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GPO Box 858 Canberra ACT 2601
Telephone 1800 900 090
Web agriculture.gov.au

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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	• **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:** At the Agriculture Ministers' Meeting on 18 July 2024, Ministers agreed to convene a national H5 preparedness exercise to promote greater collaboration between agriculture, environment and health portfolios in their jurisdictions

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
				to enhance Australia's capability to respond to current and 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):** A digital form was developed and used to collect information on routine farm movements of pigs (including routes) and other products including feed, semen and waste. A verification framework for enhanced on farm biosecurity practices, to mitigate the risk of disease introduction and spread and support assurances of regulators during an EAD outbreak, has been developed in consultation with industry stakeholders and other jurisdictions. Further tools and resources required to support the pig industry (producers, veterinarians, auditors and other industry stakeholders) to comply with the expected standards and verify their biosecurity practices in a manner consistent with the best practice guidance are being identified.	to better manage the risk of potential future High Pathogenicity Avian Influenza (HPAI) incursions. • In addition to the HPAI focused exercise, the department's annual exercise program for 2024-25 is being formulated. Whilst not yet finalised, it is intended to comprise preparedness activities with key stakeholders such as state and territory biosecurity agencies and peak industry bodies. • Several preparedness exercises were being developed or delivered in the latter part of 2023—This includes large scale programs like Exercise Waterhole. • Exercise Waterhole tested the preparedness of Australia's animal health laboratory network to respond to a large-scale emergency animal disease outbreak; involved multiple jurisdictions; and included discussion-based workshops, a small functional exercise with one jurisdiction, and three-day national functional exercise. • **Project 52:** Project report on digital permit preparedness information is being prepared. Project report on the biosecurity verification framework is being prepared.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
					A checklist of tools and resources support producers to reach the required standard of verification will be circulated to stakeholders.
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 activity 1.2.	

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 and Regional Development (NSW DPIRD) 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.	• **Project 32:** Final results from sample analysis are expected by mid-August 2024 Compost training workshop for agency responders and industry representatives scheduled for 24-25 September 2024 Final Project report expected by 1 November 2024 Publication of scientific journal papers to be investigated.

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 17, 32) **Completed** (project 22, 15)	• **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. **Completed** • **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 African swine fever 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. The project concluded on 30 June 2024. Two research manuscripts are under preparation.	• **Project 17:** An additional research paper is under preparation focussing on feral pig movement before, during and after aerial shooting activities to support refinement of control measure strategies. A report on the analysis of habitat use data from additional sites to validate habitat suitability maps and previously generated habitat preference findings to validate model applicability is under preparation.

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 DPIRD, collaborating with researchers from Charles Sturt University 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 DPIRD with the aim of earlier detection of new and emergency diseases. A report outlining the results of the project and recommendations regarding syndromic surveillance system development was completed on 26 June 2024. An article is outlining the findings is being developed for publication in a scientific journal ***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 DPIRD 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**		

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
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, 51, 54, 55, 56, 57, 58, 59, 61, 62) **Completed** (projects 1, 3, 4, 5, 6, 10, 18, 36, 42)	• **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*. The recent vacant position of Molecular Project Scientist which led technical aspects of this project was successfully filled. • **LSD testing capacity building in the LEADDR network (project 7):** This project continues to progress the roll-out of molecular, real-time new polymerase chain reaction (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	• **Project 2:** Additional samples from northern Australian and southeast Asia to be received for testing at ACDP or in country-of-origin due November 2024. The project is expected to be completed by February 2025. • **Project 6:** The next milestone report is due December 2024 and will include a draft sustainability model for the NABSeq network, and updates on HTS pathogen discovery, environmental DNA pilot studies and metabarcoding to assist in the identification of *Culicoides* vectors. • **Project 7:** The next milestone report is due December 2024. Further preparation and testing of samples for the ELISA and second PCR proficiency testing (PCR PT) panel by LEADDR laboratories is currently underway. Further reference samples will be sourced for laboratory trials. Reports compiling results from the initial ELISA PT and second

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
				• identification of serum samples suitable for ELISA quality assurance/proficiency testing program • 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 January 2025. While lab-based development work including assay performance assessment has been completed, complete field validation of the POC platform is not complete. 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. • **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. Testing and analysis of *Theileria equi* cELISA and IFAT, and the *Babesia caballi* cELISA is now complete. Optimisation of *B. caballi* IFAT is ongoing. • **Improve national diagnostic capability for glanders (project 54):** This project, beginning in June 2024, aims to enhance our national 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	PCR PT round will be distributed to the LEADDR network in due course. • **Project 8:** A POC validation dossier for the porcine EAD test is in draft and set to be completed by November 2024. • **Project 9:** To allow for robust verification of selected microRNA biomarkers additional host reference samples are being acquired for sequence analysis. This project will now be completed. • **Project 51** Milestone 4 is due in November 2024. The final report will cover the development and verification of the EP ELISA and IFAT, and the submission of accreditation documents to NATA. • **Project 54:** The next milestone report outlining verified procedures for ELISAs and PCR tests for glanders is due April 2025. The final project 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

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
				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 quantitative PCR, to determine if they are fit-for-purpose. If none of the existing assays are deemed fit-for-purpose, existing assays may	NATA accreditation and where applicable, a peer-review journal manuscript for publication. • **Project 56:** An initial update on assay development was received and accepted in June 2024. 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

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
				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 commenced in March 2024 and aims to 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. An interim milestone report was provided in June 2024. • **The Australian Biosecurity Genomic Database (ABGD): Phase 3 (project 61):** This project builds on Project 1 and commenced in May 2024. This project aims to add additional viral subtypes, expand to state based notifiable diseases, trial the inclusion of bacterial pathogens, and determine a long-term solution for database maintenance. Since commencement, more pathogens have been added to the database and a manuscript has been accepted into the journal *Database: The Journal of Biological Databases and Curation.* • **Building a sustainable national sample identification system for animal diagnostics - A pilot study using pre-barcoded sample collection tubes (project 62):** This project commenced in June 2024 and will investigate pre-barcoded sample tubes to mitigate the bottleneck of manual labelling in (simulated) disease outbreak responses. It includes researching technologies and suppliers of pre-barcoded tubes and undertaking several pilot tests in the lab and its interface with the field. A trial will also be conducted with the South Australian animal health laboratory service and CSIRO-Australian Centre for Disease Preparedness to test its potential for use as a national system. Since commencement, potential suppliers have been selected and initial trials have commenced. ***Completed*** • **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.	material is due in June 2024. The final milestone report will 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. • **Project 61:** The next milestone report is due in November 2024. Project deliverables include and expand and improved ABGD, an eLearning module, and a published webpage on an appropriate organisations website that can be maintained long term. • **Project 62**: The next milestone report due in October 2024, will include findings from the initial small trials and agreement on large-scale trial design.

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Progress update	Next steps
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 has been placed on hold. • **Project 52** has been mentioned under activity 1.1 but also aligns with activity 3.1.	• **Project 37:** Development of tools and resources to improve the level of preparedness and verification of on-farm biosecurity practices will be retained for potential future inclusion should work resume.

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:** has been mentioned under activity 3.1 but also aligns with activity 3.2. • **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 (PHA) 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.	
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.	• **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.	

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 antimicrobial resistance (AMR)	Governments, industries and other relevant stakeholders undertake coordinated and effective actions to mitigate the risks of AMR	**In progress** (projects 44, 53) **Completed** (project 13, 24)	• **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*** • **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. 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 the 5 target industries and the final report with aggregated results has been sent to Agrifutures.	

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, 60)	• **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. • **Materiality Assessment for the Australian Beef Sustainability Framework (ABSF) (Project 60):** Meat & Livestock Australia (MLA) has engaged a consultant to undertake the materiality assessment. Work has begun to review existing literature, analyse the external landscape, conduct peer reviews, and synthesise findings to take to stakeholder interviews and engagement. This assessment will inform and update the themes and priorities for the ABSF report, and will aim to better align reporting expectations against sustainability reporting standards. Specific interest is given to the Global Reporting Initiative Standards.	

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** (project 45) **Completed** (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. ***Completed*** • **Deer Traceability (project 46):** AgriFutures Australia funded a consultancy to investigate traceability options for the deer industry. This project was marked as complete 18 June 2024.	

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 on Work Plans to support activities are being finalised. • **Project 47:** The first 5-year implementation plan for the strategy is expected to be launched in the coming months 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 Traceability Task Force - DAFF (agriculture.gov.au).

Activity	Lead and key collaborators	Desired outcome by 2027	Status	Priority progress update	Next steps
7.3. Use traceability systems to provide feedback to supply chain participants on animal health outcomes	AHA, Meat Standards Australia (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.	

Table 8.1 Animalplan Acronyms

AASF	Australian Agriculture Sustainability Framework	**ISC**	Integrity Systems Company
ABSF	Materiality Assessment for the Australian Beef Sustainability Framework	**LEADDR**	Laboratories for EAD Diagnostic and Response
ABGD	Australian Biosecurity Genomic Database	**LSD**	Lumpy skin disease
ACDP	Australian Centre for Disease Preparedness	**MLA**	Meat and Livestock Australia
AHA	Animal Health Australia	**MSA**	Meat Standards Australia
AMR	Antimicrobial resistance	**NAHDBP**	National Animal Health Diagnostic Business Plan
AMU	Antimicrobial usage	**NAHSBP**	National Animal Health Surveillance Business Plan
ASFV	African swine fever virus	**NATA**	National Association of Testing Authorities
AVA	Australian Veterinary Association	**NATS**	National Agriculture Traceability Strategy
BTV	Bluetongue virus	**NLIS**	National Livestock Identification System
CSIRO	Commonwealth Scientific and Industrial Research Organisation	**PCR**	Polymerase Chain Reaction
DAFF	Department of Agriculture, Fisheries and Forestry	**PHA**	Plant Health Australia
DIVA	Differentiating Infected from Vaccinated Animals	**POC**	Point of Care
DPIRD	Department of Primary Industries and Regional Development (NSW)	**PRNT**	Plague reduction neutralisation test
EAD	Emergency Animal Disease	**PT PCR**	Proficiency Testing Polymerase Chain Reaction
eID	Electronic identification	**qPCR**	Quantitative Polymerase Chain Reaction
ELISA	Enzyme linked immunosorbent assays	**SCAHLS**	Sub Committee on Animal Health Laboratory Standards
EP	Equine piroplasmosis	**SGTTF**	Sheep and Goat Traceability Task Force
FMD	Foot-and-mouth disease	**TGP**	Traceability Grants Program
HTS	High Throughput Sequencing	**VSANZ**	Veterinary Schools Australia and New Zealand
IFAT	Immunofluorescence antibody test		

Project compendium.

Table 8.2 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
17	Feral pig modelling	1.4	Robyn.Grob@daf.qld.gov.au
23	Australian Agriculture Sustainability Framework (AASF)	6.1	National Farmers' Federation
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
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
48	National mandatory individual electronic identification (eID) for sheep and goats	7.2	DAFF
49	NLIS Database Uplift project	7.2	DAFF

Project number	Project name	Activity alignment	Contact
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
60	Materiality Assessment for the Australian Beef Sustainability Framework	6.1	info@mla.com.au
61	The Australian Biosecurity Genomic Database: Phase 3	2.1	Animalhealthlaboratories@aff.gov.au
62	Building a sustainable national sample identification system for animal diagnostics - A pilot study using pre-barcoded sample collection tubes	2.1	Animalhealthlaboratories@aff.gov.au

Table 8.3 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
15	Carcass Disposal - Destroy and Let Lie	1.4	Robyn.Grob@daf.qld.gov.au	Progress report 4 August 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
24	Mitigating on-farm antimicrobial resistance risks for livestock industries	4.1	peter@coombeconsulting.com.au	Progress report 4 August 2024
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
42	AUSVETPLAN Management manual: Laboratory preparedness	2.1	aha@animalhealthaustralia.com.au	Progress report 4 August 2024
43	National Biosecurity Manual	3.4	aha@animalhealthaustralia.com.au	Progress report 3 May 2024
46	Deer Traceability	7.1	Agrifutures Australia	Progress report 4 August 2024