

Veterinary Surveillance

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BACKGROUND

The livestock industry is the most significant primary industry in the Northern Territory (NT). The gross value of the livestock industry in 2001-02 was \$223 million, which is higher than the fishing industry (\$117 million), the horticulture industry (\$92 million) or the field crops industry (\$6 million).¹

Cattle-raising is the most important livestock industry in the NT. It consists mainly 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. There are 1.6 million head of cattle in the NT (5.7% of Australia's total)² mostly run on the 220 or so pastoral leases. These leases cover about half the area of the NT.

The gross value of the cattle industry in the NT in 2001-02 was almost \$210 million.¹ Cattle exports were worth \$143 million (233 760 head), cattle moved interstate were worth \$65 million (169 750 head), and cattle slaughtered in the NT were worth almost \$1.6 million (4 407 head).

Other livestock industries in the NT include buffalo-raising, intensive pig production, 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 2001-02 the value of these other livestock industries was over \$13 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 hacks²). The term 'diseases' includes those caused by infectious and parasitic organisms and by chemically based intoxicants such as poisonous plants or residues from veterinary products.

WHAT IS VETERINARY SURVEILLANCE?

Veterinary surveillance is the collection, analysis and interpretation of health data from animals so that it adds to knowledge of diseases, identifies new diseases, specifies risk factors such as time, space and animal characteristics, and allows planning and implementation of control measures.

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

"Surveillance means the continuous investigation of a given population to detect the occurrence of disease for control purposes, which may involve testing of a part of the population.

Monitoring constitutes on-going programs directed at the detection of changes in the *prevalence* of disease in a given population and in its environment."



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

Surveillance activities can be regarded as active or passive, or even as somewhere in-between. **Active surveillance** (also termed targeted surveillance) is when the data is collected specifically for surveillance purposes. 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 of animals for export).

WHY CONDUCT VETERINARY SURVEILLANCE?

The aim of veterinary 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:

- Other 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 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 available to us because of our disease-free status.

Australia and the NT in particular, 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 veterinary surveillance.

WHO DOES VETERINARY SURVEILLANCE?

The Pastoral Division of the Primary Industry Group of the Department of Primary Industry, Fisheries and Mines (DPIFM) is responsible for veterinary surveillance in the NT. An experienced team of veterinarians and stock inspectors carries out surveillance on pastoral properties and on small farms around the main towns. In 2003 5.5 veterinarians and nine stock inspectors carried out veterinary surveillance as a major part of their duties. Unlike most other Australian States, there is a heavy reliance on government officers to conduct disease investigations (passive surveillance) in the NT because there are few private veterinarians servicing the pastoral properties in an 'on-call' basis. Some other Australian jurisdictions have noted a reduction in the use of government veterinary services by livestock producers. There is no evidence of this in the NT over the past few years.

Table 1. Number of veterinary surveillance activities (livestock) in the NT

Year	Reason				Total
	Diagnostic	Testing for export overseas	Survey*	Private vet submission**	
1998	209	10	196	11	426
1999	231	9	55	16	311
2000	305	15	99	22	441
2001	305	16	97	21	439
2002	248	16	162	1	427
2003***	83	1	48	3	135

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

Source: DPIFM Animal Health Information System ('ANDI')

* Includes all submissions from the Northern Australia Quarantine Strategy program

** Submissions from livestock – not subject to any charges from Berrimah Veterinary Laboratories

*** From 1/1/2003 to 10/6/2003 only

Veterinarians from private practices and those who work in other areas (e.g. wildlife) are obliged to report any notifiable diseases, or other events that seem unusual.

For the purposes of veterinary surveillance, government veterinarians have associations with private veterinarians, the Northern Australia Quarantine Strategy staff, Department of Environment and Natural Resources officers responsible for wildlife and feral animals and Department of Health and Community Services doctors. Any unusual animal disease events should be investigated.

The field-based activities of veterinary surveillance have diagnostic back-up from staff at Berrimah Veterinary Laboratories. This is a national association of testing authorities (NATA) accredited facility. There are 23 staff, including three pathologists. High quality laboratory services are an integral part of veterinary surveillance.

EXAMPLES OF VETERINARY SURVEILLANCE IN THE NT

This list includes surveillance conducted by departmental staff, excluding Commonwealth programs such as the North Australia Quarantine Strategy.

- Disease investigations for livestock that are sick, dying or have an unexpected drop in production.
- The National Transmissible Spongiform Encephalopathy Surveillance Program (NTSESP) to show that Australia is free of bovine spongiform encephalopathy (BSE) and scrapie. (<http://www.aahc.com.au/surveillance/ntsesp/index.htm>)
- The National Arbovirus Monitoring Program (NAMP) to monitor the distribution of insect-borne viruses of livestock and their vectors. (<http://www.namp.com.au/>)
- The bluetongue survey 2002-2004 (partly funded by Meat and Livestock Australia) to better define the areas affected by the bluetongue virus.
- The National Sentinel Hive Program (NSHP) to detect any incursions of exotic bees or bee parasites. (<http://www.nt.gov.au/dbird/dpif/animals/bees.shtml>)
- The hydatid survey of 2000 to provide evidence that the NT is free of hydatidosis.⁵
- Tuberculosis Freedom Assurance Program 2 - a national surveillance program to show freedom from bovine tuberculosis in Australia (<http://www.aahc.com.au/tuberculosis/index.htm>)

KEY PERFORMANCE INDICATORS

The key performance indicators for DBIRD veterinarians, stock inspectors 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 a veterinary surveillance activity on cattle in at least 25% of cattle-raising properties each year.
- Performance of at least 100 veterinary surveillance activities on animals other than cattle each year.
- Sampling of 23 eligible cattle each year for the NTSESP.
- Maintenance of sentinel herds of cattle for routine sampling for the NAMP.
- Sampling eight sentinel poultry flocks routinely for the Department of Health and Community Services' arbovirus monitoring.
- Maintenance and sampling of hives of bees for the NSHP.
- Maintenance of an adequate database to store and retrieve veterinary surveillance information.
- Annual Tuberculosis Freedom Assurance Program 2 monitoring requirements are met, by abattoir inspection or field testing, for all herds with a history of bovine tuberculosis infection since 1st January 1988.
- Respond to any bovine tuberculosis cases detected, as outlined in the Tuberculosis Freedom Assurance Program 2 Standard Definitions and Rules.

REPORTING ARRANGEMENTS

- Passive veterinary surveillance activities are reported to the Chief Veterinary Officer each month. They are also recorded on an animal health information system database (ANDI), as are other veterinary 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 veterinary surveillance issues, as necessary, is included in the four regional review newsletters published for producers. Articles are also submitted to industry organisation newsletters.
- Articles are included in the *Animal Health News from the Northern Territory* newsletter published for vets (<http://www.nt.gov.au/dbird/dpif/pubcat/newsletters/ahnnt.shtml>).
- Each quarter a report is sent to the National Animal Health Information System (<http://www.aahc.com.au/nahis/index.htm>) on the amount of testing for certain diseases and a text report of interesting disease investigations.
- An annual report is sent to the Department of Agriculture, Fisheries and Forestry – Australia for incorporation into the annual animal disease report from Australia to the OIE.

INVESTMENT IN VETERINARY SURVEILLANCE

For 2002-03, the Department spent around \$1.2 million in field and laboratory operational and personnel costs for veterinary surveillance in the NT. This amount excludes externally funded programs.

All costs of laboratory tests for diagnostic 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 short, it costs around \$1.2 million to protect an industry worth over \$220 million to the Territory.

REFERENCES

- 1) PrimeStats Rural and Fishing Industries in the NT 2001-2002. (Draft edition, 12/8/2003).
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- 4) Conditions for Entry of Stock to the Northern Territory. 30/5/2003 <http://www.nt.gov.au/dbird/dpif/animals/conditions_for_entry.shtml>
- 5) Small, L.M. and Pinch, D.S. (2003). Survey for hydatidosis in cattle bred in the northern region of the Northern Territory of Australia. *Aust Vet J* 81:355-358.

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Ⓢ *Hack: horse kept for common hire, or adapted for general work, especially ordinary riding.* The Macquarie Dictionary Third Edition, 1997.