

Animal Health Surveillance

(Formerly Veterinary Surveillance)

P. Saville, Senior Veterinary Officer, Alice Springs

BACKGROUND

The livestock sector continues to be the most significant primary industry in the Northern Territory (NT). The gross value of the livestock industry in 2014-15 was \$360.8 million, which is higher than the fishing industry (\$79.2 million), the horticulture industry (\$108.7 million) and the mixed farming industry (\$24 million).¹

Cattle-raising remains the most important livestock industry in the NT. It consists primarily of breeding animals to supply store cattle for finishing interstate or for export to South-East Asia. Cattle are run mainly under extensive conditions on native pastures. There are only small areas of improved pastures. In 2015, there were over 2 million head of cattle in the NT (7.7% of Australia's total)² mostly run on approximately 220 pastoral leases. These leases cover about half the total area of the NT.

The gross value of the cattle industry in the NT in 2014-15 was \$333.5 million¹. Cattle exports during the 2015 calendar year were worth \$199.4 million (294 751 head); cattle moved interstate were worth \$115.9 million (248 212 head); cattle slaughtered in the NT were worth almost \$18.3 million (42 673 head).

Other livestock industries in the NT include buffalo-raising, camel harvesting, poultry production (eggs and meat), small-holder goat herds, crocodile raising and honey production. All of these are minor industries compared with the cattle industry. In 2014-15, the value of these other livestock industries was approximately \$27.3 million.¹

For the purposes of this Agnote, the term 'livestock' includes cattle, buffalo, pigs, camels, goats, poultry, crocodiles, sheep, bees and horses used for work (as opposed to race horses or hacks). The term 'diseases' includes those caused by infectious and parasitic organisms in addition to chemically based intoxicants, such as poisonous plants or residues from veterinary products or environmental contaminants.

WHAT IS ANIMAL HEALTH SURVEILLANCE?

Animal health surveillance is aimed at demonstrating the absence of disease or infection, determining the presence or distribution of disease or infection or detecting exotic or emerging diseases as early as possible. Animal health surveillance is also used to monitor disease trends, to facilitate the control of disease or infection, to provide data for use in risk analysis, for animal or public health purposes and to provide justification for the implementation of sanitary measures, such as movement controls or treatments.

Surveillance and monitoring are defined by the Office International des Epizooties (OIE) (the world animal health organisation) as follows³:

- "Surveillance means the systematic ongoing collection, collation and analysis of information related to animal health and the timely dissemination of information so that action can be taken."
- "Monitoring means the intermittent performance and analysis of routine measurements and observations, aimed at detecting changes in the environment or health status of a population."

For the purposes of this Agnote, the term surveillance is used in a broader sense to encompass activities classed as both surveillance or monitoring.

Surveillance activities can be regarded as active or passive, or a combination of both. **Active surveillance** (also termed targeted surveillance) is when the data is collected specifically for surveillance purposes; for example, an HPAI survey of water fowl. It will generally be carried out to answer a certain question (e.g. surveys). The data collection may be designed within a statistical framework, so that it is suitable for rigorous analysis. **Passive surveillance** (also termed general surveillance) is when the data is primarily collected for a reason other than surveillance (e.g. a farmer initiates a visit by a vet because animals are sick or testing or examining animals for export).

WHY CONDUCT ANIMAL HEALTH SURVEILLANCE?

The aim of animal health surveillance is to gain knowledge about the animal health status of a property, a region or of the whole NT. We need to know about animals with respect to diseases because:

- Importing countries and other States in Australia need to be assured that the animals or animal products they are importing from the NT are disease-free.
- Consumers of animal products need to be confident of the 'wholesomeness' of those products.
- We need early identification of diseases that are new or exotic to Australia so that a timely response for their control can be undertaken. Prompt control of an exotic disease will mean significant economic and social benefits.
- Knowledge about endemic animal diseases is necessary so that advice can be given to livestock producers to assist them to enhance the production and welfare of their animals.
- The NT needs to have scientifically defensible evidence for claims made about freedom from animal diseases and also for zoning regions for animal diseases.
- The NT needs to have justifiable reasons for the 'conditions for entry of stock to the Northern Territory'.⁴
- It allows assessment of disease control measures.
- It enables us to fulfil national and international reporting obligations.
- It enables us to liaise with health workers for diseases that have a zoonotic potential.
- It enables us to identify new markets, which are accessible because of our disease-free status.

Australia, including the NT is free of most of the serious animal diseases found elsewhere in the world. This creates an advantageous situation with regard to trade in animals and animal products. It is a status that needs to be protected by high quality animal health surveillance.

WHO DOES ANIMAL HEALTH SURVEILLANCE?

The Animal Biosecurity Section of the Department of Primary Industry and Resources (DPIR) is responsible for animal health surveillance in the NT. An experienced team of veterinarians and animal biosecurity officers carries out surveillance on both pastoral properties and on the small farms close to the main centres. In 2015, three veterinarians and seven animal biosecurity officers carried out animal health surveillance as a major part of their duties. Unlike in most other Australian States, in the NT there continues to be a dependence upon government officers to conduct disease investigations (passive surveillance) because there are few private veterinarians servicing the pastoral properties in an 'on-call' basis. As with other Australian jurisdictions, it has been recognised that there has been a reduction in the use of government veterinary services by livestock producers over recent years as the industry becomes more self-sufficient.

Table 1. Number of animal health surveillance Accessions (livestock) in the NT

Year	Passive surveillance		Active surveillance	Total
	Diagnostic i/c private vet submission*	Testing for export overseas	Surveys*	
2012-13	516	10	380	906
2013-14	532	12	345	889
2014-15	552	18	240	810
2015-16	533	7	386	926

This table records submissions to the database and is not a measure of the number of animals examined.

Source: Berrimah Veterinary Laboratory LIMS System (LADS)

* Includes all submissions from the Northern Australia Quarantine Strategy program

For the purposes of animal health surveillance, government veterinarians maintain linkages with private veterinarians, the Northern Australia Quarantine Strategy (NAQS) staff, Parks and Wildlife Commission officers responsible for wildlife and feral animals and Department of Health medical officers. Any unusual animal disease events should be investigated. Veterinarians from private practices, producers and those who work in other areas (e.g. wildlife) are obliged to report any notifiable diseases or other events that seem unusual.

The field-based activities of animal health surveillance have diagnostic support from the staff at the Berrimah Veterinary Laboratory. This is a national association of testing authorities (NATA) accredited facility. High quality laboratory services are an integral part of animal health surveillance.

EXAMPLES OF ANIMAL HEALTH SURVEILLANCE IN THE NT

This list includes surveillance conducted by departmental staff, excluding Commonwealth programs such as the NAQS.

- Disease investigations for livestock that are sick, dying or have an unexpected drop in production.
- NTSESP to show that Australia is free of bovine spongiform encephalopathy (BSE) and scrapie. (<https://www.animalhealthaustralia.com.au/what-we-do/disease-surveillance/tse-freedom-assurance-program/>)
- The National Arbovirus Monitoring Program (NAMP) to monitor the distribution of insect-borne viruses of livestock and their vectors. (<https://www.animalhealthaustralia.com.au/what-we-do/disease-surveillance/national-arbovirus-monitoring-program/>)
- The National Bee Pest Surveillance Program (NBPS) to detect any incursions of exotic bees or bee parasites. (<http://nbpsp.planthealthaustralia.com.au/public.php?page=aboutnbpsp>)
- The Screwworm Fly Trapping and Targeted Myiasis Inspections (<https://www.animalhealthaustralia.com.au/what-we-do/disease-surveillance/screw-worm-fly/>)

KEY PERFORMANCE INDICATORS

The key performance indicators for DPIR veterinarians, animal biosecurity officers and veterinary laboratory staff include:

- Investigations of suspected exotic diseases within 24 hours of notification.
- Dispatch of samples from cases where an exotic disease is suspected to the Australian Animal Health Laboratory within 24 hours of collection.
- Performance of an animal health surveillance activity on cattle in at least 20% of cattle-raising properties each year.
- Performance of at least 20 animal health surveillance activities on animals other than cattle each year.
- Sampling of 23 eligible cattle each year for NTSESP.
- Maintenance of seven sentinel herds of cattle for routine sampling for NAMP.
- Sampling nine sentinel poultry flocks routinely for the NT Department of Health arbovirus monitoring.
- Maintenance and sampling of bee hives for NBPSP.
- Maintenance of an adequate database to store and retrieve animal health surveillance information.
- Performing targeted screw-worm fly myiasis inspections on sentinel herds and export yards.
- Undertaking trapping for screw-worm flies at a number of sites within 10 km of the Port of Darwin.

REPORTING ARRANGEMENTS

- Passive animal health surveillance activities are reported to the Chief Veterinary Officer each month. They are also recorded on an animal health information system database as are other animal health surveillance activities.
- The national programs have routine reporting, usually every quarter.
- Specific surveys may have milestone reporting and a final report. Departmental publications or scientific journal papers may also be produced.
- Reporting on various animal health surveillance issues is included in the four regional review newsletters published for producers. Articles are also submitted to industry organisation newsletters.
- Each quarter a report is sent to the National Animal Health Information System (<https://www.animalhealthaustralia.com.au/what-we-do/disease-surveillance/national-animal-health-information-system-nahis/>) on the amount of testing undertaken for certain diseases and a text report of interesting disease investigations.
- An annual report is sent to the Commonwealth Department of Agriculture and Water Resources for incorporation into the annual report on the animal health status of Australia (<https://www.animalhealthaustralia.com.au/our-publications/animal-health-in-australia-report/>).

INVESTMENT IN ANIMAL HEALTH SURVEILLANCE

For 2014-15, the NT Government funded all field and laboratory operational and personnel costs for active animal health surveillance in the NT. This excludes externally funded programs.

All costs of laboratory tests for disease investigations relating to livestock are paid by the government and are free to the producer.

Stakeholders that benefit from this investment include the NT Government, the Commonwealth Government, animal producers, consumers, veterinarians, those involved in allied animal industries (e.g. road train operators, stock agents) and health authorities. In summary, the NT government works to protect an industry worth over \$360million to the Territory.

REFERENCES

1. Overview and Outlook 2015, Department of Primary Industry and Fisheries, Darwin, NT.
2. Year Book Australia 2012 Agriculture – Livestock, Australian Bureau of Statistics Catalogue No. 1301.0 - last updated 11/11/2015 accessed 06/09/2016 (<http://www.abs.gov.au/ausstats/abs@.nsf/mf/1301.0>)
3. International Animal Health Code 2016, Article 1.3.6.1 accessed 06/09/2016 (http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_surveillance_general.htm)
4. Conditions for Entry of Stock to the Northern Territory. 30/03/2016 accessed 06/09/2016 (<https://nt.gov.au/industry/agriculture/livestock/moving-and-exporting-livestock/moving-livestock-into-the-nt>)

Please visit us at our website:

www.dpir.nt.gov.au

© Northern Territory Government

ISSN 0157-8243

Serial No. 817

Agdex No. 401/653

Disclaimer: While all care has been taken to ensure that information contained in this document is true and correct at the time of publication, the Northern Territory of Australia gives no warranty or assurance, and makes no representation as to the accuracy of any information or advice contained in this publication, or that it is suitable for your intended use. No serious, business or investment decisions should be made in reliance on this information without obtaining independent and/or professional advice in relation to your particular situation.