significant achievement related to this project is the publication of a manuscript on the comparative genomics of Japanese encephalitis virus in *PLOS Neglected Tropical Diseases*. In April 2024, the position of Molecular Project Scientist was advertised to fill the lead role in the technical aspects of this project. Scientific officers are receiving support and training in bioinformatic analysis through collaborations with ACDP.
				
				 • **LSD testing capacity building in the LEADDR network (project 7):** This project continues to progress the roll-out of molecular, real-time qPCR and serological, ELISA capabilities to the LEADDR network as planned. Significant milestones achieved include:
				   • the importation of commercial ELISA kits by ACDP for transfer to the LEADDR network
				   • identification of serum samples suitable for ELISA quality assurance/proficiency testing program
					• **Project 2:** The project term has been extended to February 2025. Milestone 5 has been accepted and includes the import permit application for ACDP-AAHL ELISA kit submitted an updated timeframes for manufacture and supply of beta kits by commercial partner provided.
					
					 • **Project 6:** The milestone 9 report is due June 2024. This will include progress on the draft sustainability model for the NABSeq network, and progress updates on HTS pathogen discovery, environmental DNA pilot studies and metabarcoding to assist in the identification of *Culicoides* vectors.
					
					 • **Project 7:** Milestone 7 is due December 2024. Further preparation and testing of samples for the ELISA and second PT PCR panel by LEADDR laboratories is currently underway. Further reference samples will be sourced for laboratory trials. Reports compiling results from

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
				- completion of the first round of Capripoxvirus PCR proficiency testing (PT) program - completion of the initial establishment of Capripoxvirus ELISA capabilities in LEADDR labs - commencement of the second round of Capripoxvirus PCR PT testing. **Development & evaluation of a Point of Care (POC) test network for EAD diagnosis (project 8):** The project is currently expected to be completed in September 2024. While lab-based development work including assay performance assessment has been completed, field validation work, including user training activities, are yet to be undertaken. The preparation of a full validation dossier for the Sub-committee on Animal Health Laboratory Standards (SCAHLS) to evaluate is also expected in due course. **MicroRNA biomarkers for improved detection of animal diseases in a Johne's disease model (project 9):** The project has identified target bovine host response microRNA biomarkers for Johne's disease differentiation. The project experienced delays associated with the collection of reference samples for further assay development and assessment of performance. Milestone 5a was achieved in May 2024 and included confirmation of sufficient negative herd reference material to further test the analytical and diagnostic performance of identified biomarkers. **AUSVETPLAN *Management manual: Laboratory preparedness* (project 42):** The AUSVETPLAN *Management manual: Laboratory preparedness* has been updated by the AUSVETPLAN technical writing group with support from LEADDR and SCAHLS. The manual was endorsed by Animal Health Committee in April 2024 and is now published on the AHA website. **Equine piroplasmosis diagnostic capability development (project 51):** Commencing in June 2023, this project aims to develop and implement serological capability for equine piroplasmosis (EP) at ACDP. The initial milestone involving the procurement of essential kits and reagents has been completed. The third milestone, involving the development and verification of the EP ELISA and immunofluorescence antibody test (IFAT) has been delayed from April 2024 to June 2024. **Improve national diagnostic capability for glanders (project 54):** This project, beginning in June 2024, aims to enhance our national	the initial ELISA PT and second PCR PT round will be distributed to the LEADDR network in due course. **Project 8:** The Milestone 5 report is due in June 2024. This will provide details on the pending field validation, and preliminary data analysis alongside a complete validation dossier for SCAHLS test evaluation. **Project 9:** The current project is due for completion in September 2024. **Project 51:** Milestone 3 and 4, due in June 2024, will cover the development and verification of the EP ELISA and IFAT, and the submission of accreditation documents to NATA. **Project 54:** Milestone 2 report outlining verified procedures for ELISAs and PCR tests for glanders is due April 2025. The final milestone report providing evidence of documents submitted for NATA accreditation and is due June 2025. **Project 55:** The final milestone, due in June 2025 will include a final report detailing the evaluation of a fit-for-purpose diagnostic algorithm. The final milestone also includes evidence of documents submitted for NATA accreditation and where

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
				diagnostic capabilities for glanders, caused by the bacterium *Burkholderia mallei*. This will be achieved by assessing and verifying current commercial tests and developing a fit-for-purpose testing algorithm for the laboratory diagnosis of glanders. The project team will also seek to gain National Association of Testing Authorities (NATA) accreditation for the new diagnostic method. • **Assessment and improvement of national bluetongue serological capability - a comparative study of commercial and in-house ELISAs (project 55):** This project, which commenced in March 2024, aims to measure, assess, and improve on current bluetongue virus (BTV) serological capabilities in Australia to support national BTV surveillance and response activities. The project will develop a fit-for-purpose testing algorithm for BTV group assay verification by comparing commercial ELISAs with in-house ELISAs developed at ACDP. The first milestone involving procurement of commercial ELISAs and the development of an in-house ELISA at ACDP is due for completion in June 2024. • **Improvement of serological testing for flaviviruses in Australian livestock (project 56):** This project commenced in April 2024 and aims to develop a bead-based multiplexed serological (Luminex) assay for the differential diagnosis of various flaviviruses, suitable for use in pigs and horses. The usefulness of this assay will be compared to existing ELISAs and the gold standard test plague reduction neutralisation test (PRNT). Successful uptake of this new serological approach in ACDP diagnostic group will enable faster, higher-throughput and more sensitive/specific testing for flaviviruses in relevant livestock species. • **Towards validation of a microRNA-based diagnostic test for Johne's disease (project 57):** To capitalise on the work of project 9, this project will further develop molecular assays using host microRNA biomarkers to improve detection of Johne's disease, infection with Mycobacterium paratuberculosis. It will deliver data on assay analytical and diagnostic specificity, and reproducibility suitable to assess the diagnostic validity. This is in line with the World Organisation for Animal Health diagnostic test validation pathways, stages 1 to 3. • **Assessment of molecular DIVA capabilities for lumpy skin disease virus (project 58):** This project commenced in April 2024, and aims to assess existing molecular 'Differentiating Infected from Vaccinated Animals' (DIVA) assays that are based on real-time, or	applicable, a peer-review journal manuscript for publication. • **Project 56:** The first milestone due in June 2024, will provide an initial update on assay development. The final milestone due in June 2025, will include the final report on all activities described within the proposal, and a draft validation dossier document suitable for submission to SCAHLS for test evaluation. • **Project 57:** Milestone 1 report is due in June 2024. This will detail the progress on the assessment of microRNA biomarker analytical specificity, and diagnostic sensitivity and specificity using a collection of relevant reference material from laboratory and field studies. • **Project 58:** The first milestone update is due in June 2024, and will include detail on bioinformatic analysis and commencement of assay evaluation. The final milestone report due January 2025 will contain an evaluation and recommendation on DIVA assays to be used for diagnostics and roll out to the LEADDR network. • **Project 59:** The first milestone involving sourcing of control material is due in June 2024. The final milestone report will

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
				quantitative PCR, to determine if they are fit-for-purpose. If none of the existing assays are deemed fit-for-purpose, existing assays may be further optimised, or a new molecular DIVA assay may be developed. • **Quality assurance for HTS as an infectious agent discovery tool (project 59):** This project will establish standardised workflows for the use of HTS in infectious agent discovery. It aims to support relevant national diagnostic HTS operating guidelines and improve the overall quality assurance for high confidence in interpreting HTS results. This project commenced in March 2024.	provide evidence of optimised HTS workflows and ACDP approved standard operating procedure. These will be submitted to SCAHLS for evaluation and national approval, and subsequent adoption by the LEADDR network.
2.2. Develop and implement novel technologies, such as POC animal testing and genomics, to address gaps in diagnostic capacity	SCAHLS, Peak industry organisations, Rural Research and Development Corporations (RDCs)	A number of novel technologies are adopted and implemented that improve Australia's surveillance and diagnostic capacity. Australia has a well-developed policy and legislation on the use of POC diagnostic tests in notifiable diseases	In progress (projects 2, 8, 9, 51, 59) Completed (projects 1, 3, 10, 11)	• Project 2 has been mentioned under activity 2.1 but also aligns with activity 2.2. • Project 8 has been mentioned under activity 2.1 but also aligns with activity 2.2. • Project 9 has been mentioned under activity 2.1 but also aligns with activity 2.2. • Project 51 has been mentioned under activity 2.1 but also aligns with activity 2.2. • Project 59 has been mentioned under activity 2.1 but also aligns with activity 2.2.	
2.3. Conduct an audit of current and future export and import market access requirements for animals and animal products to guide national surveillance planning	DAFF	Surveillance requirements are identified, understood, and implemented to improve market access and support Australia's disease status claims	Yet to commence		

Objective 3: Improve the adoption and implementation of biosecurity practices throughout the terrestrial animal industry supply chain.

Table 3 Activities to improve the adoption and implementation of biosecurity practices throughout the terrestrial animal industry supply chain.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Priority progress update	Next steps
3.1. Investigate the benefits and consider developing a national dashboard platform for government and industry biosecurity information systems, such as South Australia's One Biosecurity program	Peak Industry Organisations, Jurisdictions, AHA	A national 'one-stop-shop' dashboard platform is investigated and scoped, which will collate biosecurity data across existing biosecurity information systems and help deliver targeted biosecurity interventions across producer supply chains	In progress (projects 37, 52)	• **Enhancement of One Biosecurity System (project 37):** Work on the Enhancement of the SA One Biosecurity program to include a pig module initiated. • Project 52 has been mentioned under activity 1.1 but also aligns with activity 3.1.	• **Project 37:** Scoping and development of detailed specifications for a pig One Biosecurity module.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Priority progress update	Next steps
3.2. Share knowledge across animal industries and jurisdictions to strengthen quality assurance programs, on-farm biosecurity systems, biosecurity extension programs and regulatory activities	AHA, Peak Industry Organisations	Strengths and weaknesses from existing systems across terrestrial animal industries are assessed and actioned, to improve validation of biosecurity, quality assurance and traceability processes, and support maintenance of market access through compartmentalisation and zoning.	In progress (projects 28, 37, 52)	• **Project 37:** Initial industry consultation on pig biosecurity assurance in SA undertaken. • Project 52 has been mentioned under activity 1.1 but also aligns with activity 3.2. • Project 28 has been mentioned under activity 1.5 but also aligns with activity 3.2. *Other relevant activities* • The Farm Biosecurity awareness campaign is a joint initiative between AHA and Plant Health Australia on behalf of their members. The program's goal is to help producers reduce the risks posed by diseases, pests and weeds to their crops and livestock. Farm Biosecurity provides information about on-farm biosecurity measures, which help prevent both endemic and exotic diseases, pests and weeds from entering and becoming established on farms. It encourages producers to identify risks to their livestock, crops and plant products, and to minimise those risks through good practices.	• **Project 37:** Further consultation with the pig industry to review and develop tools for verification of on-farm biosecurity practices.
3.3. Conduct more industry-government education and awareness communication activities to promote a biosecurity 'culture' and 'community of practice' across animal industries, including smallholders	Peak Industry Organisations, AHA, DAFF	Producers and enterprises in the supply chain increase their understanding of the value of biosecurity, and increase adoption of farm and supply chain biosecurity practices	In progress (projects 12, 52) Completed (project 20)	• **Smallholder risk and communication research (project 12):** The pilot project in NSW tested an efficient, data-driven approach to locating smallholders (including pig owners) and determining their biosecurity risk level and engagement needs. • Project 52 has been mentioned under activity 1.1 but also aligns with activity 3.3. *Completed* • **Building EAD preparedness in domestic abattoirs (project 20):** This project produced a suite of EAD preparedness training materials specific to abattoir personnel, including sample standard operating procedures and an online e-Learning course. This training package is designed to help prepare staff to provide field support to jurisdictions during an EAD response.	• **Project 12:** The final report is being reviewed.
3.4. Continue developing biosecurity guidelines for the supply chains of novel small-scale industries	AHA, AgriFutures and novel industries	Biosecurity guidelines are updated or developed for novel small-scale production animal industries and communicated effectively	In progress (project 52) Completed (project 43)	• Project 52 has been mentioned under activity 1.1 but also aligns with activity 3.4. *Completed* • **National Biosecurity Manual (project 43):** AHA has developed the National Farm Biosecurity Manual for the Ratite Industry, funded by AgriFutures and in collaboration with ratite industries.	

Objective 4: Manage the risk of antimicrobial resistance.

Table 4 Activity to manage the risk of antimicrobial resistance.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Priority progress update	Next steps
4.1. Implement AMR activities as identified in the One Health AMR Master Action Plan and Australia's Animal Sector Antimicrobial Resistance Action Plan 2022 to 2027	Governments, industries and other relevant stakeholders undertake coordinated and effective actions to mitigate the risks of AMR	Governments, industries and other relevant stakeholders undertake coordinated and effective actions to mitigate the risks of antimicrobial resistance (AMR)	In progress (projects 24, 44, 53) Completed (project 13)	• **Mitigating on-farm antimicrobial resistance risks for livestock industries (project 24):** Coombe Consulting is aiming to improve the understanding in Australia of the transmission pathways and biosecurity priorities for mitigating AMR risks in livestock enterprises. This project will provide livestock producers with a framework to assess the risk of AMR transmission into, within or out of their enterprises. It will allow them to make informed changes to reduce the risk of spread of AMR and improve biosecurity. To date, a background review has been undertaken to identify the current level of research and/or activities in this area to leverage available knowledge. A framework by which an enterprise may identify potential transmission pathways has been developed, along with comprehensive instructions and workflow documents. Laboratories have been identified with the capacity to undertake both AMR and antimicrobial residue testing. The framework has been trialled on 4 of the 5 target industries to date. Preliminary results are under evaluation. • **Australia's *Animal Sector Antimicrobial Resistance Action Plan 2023 to 2028* (project 44):** The Action Plan was published September 2023, launched via a webinar in October 2023 and implementation has commenced. • **Defining 'appropriateness of antimicrobial use' framework for the Australian animal sector (project 53)*:*** An antimicrobial stewardship (AMS) assessment framework will be developed for use by companies to identify areas for improvement. This follows on from a previous CSIRO project "Quantifying antimicrobial usage (AMU) in Australian companion and production animals" as it will define quantitative and/or qualitative indicators that can be used to provide context for AMU data, and highlight gaps in antimicrobial stewardship that impact all Australian-specific animal health contexts. *Completed* • **Antimicrobial resistance survey in the pig industry (project 13):** A repeat AMR survey in the Australian pig industry has provided data to compare to previous surveys for monitoring and quality assurance purposes. The final draft report of the pig's AMR survey has been approved by DAFF.	• **Project 24:** Completion of final trial and detailed analysis of results. Final report due for publication in June 2024.

Objective 5: Improve animal welfare outcomes relevant to emergency scenarios.

Table 5 Activity to improve animal welfare outcomes relevant to emergency scenarios.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Priority progress update	Next steps
5.1. Address terrestrial production animal welfare risks in emergency scenarios and incorporate findings in relevant policy and crisis response documents	AHA, in collaboration with jurisdictions and peak industry organisations	Emergency response plans for terrestrial production animal supply chains manage animal welfare risks	Yet to commence		

Objective 6: Implement industry sustainability frameworks and plans.

Table 6 Activity to implement sustainability frameworks and plans.

Activity	Lead and key collaborators	Desired outcome	Status	Priority progress update	Next steps
6.1. Share knowledge (such as the development of benchmarks) between industries to implement industry sustainability frameworks and plans	Peak industry organisations, DAFF	This activity will develop a comprehensive and sustained LSD communication plan to raise awareness and understanding of the disease, risk and preparedness activities	In progress (project 23)	• **Australian Agriculture Sustainability Framework (AASF) (project 23):** The purpose of the AASF is to communicate the sustainability status and goals of the Australian agricultural sector to markets and the community. It will provide the whole-of-Australian agriculture narrative about sustainability to assist in market access and it will provide a translation layer to assist supply chain companies, finance and investors to better understand and report on Australian agricultural sustainability. Implementation of stage 2 of this project is progressing.	

Objective 7: Improve the integrity of animal health systems.

Table 7 Activities to improve the integrity of animal health systems.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Priority progress update	Next steps
7.1. Develop cost-effective national traceability registers or systems for agreed animal industries that do not have one	Peak industry bodies, AHA, SAFEMEAT	Cost-effective national traceability registers or systems are developed for agreed animal industries	In progress (projects 45, 46)	• **Alpaca NLIS (project 45):** The Australian Alpaca Association, with assistance from AHA, has joined the National Livestock Identification System (NLIS) with for alpacas in a voluntary capacity. • **Deer Traceability (project 46):** AgriFutures Australia funded a consultancy to investigate traceability options for the deer industry. This is currently under consideration by the industry.	

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Priority progress update	Next steps
7.2. Implement mechanisms to streamline or automate animal and animal product traceability data across agreed industries and make this accessible to all supply chain participants	Integrity Systems Company (ISC), in collaboration with peak industry organisations, DAFF	Existing or new mechanisms are implemented with high adoption rates from supply chain participants to improve collation of traceability data across information systems	In progress (projects 34, 47, 48, 49)	• **Agricultural Traceability Enhancement: Australian Government contribution (project 34):** The Traceability Grants Program (TGP) – Round 3 was published on 5 February 2024. TGP is part of the *Modernising Agricultural Trade – Protecting Australia's Clean, Green Brand* initiative and supports collaborative agricultural traceability projects that assist implementation activities under the *National Agricultural Traceability Strategy 2023 to 2033*. • **The National Agricultural Traceability Strategy 2023 to 2033 (project 47):** The National Agricultural Traceability Strategy 2023 to 2033 (the strategy) was launched in July 2023 by Australian Agriculture Ministers to provide a nationally coordinated approach to enhancing traceability for biosecurity, trade, food safety and other outcomes. The strategy was co-designed by Australian government and industry stakeholders and will support modernising and further strengthening Australia's tracking and tracing capabilities. • **National mandatory individual electronic identification (eID) for sheep and goats (project 48):** The Sheep and Goat Traceability Task Force (SGTTF) continues to meet regularly to inform sheep and goat eID national implementation efforts. To support ongoing implementation efforts across government and industry, the SGTTF has developed a national Sheep and goat eID National Implementation Plan and a set of National Principles – implementation of individual eID for sheep and goats. • **NLIS Database Uplift project (project 49):** Work is underway to uplift the National Livestock Identification System database and its supporting systems, which will help modernise Australia's data capture, storage, and distribution system for tracking livestock and their movements. The project is being delivered by ISC in consultation with Australian government and industry stakeholders. The first stage commenced in July 2023 with project establishment and scope definition.	• **Project 34:** Negotiations and award of grant agreements are expected to take place between May and June 2024. • **Project 47:** The first 5-year implementation plan for the strategy is expected to be launched in mid-2024 and will provide guidance on key activities and timeframes to address priority areas for action, which will lead to achieving the desired outcomes of the strategy. • **Project 48:** Key implementation milestones and activities underway by jurisdiction are outlined in the national Sheep and goat eID National Implementation Plan.
7.3. Use traceability systems to provide feedback to supply chain participants on animal health outcomes	AHA, MSA and supply chain participants	Existing or strengthened traceability systems provide improved feedback to supply chain participants on animal health outcomes occurring at relevant points of supply chains	In progress (projects 34, 50)	• Project 34 has been mentioned under activity 7.2 but also aligns with activity 7.3. • **MyFeedback data (project 50):** ISC has recently launched 'myFeedback', which includes data from AHA's National Sheep Health Monitoring Project and health data from five beef abattoirs.	

Project compendium.

Table 8.1 Active Projects referred to under objectives above.

Project number	Project name	Activity alignment	Contact
2	Evaluation of antibody-detecting immunoassays for LSD in cattle and buffalo	2.1, 2.2	animalhealthlaboratories@aff.gov.au
6	Northern Australia biosecurity sequencing (NABSeq): High Throughput Sequencing (HTS) network and facility to enhance northern Australian biosecurity	2.1	animalhealthlaboratories@aff.gov.au
7	Lumpy skin disease testing capacity building in the LEADDR network	2.1	animalhealthlaboratories@aff.gov.au
8	Development & evaluation of a POC test network for emergency animal disease diagnosis	2.1, 2.2	Animalhealthlaboratories@aff.gov.au
9	MicroRNA biomarkers for improved detection of animal diseases in a Johne's disease model	2.1, 2.2	Cameron.Stewart@csiro.au
12	Smallholder risk and communication research	3.3	adpr@aff.gov.au
15	Carcass Disposal - Destroy and Let Lie	1.4	Robyn.Grob@daf.qld.gov.au
17	Feral pig modelling	1.4	Robyn.Grob@daf.qld.gov.au
23	Australian Agriculture Sustainability Framework (AASF)	6.1	National Farmers' Federation
24	Mitigating on-farm antimicrobial resistance risks for livestock industries	4.1	peter@coombeconsulting.com.au
26	Enhancing decision making on EAD operations	1.1, 1.3	aha@animalhealthaustralia.com.au
27	EAD Crisis Management Planning	1.1, 1.3	aha@animalhealthaustralia.com.au
28	A syndromic surveillance system to detect emerging animal biosecurity threats	1.5, 2.1, 3.2	animalplan@aff.gov.au
32	Disposal priority project focusing on pyrolysis and composting as methods for large animal disposal	1.4	Animal.biosecurity@dpi.nsw.gov.au
34	Agricultural Traceability Enhancement: Australian Government contribution	7.2, 7.3	nationaltraceabilitysummit@aff.gov.au.
37	Enhancement of One Biosecurity System	3.1, 3.2	Department of Primary Industries and Regions, South Australia
39	Exercise Milky Way	1.1, 1.2	aha@animalhealthaustralia.com.au
40	Exercise Paratus	1.1	DAFF
42	AUSVETPLAN Management manual: Laboratory preparedness	2.1	aha@animalhealthaustralia.com.au
44	Australia's Animal Sector Antimicrobial Resistance Action Plan 2022 to 2027	4.1	DAFF
45	Alpaca NLIS	7.1, 7.3	aha@animalhealthaustralia.com.au
46	Deer Traceability	7.1	Agrifutures Australia
47	The National Agricultural Traceability Strategy 2023 to 2033	7.2	DAFF

Project number	Project name	Activity alignment	Contact
48	National mandatory individual electronic identification (eID) for sheep and goats	7.2	DAFF
49	NLIS Database Uplift project	7.2	DAFF
50	MyFeedback data	7.3	MSA (MLA)
51	Equine piroplasmosis diagnostic capability development	2.1, 2.2	animalhealthlaboratories@aff.gov.au
52	South Australian pig biosecurity project	1.1, 3.1, 3.2, 3.3, 3.4	Department of Primary Industries and Regions, South Australia
53	Defining 'appropriateness of antimicrobial use' framework for the Australian animal sector	4.1	peter@coombeconsulting.com.au
54	Improve national diagnostic capability for glanders	2.1	Animalhealthlaboratories@aff.gov.au
55	Assessment and improvement of national bluetongue serological capability - a comparative study of commercial and in-house ELISAs	2.1	Animalhealthlaboratories@aff.gov.au
56	Improvement of serological testing for flaviviruses in Australian livestock	2.1	Animalhealthlaboratories@aff.gov.au
57	Towards validation of a microRNA-based diagnostic test for Johne's disease	2.1	Animalhealthlaboratories@aff.gov.au
58	Assessment of molecular DIVA capabilities for lumpy skin disease virus	2.1	Animalhealthlaboratories@aff.gov.au
59	Quality assurance for HTS as an infectious agent discovery tool	2.1, 2.2	Animalhealthlaboratories@aff.gov.au

Table 8.2 Completed Projects referred to under objectives above.

Project number	Project name	Activity alignment	Contact	Completed in:
1	Australian Biosecurity Genomic Database for notifiable terrestrial animal viruses	2.1, 2.2	Peter.Mee@agriculture.vic.gov.au	Progress report 2 February 2024
3	Developing lumpy skin disease and African horse sickness whole genome sequencing workflows	2.1, 2.2	animalhealthlaboratories@aff.gov.au	Progress report 1 November 2023
4	Establishing networked serological testing capability for African Swine Fever	2.1	animalhealthlaboratories@aff.gov.au	Progress report 2 February 2024
5	Sample Tracking and Reporting System (STARS) enhancement	2.1	animalhealthlaboratories@aff.gov.au	Progress report 2 February 2024
10	Developing immunohistochemistry test for Lumpy Skin Disease	2.1, 2.2	animalhealthlaboratories@aff.gov.au	Progress report 2 February 2024
11	Consultancy for policies, strategies and operating guidelines for POC testing for infectious disease	2.2	animalhealthlaboratories@aff.gov.au	Progress report 1 November 2023
13	Antimicrobial resistance survey in the pig industry	4.1	raymond.chia@australianpork.com.au	Progress report 3 May 2024
18	National laboratory simulation exercise planning	2.1	animalhealthlaboratories@aff.gov.au	Progress report 1 November 2023
20	Building EAD preparedness in domestic abattoirs	3.3	adpr@aff.gov.au	Progress report 3 May 2024
22	Risk assessment for the introduction of lumpy skin disease (LSD) into Australia through non-regulated pathways	1.4	adpr@aff.gov.au	Progress report 1 November 2023
25	Virtual Reality to support FMD training (phase 2)	1.5	DAFF	Progress report 1 November 2023
33	Independent expert review of the veterinary science education capability of Australia and New Zealand	1.5	eo@vsanz.org.au	Progress report 2 February 2024
36	National laboratory simulation exercise (Exercise Waterhole)	2.1	animalhealthlaboratories@aff.gov.au	Progress report 2 February 2024
38	AUSVETPLAN Response strategy: Lumpy skin disease	1.1	aha@animalhealthaustralia.com.au	Progress report 3 May 2024
41	An augmented reality app to demonstrate the signs of four sheep EADs	1.5	aha@animalhealthaustralia.com.au	Progress report 1 November 2023
43	National Biosecurity Manual	3.4	aha@animalhealthaustralia.com.au	Progress report 3 May 2024