Australian Government

Department of Agriculture, Fisheries and Forestry

ANIMALPLAN 2022 to 2027

Surveillance and diagnostics

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Presentation overview

Animalplan Objective 2 *Improve Australia's surveillance and diagnostic capacity for animal pests and diseases*

- Targeted activities

- General lab capability and preparedness - data management, genomic sequencing, sample processing

- New technologies for diagnostics/surveillance - e.g. point-of-care field tests

- Diagnostic capability for exotic disease   - LSD, ASF, AHS

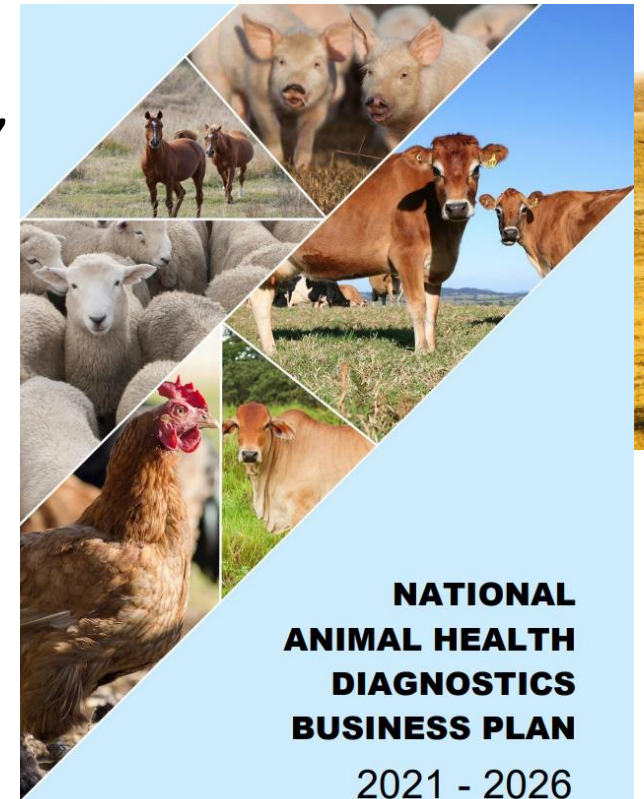- Diagnostic capability for endemic disease - Johne's disease

- Where to from here

Targeted strategies

National Animal Health Diagnostics Business Plan 2021-26
National Animal Health Surveillance Plan 2022-27

- nationally agreed principles and objectives for biosecurity activity

- co-ordination/collaboration between animal industries, and veterinary, government, academic and private lab diagnostic professionals

- Diagnostics Plan - 5 key targets:

    1. improve lab surge capacity during EAD outbreaks

    2. improve national lab networks in preparation for EAD outbreaks

    3. improve Australia's genomic testing capacity and quality assurance programs

    4. develop validation processes for use of new point-of-care (POC) tests

    5. improve AMR-related diagnostics.

https://www.agriculture.gov.au/agriculture-land/animal/health/laboratories/policies-and-plans

Improving laboratory capability

Aim	Project	Timeframe
Prepare the national lab network for a EAD outbreak	**National lab simulation exercise**	2022-24
Modernize lab capability in northern Australia in readiness for a EAD outbreak	**Northern Australian biosecurity high throughput sequencing network (NABSeq)**	2022-25
Upgrade the CSIRO biosecurity and laboratory sample and data management system	Sample Tracking and Reporting System (STARS) enhancement	2021-23
Develop a reference database to improve the application of high throughput sequencing (HTS) for Australian biosecurity surveillance	Australian Biosecurity Genomic Database for notifiable animal viruses	2021-23

New technologies

Aim	Project	Timeframe
Develop national policy and guidelines for point-of-care tests used for animal disease detection and diagnosis	**Stakeholder survey of recommended strategies and operating guidelines for POC testing**	2022 (ongoing)
Develop a battery operated PCR test for the detection of major emergency diseases of cattle and pigs in the field	**Evaluation of a POC test process for emergency animal disease diagnosis**	2022-23
Develop a model for detection of host microRNA response to major animal disease	Detection of host microRNA biomarkers for Johne's disease in cattle	2022-24

Diagnostic capability for lumpy skin disease (LSD)

Aim	Project	Timeframe
Develop investigative test/s for the detection and diagnosis of LSD virus	Immunohistology test for diagnosis of LSD in host tissues	2021-23
New immunoassays for LSD detection in cattle and buffalo	Evaluate new antibody detection enzyme-linked immunosorbent assays (ELISAs) for LSD surveillance and proof-of-freedom testing	2021-23
Build frontline LSD testing capacity in the Australian lab network	Rollout of qPCR, and ELISA QA programs for LSD testing via the LEADDR network	2022-25
Develop robust whole genome sequencing workflows for LSD virus	**Develop whole genome sequencing workflows for LSD, suitable for use on field samples (and African horse sickness)**	Completed Feb 2023

Diagnostic capability for other exotic disease

Aim	Project	Timeframe
Ensure the Australian lab network has robust quality-assurance processes for African swine fever serology	Establish networked serological testing capability for African swine fever	2021-23
Develop robust whole genome sequencing workflows for African horse sickness virus	**Develop whole genome sequencing workflows for African horse sickness, suitable for use on field samples (and LSD)**	Completed Feb 2023

Further activities under the Diagnostics Plan

- Improve AMR-related diagnostics
- Develop validation processes for new point POC tests.

Meeting challenges by working together

- Lessons from COVID-19

- Risk from near neighbours

- Jurisdictional differences

- Addressing animal industry concern

- Resources

- POC test policy

- Antimicrobial susceptibility testing

- Feral animal surveillance

Thank you for listening

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