ANIMAL HEALTH SURVEILLANCE QUARTERLY

Newsletter of Australia's National Animal Health Information System

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# Preface

Australian livestock producers and animal health authorities have long recognised the threat posed by the introduction of foot-and-mouth disease (FMD), which remains a serious problem in many parts of the world. Recent outbreaks in previously free countries such as Japan and Korea show the importance of remaining vigilant. In July, a workshop reviewed current FMD risk factors and considered how Australia would have been able to respond if a suspicious disease incident in April had indeed been a real incursion.

Other topics include highlights of disease surveillance activities, items of interest from States and Territories, and summaries of disease surveillance and monitoring programs reported to Australia's National Animal Health Information System (NAHIS). Only summary information is recorded in NAHIS, with detailed data being maintained by the source organisation. The information included in this report is accurate at the time of publication but, because of the short reporting and production time, minor discrepancies may occur.

*Gardner Murray*
*Australian Chief Veterinary Officer*

# FMD Workshop

The occurrence of foot-and-mouth disease (FMD) would have a major economic impact on Australia as most trading partners would immediately impose import bans on Australian livestock and products. Traditionally, such bans would apply to the whole of Australia even if the outbreak were restricted to a small part of the country. The potential loss of export earnings in the first year has been estimated at $2000 million, with a 3.5% decrease in Gross Domestic Product and a 1% increase in unemployment. Although recent international initiatives have seen the acceptance of 'zoning' for disease control, considerable uncertainty still surrounds how and under what conditions trading partners would accept a declaration of infected and free zones in the event of an outbreak of FMD.

A suspect case of FMD in a calf near the town of Naracoorte in South Australia was reported and discussed by the Consultative Committee on Emergency Animal Diseases (CCEAD) on Easter Thursday (20 April 2000). The Australian Animal Health Laboratory (AAHL) subsequently ruled out FMD. However CCEAD agreed that it would be useful to consider what might have happened if this incident had been real. Accordingly, the Department of Agriculture, Fisheries and Forestry's Office of the Chief Veterinary Officer organised a government–industry workshop on 18–19 July in Canberra. This workshop reviewed current FMD risk factors and how Australia would have been able to respond if the Naracoorte incident had been a real incursion.

The workshop used actual livestock numbers and movements, property details and meteorological data from the local Naracoorte area. Participants

## Contents

had to develop an integrated response plan to address the situation, assuming FMD had been confirmed, and then consider the implications of implementing such a plan. The workshop explored issues related to the disease control response as well as the effect on domestic marketing, international trade, public relations, media and industry recovery.

The workshop identified a number of important issues:

- Application of zoning for both disease control and marketing purposes would create competition for national resources. Unaffected States and Territories would be urgently undertaking serological surveillance to support claims of freedom and the early resumption of export trade to minimise the economic impact.
- The concept of a 'no export trade' zone or zones was seen as potentially useful and meriting future conceptual elaboration as the size of 'infected' and 'surveillance' zones could then be solely based on epidemiological considerations.
- The availability of trained government personnel to implement regulatory controls and a major response program is limited. Substantial sharing of animal health resources would be necessary in an emergency of any size. In the scenario, the combat State had limited specialist animal health resources for emergency response and other States would have been substantially affected due to normal marketing of livestock from the outbreak area. The States and Territories would need to work cooperatively to combat an incursion successfully.
- Much of the clinical and serological investigation would have to be contracted to the private sector, creating additional administrative pressure on government resources to manage such a program.
- All States and Territories would rely heavily on other agencies to undertake major operational activities such as destruction and disposal of large numbers of animals, so that animal health staff could concentrate on technical issues and disease investigation. This requires further discussion with emergency services to develop detailed prior arrangements under each State or Territory's current emergency management plans. An incursion of FMD would require a whole of government response.
- Even a limited outbreak of FMD would cause major losses and social disruption. One possible approach that was identified was an FMD levy to support economic and social recovery after a major outbreak occurred.
- The workshop confirmed that Australia's reliance on export trade meant that the current Australian Veterinary Emergency Plan (AUSVETPLAN) disease response policy of stamping out remains valid. However, there was agreement that FMD vaccine should be imported early in an outbreak in case it were to be needed.
- Clinical and serological surveillance was identified as an immediate urgent priority activity to support zoning. Up to 100 000 blood samples outside the affected area could be required to support submissions for recognition of free zones, depending on the level of stratification of livestock industries accepted by trading partners. AAHL does not currently maintain sufficient reagents for this amount of serological testing, and this was identified as an important deficiency in the current national diagnostic capacity.
- Another diagnostic issue is the need for a national system to track samples between laboratories. The workshop identified the need for a desktop exercise to review compatibility of laboratory sample tracking systems.
- The workshop confirmed the importance of applying disease surveillance and control measures to feral animals as part of emergency response activities, as outlined in AUSVETPLAN. The workshop agreed that it was important to consider population reduction programs to enhance the biosecurity of the livestock sector.

Participants agreed that the structure of the workshop, using real farm and livestock information, was a model for future desktop exercises. Animal Health Australia manages Australia's Emergency Animal Disease Preparedness (EADP) Program. This workshop approach will be referred to the EADP training program for consideration. Formal evaluation and feedback from participants showed that the workshop was very successful in raising industry awareness and gave an important insight for State government representatives of the national and international implications.

*Contributed by Peter Thornber, Animal Health Australia, and Graeme Garner, Office of the Chief Veterinary Officer*

# The Animal Disease Surveillance Program

As mentioned in *AHSQ* Vol. 5, No. 2, Animal Health Australia has restructured the management of its core activities into three program areas, Animal Health Services, Animal Disease Surveillance, and Emergency Animal Disease Preparedness. The Animal Disease Surveillance Program (ADSP) commenced in September 2000 with a workshop of key stakeholders in Canberra. The purpose of the workshop was to explore the requirements of the national surveillance system; examine what currently exists; explore what is required for the future; identify and set priorities for addressing 'gaps'; and provide direction for the newly formed ADSP Advisory Committee.

As a result of the workshop and a meeting of the ADSP Advisory Committee on the following day, the function of ADSP was defined as:

- to facilitate domestic and international trade in animals and animal products by ensuring credible certification of the true disease status of Australian livestock;
- to fulfil international treaty obligations by meeting the reporting requirements of international organisations and trading partners;
- to provide a basis for technically justifiable import requirements for animals and animal products;
- to enhance the national capability for early detection and notification of threats, incursions and emerging animal diseases;
- to provide support to disease zoning and the development of control and eradication programs; and
- to facilitate public health and food safety policies for animal diseases that can affect human health

The program will use the existing National Animal Health Information System (NAHIS) as the data analysis and reporting component. The existing National Arbovirus Monitoring Program (NAMP) and the National Transmissible Spongiform Encephalopathy Surveillance Program (NTSESP) will become sub-programs. Consolidating these programs under ADSP offers potentially significant economies as coordination mechanisms and administration of each component can be shared, as well as reducing any overlaps in use of resources. The ADSP Advisory Committee, which includes an independent chairman and representatives from industry and Commonwealth Government and State/Territory governments, has prepared a draft work program that will be submitted to the Board of Animal Health Australia. Initial activities of ADSP, in addition to the existing sub-programs, that have been identified include:

- carrying out a baseline study of the present status of Australia's disease surveillance system;
- determining the current status and potential of serum banks;
- completing a needs analysis of requirements to support industries into the future;
- conducting a gap analysis to identify any weaknesses in the current system by comparing the baseline study to the needs analysis;
- developing a strategy to promote surveillance activities;
- investigating whether a national approach can add value to disease surveillance of wildlife and feral animals;
- identifying alternative data sources for use in disease surveillance, such as negative test data and activity recording;
- exploring the options available to link surveillance to the National Livestock Identification System; and
- carrying out specific research and development consultancies relating to:
  - new statistical processes to support disease surveillance;
  - methods of surveillance for extensive beef herds; and
  - using existing data for disease surveillance.

*Contributed by: Simon Winters, Animal Health Australia*

# Update on National NDV Survey

As a result of the 1998 and 1999 outbreaks of virulent Newcastle disease in New South Wales, a national survey of Newcastle disease viruses (NDVs) was initiated (*AHSQ* Vol. 5, No. 1). The objective of the survey was to provide sound data on the types, prevalence and distribution of NDVs across Australia so that informed decisions can be made by government and industry with respect to the management of Newcastle disease in Australia in the future.

The survey was conducted in three phases. The first phase involved an investigation of the serological status of poultry farms across Australia. In the second phase of the survey, farms with positive serology were revisited and diagnostic samples collected for attempted viral isolation. Finally, viruses isolated in this process will be genetically typed to determine the types of viruses that are present in different regions of Australia and the risk that they pose. Typing will be based on nucleotide sequencing of the cleavage site of the gene that codes the fusion protein of NDV.

The serological survey of 750 farms nationally is now completed. Serological evidence of exposure of flocks to NDVs has been found to exist in almost all regions of Australia. This was not unexpected, as the existence of endemic, lentogenic NDVs in Australia has been recognised for many years. The highest seroprevalence findings and highest individual bird titres were identified in NSW and Victoria.

Viral isolation attempts are nearing completion in all regions, with all work in this area to be completed by the end of November. Most of the 209 isolations so far have been submitted to the Australian Animal Health Laboratory (AAHL) for typing. The collection of isolates obtained spans farms from Queensland, New South Wales, Victoria, Tasmania and South Australia, although the vast majority have come from Victoria. A large number of these isolates have already been typed, with all isolates expected to be typed by mid-December 2000. Results will not be available until this typing exercise has been completed. A full report on the outcomes of the survey will be prepared during January 2001. All participating farmers will receive feedback on the results for their farm(s).

*Contributed by: Vivien Kite, RIRDC*

# BJD South-East Beef Survey

## Background

Subject to achieving a high participation rate, a survey of beef breeding herds is planned to help ease trading restrictions in southern Australia. Bovine Johne's disease (BJD) was first recorded in Australian cattle more than 70 years ago. It now occurs in Victoria, New South Wales, Tasmania and South Australia, with some 2000 cattle herds known to be infected. As well as cattle, the disease has been detected in goats, sheep, alpacas and deer. BJD is much more common in dairy herds than in beef herds, presumably because the beef industry does not use the intensive management systems and calf-rearing methods that have facilitated the spread of the disease in dairy cattle. That there is only a low prevalence of BJD in beef herds is supported by a recent BJD survey of Tasmanian beef herds in which only one infected herd was found from the 296 beef herds tested.

Planned testing requirements associated with BJD zoning (see *AHSQ* Vol. 4, No. 2) will disrupt traditional stock movements and increase costs for traders. To determine if some restrictions could be lifted, the BJD Technical Advisory Group recommended that an industry-proposed survey of beef cattle herds in south-east Australia be undertaken as a matter of urgency to give a better understanding of the prevalence of BJD. If the proportion of infected beef cattle herds in Control/ Residual Zones is found to be no more than 2% (the maximum amount of BJD allowed in Protected Zones), then trade restrictions for beef cattle from eligible herds could be eased between these zones. This would avoid ongoing testing costs and would improve access for agistment and provide better background information for feedlots.

The survey presents a window of opportunity for producers to have herd testing costs covered and to

receive financial assistance if any infected cattle are detected. There will be no cost to producers in participating in the survey. The survey will cover all reasonable costs for mustering, testing and follow-up of reactors. A negative Sample Test will be a major step in helping producers gain a Monitored Negative 1 status in the Australian Johne's Disease Market Assurance Program for Cattle (CattleMAP). Financial assistance will be available to help producers prepare herd management plans for the CattleMAP. Financial assistance will also be available to owners of herds that are found to be infected by the survey and who elect to undertake a control or eradication program designed with them for their herd.

The Cattle Council of Australia and the Australian Lot Feeders' Association will fund the survey up to $1.5 million, with the Commonwealth Government matching half that funding through Meat and Livestock Australia. State governments will manage the survey. Financial assistance for herds found to be infected by the survey will come exclusively from the Cattle Transaction Levy funds.

## The survey

To avoid excessive cost exposure for industry, the survey will run in four stages with progression to successive stages depending on achievement of identified milestones. The first stage, contacting selected producers, will begin in the second half of October. If the survey achieves the high participation rate required to reduce possible bias, this will be followed by three testing Stages. Stage 2 will involve the first 30% of herds, and be followed by two further stages including the next 30% and then the final 40%. Testing is due to begin in early December. If it is evident after any stage that a sufficient participation rate will not be achieved, the survey will be stopped and reviewed. If, at any time, the prevalence of BJD is likely to be greater than 2%, the survey will be stopped, as it would not have met its main objective of demonstrating a low prevalence. If all stages of the survey are completed, the survey is expected to take about 12 months to complete.

Overall, 530 herds will be tested in the survey. The eligible herds will be in a Control or Residual Zones for BJD and must contain 50 or more female breeding cattle that are at least two years old that have not had contact with dairy cattle (for the precise meaning of 'contact' see www.aahc.com.au). Herds will be selected at random from State government databases. Following selection, producers will be contacted so that a visit can be arranged to explain the survey and collect information on herd management. Owners of eligible herds will be asked if they are willing to participate in the testing. Although there is no obligation for producers to participate, a high participation rate is required for the survey to proceed.

## The testing

The herds will be tested to Sample Test standard as required by CattleMAP. Approved Veterinarians or District Veterinarians will collect blood samples that will be screened using the absorbed enzyme-linked immunosorbent assay (ELISA).

On average there are about two false positive results in every 1000 animals tested by ELISA. Herds will not be classed as suspect or infected if ELISA reactors occur but will maintain their existing status pending investigation of the reactors by either the slaughter of the reactor and microscopic examination of tissue, or by a faecal culture test within a month of the date of testing. If the post mortem tissue examination is inconclusive, faeces and fresh tissues collected at slaughter will be cultured.

If ELISA (or any subsequent investigations) are negative, the herd will have achieved a negative Sample Test and, once the required herd management plan is developed, will be eligible to enter CattleMAP with a Monitored Negative 1 (MN1) status.

If the investigation of reactor animals confirms infection, the herd will be classified as Infected. Infected herds detected by the survey will be eligible for financial assistance to adopt a five-year control–eradication program, a 12-month destocking–restocking program or an approved combination of both strategies. The first step of either program will be to develop herd management and farm business plans with the owner. The plans will help the owner determine the best option for dealing with the infection.

*Contributed by David Kennedy, Animal Health Australia's BJD Coordinator*

# Reorganisation of AFFA

The Department of Agriculture, Fisheries and Forestry — Australia (AFFA) has reorganised its reporting structure into a series of business outputs that reflect its broad areas of responsibility. Details of the new organisation of AFFA can be found on the internet (at http://www.affa.gov.au). Two areas, 'Product Integrity and Animal and Plant Health' and 'Market Access and Biosecurity', are particularly relevant to animal health.

## Product Integrity and Animal and Plant Health

The former National Offices of Animal and Plant Health and Food Safety are now called Product Integrity and Animal and Plant Health. The product integrity area covers the National Residue Survey and policy on agricultural and veterinary chemicals. The National Registration Authority for Agricultural and Veterinary Chemicals (NRA) remains unchanged, as a statutory authority. The animal and plant health area includes the Office of the Chief Veterinary Officer and the Office of the Chief Plant Protection Officer. Gardner Murray, Australia's Chief Veterinary Officer, manages the whole Product Integrity and Animal and Plant Health output.

## Biosecurity Australia

The former animal and plant quarantine policy areas of the Australian Quarantine and Inspection Service (AQIS) have been renamed Biosecurity Australia and combined with the trade and market access areas of AFFA to form the Market Access and Biosecurity output. Biosecurity Australia oversees quarantine import risk analyses (IRAs) and negotiates export market access with counterpart agencies overseas. The primary responsibilities of the new AQIS are now border inspection and export certification.

IRAs will continue to be conducted according to the *AQIS Import Risk Analysis Process Handbook*. However, under the changed administrative arrangements, determinations previously made by the Executive Director of AQIS will be made by the appropriate Deputy Secretary of AFFA. Once quarantine policy is adopted, implementation will be the responsibility of AQIS. The formation of Biosecurity Australia will thus clearly distinguish import risk analysis from the operational roles of AQIS.

Information on Biosecurity Australia's activities can be found on the internet (at http://www.affa.gov.au/biosecurityaustralia or via the AFFA website) Included on these web pages are various Animal Biosecurity Policy Memorandums (ABPMs). ABPM 2000/47 lists the animal and aquatic animal IRAs and their status (about 26 at present) and ABPM 2000/51 provides details of Australia's export market access program (some 57 access issues concerning 31 countries at present).

# Aquatic animal health

## White spot syndrome in imported prawns

White spot syndrome virus (WSSV) is a highly pathogenic virus affecting penaeid prawns. Over the past decade it has devastated prawn-farming industries throughout South-East Asia and, more recently, Central America.

Late last year, suspect prawns with some of the gross signs of WSSV were detected in a Brisbane restaurant. The suspect block of frozen green prawns was purchased and samples were submitted to two laboratories — both returned a positive finding of WSSV. Some prawns were also sent to AAHL where trials demonstrated that WSSV was infective, with prawns feeding on the imported green prawns contracting WSSV and subsequently dying.

Upon notification of this finding, the Consultative Committee for Emergency Animal Diseases recommended an active surveillance program examining samples from every operating prawn farm in Australia. The survey was conducted by the Queensland Department of Primary Industries and CSIRO Livestock Industries. No WSSV was found in any Australian samples and the Australian industry was shown to be free of this virus.

The remainder of the original batch of infected prawns was sent to the Australian Institute of Marine Sciences in Townsville where Dr John Benzie demonstrated that the prawns had genotype frequencies consistent with having an origin in South-East Asia.

## Monitoring and surveillance consultancy

In May 2000, an extensive review of monitoring and surveillance programs for aquatic animal health was submitted to Fish Health Management Committee (FHMC). The review demonstrated that the range of existing surveillance activities in aquaculture and fisheries were primarily State-based, *ad hoc* in nature, and mainly relied on passive monitoring, based on submission of samples to pathology laboratories.

FHMC decided to fund a consultancy focused on the future of monitoring and surveillance with the terms of reference including recommendations for advising on future requirements for their organisation and coordination. The consultancy recommended the establishment of a centralised system of data collection and analysis based on the successful NAHIS approach. These recommendations will be considered in the current consultancy on the resources and funding of aquatic animal health issues that should be completed early in 2001.

## 'Fish Week'

'Fish Week' is a series of lectures and practical tutorials on aquaculture and aquatic animal health presented to the first three years of the undergraduate veterinary science course at the University of Melbourne. It is the only course of its kind in Australia and was held in August. For the third year running, 'Fish Week' was presented by Dr Paul Hardy-Smith.

This year, the lecture series included information on AQUAPLAN, the AQUAVETPLAN manuals and the simulation exercises on aquatic animal disease emergency incidents. All lectures and tutorials were enthusiastically attended by the students, many of whom had gained, or were keen to gain, on-farm and veterinary practical experience in different sectors of the aquaculture industry both within Australia and overseas.

'Fish Week' will be held next year at the University of Melbourne just before to the Australian Veterinary Association Conference in May 2001.

## AQUAVETPLAN update

Industry stakeholders and the government and industry members of the FHMC have endorsed the final draft AQUAVETPLAN Furunculosis Disease Strategy Manual. The final draft is currently with Veterinary Committee for endorsement, and Aquaculture Committee and Environment and Health Committee for final comment, before being sent to the Standing Committee of Fisheries and Aquaculture (SCFA) for endorsement.

## Zoning in the United Kingdom and Denmark

Dr Linda Walker of the Office of the Chief Veterinary Officer recently travelled to the United Kingdom and Denmark to discuss how these countries have developed disease zoning policies in accordance with the European Union directions.

Zoning issues were discussed in England with Dr Barry Hill at the Centre for Environment, Fisheries and Aquaculture Science, Weymouth; in Scotland with Dr Alasdair McVicar at the Marine Laboratory, Aberdeen; and with Dr Olesen at the Danish Veterinary Laboratory ,Aarhus.

At Weymouth, Dr Hill has extensive experience in the application of zoning policies and has provided examples on European Union zoning policies included in the Australian Zoning Policy Guidelines.

While at the Marine Laboratory in Aberdeen, zoning in marine environments was discussed, particularly Scotland's proposed zones for infectious salmon anaemia (ISA). The laboratory has developed a geographic information system that will help determine appropriate zones for future outbreaks of ISA.

The Danish Veterinary Laboratory is the OIE Reference Laboratory for viral haemorrhagic septicaemia and the Economic Union Reference Laboratory for viral diseases of finfish. Denmark's approach to zoning, surveillance and eradication was discussed during the visit.

A workshop on zoning — 'Putting principle to purpose' — is planned for late January 2001. The workshop will explore the practical issues involved with zoning using the AQUAPLAN Zoning Policy Guidelines with the information gained from Great Britain and Denmark's experiences of zoning for aquatic animal diseases being a basis for discussions.

*Contributed by: Eva-Maria Bernoth, Office of the Chief Veterinary Officer, AFFA*

# Successful movement of Olympic horses

The equestrian events were a spectacular and popular component of the Sydney 2000 Olympic Games. More importantly, the Games could not have been held in Sydney unless the equestrian events were included. The horses were the largest single group ever to enter Australia, undertake quarantine and leave. The success of the exercise reflects well on the efforts of all the people involved in the planning and delivery of this facet of 'the best Games ever staged'.

Horses entered Australia under existing import conditions. Additional quarantine requirements for the temporary import of horses that are serologically positive for piroplasmosis were finalised early in 2000 permitting the importation of seropositive Olympic horses to compete in all Olympic equestrian disciplines.

Most of the Olympic horses were resident in the European Union. To facilitate their travel, an AQIS Veterinary Officer was stationed in Europe during the 14-day pre-movement quarantine period. Most of the Olympic horses arrived in Sydney on 21–25 August, with 216 horses arriving on six flights — five from the European Union and one from the United States. These horses were quarantined at the Sydney International Equestrian Centre (SIEC), the site of the Olympic equestrian competition, for at least 14 days, until midnight 8 September. After the completion of post-arrival quarantine, all horses remained under quarantine surveillance on site until leaving Australia.

To assist in monitoring for disease or diagnosis of disease on the site, all horses were bled on arrival at SIEC and inspected for ticks. Sera were transferred to the serum bank at the Australian Animal Health Laboratory. Each horse's temperature was monitored twice a day during the quarantine period. Horses seropositive for piroplasmosis were housed in a separate barn at SIEC, sprayed with acaricide on four different occasions, and closely monitored for ticks.

The horses travelled well and remained in excellent health throughout their stay in Australia. This meant there was minimal disruption to their training programs during quarantine at SIEC. Factors that contributed to this desirable outcome included:

- constructive interaction between all the agencies involved in the planning for, and conduct of, the equestrian competition;
- extensive distribution of information about Australia's quarantine regulations to National Equestrian Federations (NEFs) during the three years leading up to the Games;
- direct contacts between AQIS and the Games Organising Committee (SOCOG) staff, certifying authorities and NEFs, both overseas and in Australia, leading to strict application of the pre-export quarantine rules;
- thorough preparation by members of the Equestrian Freight Consortium;
- the strong commitment of participants to the welfare of their horses;
- efficient air transport of the horses with careful control of in-flight temperature and humidity;
- clean, well-designed stables and excellent facilities, set in spacious surroundings with good fly control; and
- predominantly fine weather.

One of the major management issues with the quarantine of so many horses related to the large number of people seeking daily access to the site. Although the grooms lived at SIEC, riders, trainers and other team officials, SOCOG staff and volunteers required access. Considerable effort was spent in obtaining a satisfactory level of compliance with quarantine measures and most accepted the need for these measures. However, formal warnings about non-compliance were issued to the managers of two of the competing teams.

Horses from New Zealand and those already in Australia, including early arrivals from the United States (imported under conditions of permanent import) entered SIEC following the completion of the post-arrival quarantine period for other overseas horses. To minimise the risk of introduction of endemic diseases to SIEC and to assist in the return of the imported horses, the 'Australian' and New Zealand horses were of an equivalent health status (isolation, testing, treatment) to that of the imported horses. As well, about 50 Australian 'display horses' were brought on to SIEC in small groups on several of the competition days. These horses were also prepared to an equivalent health standard as the foreign horses.

At the conclusion of the equestrian competition the horses were returned to their place of origin, with appropriate export certification. As with their journey to Australia, all horses travelled home well — a successful outcome for all those involved.

*Contact Officers: Robyn Martin, Biosecurity Australia, and Narelle Clegg, AQIS*

# The National Enteric Pathogen Surveillance Scheme

The National Enteric Pathogen Surveillance Scheme (NEPSS), formerly known as the National Salmonella Surveillance Scheme (NSSS), is located within the Microbiological Diagnostic Unit (MDU) Public Health Laboratory at the University of Melbourne. It was devised by MDU staff in the late 1970s in response to two outbreaks of salmonellosis that crossed interstate boundaries. The most notable was in 1977, in which cases were notified from three States and the incriminated tin of infant formula was found on sale in Tasmania. Another was caused by a batch of salami, manufactured in Victoria but detected in Perth.

NEPSS aims to reduce the burden of human disease due to enteric pathogens by collecting, analysing and disseminating data on diagnoses of enteric and food and waterborne infections of public health importance. The objectives are to monitor trends in the epidemiology of these infections, based on the identification of pathogens by laboratories; to identify outbreaks — particularly when geographically and/or temporally dispersed; to identify potential sources of these pathogens (e.g. food types, food products, and farming, factory, or recreational practices); and to monitor antibiotic resistance among bacterial pathogens.

More than 200 laboratories in all States and Territories of Australia participate in the scheme. Data are recorded by the submitting and reference laboratories (including MDU) on pre-printed cards and entered into a password-protected database. Entry of human data began in 1980. In 1983, the scheme was expanded to include non-human entries from animals, human foodstuffs (including eggs and milk products), animal feeds, pharmaceuticals, waters, waste-waters and other environmental isolates (including animal-rearing and food-processing premises). Antibiotic resistance patterns are recorded for all isolates typed by MDU.

At first, only *Salmonella* and *Shigella* isolates were notified but, by 1985 when the database was upgraded, *E. coli*, *Campylobacter*, *Aeromonas*, *Plesiomonas*, *Vibrio* and *Yersinia* isolates were included. Since 1985 there have been approximately 130 000 human and 75 000 non-human entries; 22 000 are from animals including 10 500 bovine, 2000 ovine, 1000 porcine, 700 equine and 3000 poultry isolates.

The data are routinely reviewed by the NEPSS Coordinator, and are also subject to fortnightly automated statistical analysis to detect potential disease clusters. Summaries of the data are disseminated by means of quarterly (human) and annual (human and non-human) reports that are distributed throughout Australia and overseas. Regular or sporadic tailored aggregate reports are also produced on request to contributing microbiologists or public health officials within Australia. Overseas collaboration is maintained though the active participation of NEPSS in Enter-net, the international surveillance network for *Salmonella* and VTEC O157, based in Europe.

Quality assurance is maintained by the Coordinator and a steering group. MDU also conducts internal audits routinely as part of the ISO 9001 process.

**Background to MDU**

MDU began typing *Salmonella* isolates in 1945. The Unit was recognised as the World Health Organization's Regional Centre for Enteric Phage Typing of *Salmonella* Typhi, *S.* Paratyphi A and *S.* Paratyphi B in 1948. It is also the designated Australian Reference Laboratory for serotyping and subtyping of *Shigella* isolates, the sole reference laboratory for phage typing of *Escherichia coli* O157, and one of the two national reference laboratories for phage typing of *S.* Typhimurium, *S.* Virchow, *S.* Enteritidis and *S.* Hadar isolates.

*Contacts for MDU*
*Director: Geoff Hogg;*
*Newsletter Editor: Joan Powling;*
*Microbiologist: Diane Lightfoot*
*e-mail: nepss@mdu.unimelb.edu.au*
*phone: 03 8344 5701; fax: 03 8344 7833*

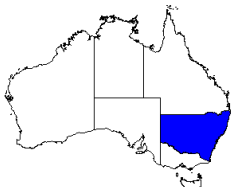
**NAHIS web site**

http://www.aahc.com.au/nahis

This newsletter, and information in the National Animal Health Information System, is available on the Animal Health Australia web site. The site provides information and statistics about animal health matters in Australia.

# State and Territory Reports

## New South Wales



*Contributed by:*
*Evan Sergeant*
*NSW Agriculture*

### Bovine brucellosis excluded

A cattle herd near Wagga Wagga was investigated following the identification of a single cow that was seropositive for bovine brucellosis. The cow was one of eight tested by a local practitioner under the Department's Targeted Surveillance Program for bovine abortions and infertility. Unfortunately, the cow was culled for slaughter soon after testing, and was not available for further follow-up testing. However, testing of the entire 600-head herd has been completed with all animals testing negative.

Because Australia has been free of bovine brucellosis since 1989, it is most likely that any reactors are false positives, rather than resulting from *Brucella abortus*. Despite this, any reactors are fully investigated to confirm their status.

### Pestiviraemia

Pestiviraemia caused multifocal ulceration of the buccal cavity and dorsum of the tongue in a six-month-old animal from Maitland. Material was submitted for exotic disease exclusion and the enzyme linked immunosorbent assay (ELISA) and gel diffusion precipitation test for foot-and-mouth disease virus performed at AAHL were negative.

Pestiviraemia was also associated with illthrift, diarrhoea, focal erosion/ulceration of the tunica mucosa in the proximal alimentary tract, and death in cattle less than two years old at a number of locations. In one herd of 400 animals, there was 2.8% mortality. Three of 20 clinically normal siblings yielded positive reactions in the pestivirus antigen capture ELISA (PACE ELISA).

### Tuberculosis excluded

A suspect case of tuberculosis (TB) case was investigated in a Friesian cow from Muswellbrook. Histologically, the animal had severe bronchogenic and hepatic abscessation with a morphology suggestive of *Actinomyces pyogenes* infection.

### Hendra virus

Hendra virus was eliminated as the cause of multifocal pulmonary haemorrhages and intravascular coagulopathy in a two-year-old thoroughbred from Camden. Histological sections of lung contained small numbers of multinucleate giant cells and yielded negative results in the indirect immunoperoxidase test for Hendra virus at AAHL.

### Newcastle disease

There have been no reports of clinical disease or virulent Newcastle disease in NSW since February 2000. The Mangrove Mountain Control Area is still in place, and vaccination is widespread in this area. Three farms in the Tamworth/Moonbi area have now been released from quarantine. However, six farms remain in quarantine in the Sydney Basin, all of which have been vaccinated.

Vaccination of broilers in the Sydney Basin is now widespread although not all farms are vaccinating. Vaccination of pullets introduced to some 80 layer farms in the area is not widespread.

### Akabane prevalent

A number of properties, mainly across the north-west of the State, have now reported losses due to Akabane infection. Affected calves have variable degrees of arthrogryposis, non-suppurative encephalitis and hydranencephaly. Some perinatal deaths have been experienced. This is the first time for some years that Akabane virus has been active in this area, so that few cows have any immunity to this infection.

### Ovine brucellosis in south-west NSW

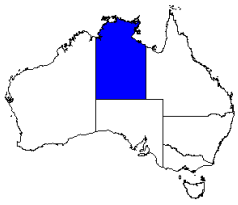
Ovine brucellosis was diagnosed by complement fixation test (CFT) in rams on three of ten commercial sheep properties participating in a surveillance scheme in the far south-west of NSW. Since the scheme started in April, ovine brucellosis has been detected on ten of 72 participating properties. Its prevalence in the south-west of the State is probably higher than these figures indicate, as not all commercial producers have agreed to participate, and the detection method generally used (CFT for only those rams with palpable genital lesions) is not highly sensitive.

The source of some outbreaks can be readily traced to the purchase of rams bought without certification of disease freedom. However, outbreaks on properties that had previously eradicated the disease are thought to be due to infected rams breaching boundary fences.

In addition to ongoing surveillance, a questionnaire is planned to assess producers' awareness of ovine brucellosis, and their preparedness to participate in a spectrum of containment strategies (ranging from control at current levels to eradication). The profitability of individual sheep enterprises is thought to be one factor affecting producer attitudes towards participation in ovine brucellosis control programs.

## Northern Territory

*Contributed by:*
*Diana Pinch*
*NT DPIF*



### Cattle

Investigation into cattle deaths, with a 7–8% mortality rate over 2–3 weeks, was carried out on a station in the Katherine region. The mortality was noticed during mustering, and subsequently some animals died in the holding paddock and cattle yards. Histological examination of post mortem specimens showed acute, massive hepatic and renal necrosis consistent with a toxic insult such as blue-green algae or a possible plant toxin. Only one paddock was affected, and the deaths stopped when the cattle were moved from the paddock. Water samples collected from several sources did not demonstrate blue-green algae, although algal toxin remains a suspected cause due to the severity of the signs and the many natural water sources in the paddock.

### Horses

Cases of strangles continued to occur this quarter in the Darwin and Katherine regions.

Two cases of Birdsville horse disease, a plant toxicity that causes progressive posterior incoordination in horses, were seen on a property in the Tennant Creek region. The good season has caused *Indigophera* sp. to flourish, and more problems are expected across the region this year.

### Poultry

A golden pheasant was diagnosed with avian TB at Berrimah Veterinary Laboratories (BVL). The lungs were consolidated, and many granulomatous lesions were seen in the lungs and other organs on histological examination. Acid-fast bacilli were present in the lesions, and *Mycobacterium* sp., probably *M. avium*, was isolated from the lung tissue.

### Goats

Goats in a herd in the Darwin region were investigated following reports of bloody diarrhoea and deaths. The cause was multifactorial, including moderate burdens of intestinal worms and coccidia, and enterotoxaemia. *Clostridium perfringens* type D enterotoxin was demonstrated in jejunal contents. Salmonellosis and ironwood (*Erythrophleum chlorostachys*) poisoning were excluded as causes of illness.

### Hydatid survey

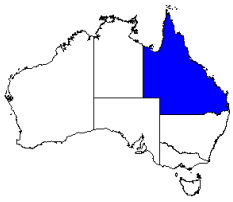
The prevalence of hydatid cysts in NT cattle is low, and in recent years hydatid cysts in cattle livers submitted to BVL have been traced back to animals bred outside NT. A preliminary survey was conducted this year to confirm that an *Echinococcus granulosus* cycle involving NT-bred cattle had not established.

All cyst-like lesions in the liver and lungs of cattle were collected from a major abattoir and submitted to BVL. The property of breeding for the cattle examined was an integral component of the survey, so brand details for each animal were recorded.

There were 4348 animals examined, with 84% being NT-bred animals. The remaining animals were from Queensland or had brands that could not be read. The cattle came from 62 properties, mainly in the northern half of the NT.

There were 107 cyst-like lesions collected, with between one and ten lesions in an organ. Lesions were detected in 36 animals, and hydatid cysts were confirmed in 22 of these animals. All the animals with hydatid cysts, except two, had Queensland brands. No hydatid cysts were found in cattle confirmed as bred in the NT. Lesions in NT-bred cattle had different aetiologies, such as bacterial pyogranulomas. These results provide strong evidence to support the lack of an established *E. granulosus* life cycle in NT.

# Queensland



*Contributed by:*
*Janet Berry*
*QDPI*

## Bovine tuberculosis

A lesion detected in a seven-year-old cow at slaughter was submitted under the National Granuloma Submission Program to the Oonoonba Veterinary Laboratory in Townsville, where it was considered to be consistent with bovine tuberculosis (TB). Samples were sent to the Australian reference laboratory for TB in Perth, Western Australia. *Mycobacterium* sp. was isolated from the lesion on both BACTEC and solid culture media. Allele-specific polymerase chain reaction (PCR) confirmed the isolates as *M. bovis*. The cow was one of approximately 11 000 animals from two paddocks on an extensive property (770 000 hectares) in the southern Gulf area of northern Queensland. Residual cattle in the paddocks from which the infected cow originated are being consigned to slaughter. A six-year-old cow in one of these consignments was found to have a lesion consistent with TB on histopathology.

Over the past seven years, cattle have moved from this property to 20 other properties as part of normal trading activities. Many of the cattle removed from the property have been in paddocks up to 50 km from the area where the infected animals were mustered. These cattle are at low risk of infection but are being included in the control programs to ensure there is no opportunity for disease spread.

Six of the 20 properties held the cattle they received for short periods before commercially disposing of them. None of these cattle remain alive and these properties have been deemed to require no further action. A further eight properties continue to hold cattle for medium-term fattening. On these properties, official quarantine and control measures involving disposal to slaughter or testing for TB, have been put in place. Of the 200 cattle TB-tested so far, no positive animals have been detected.

A further three properties have cattle that had been on agistment at the case property for varying periods up to three years. These cattle are also subject to official movement controls until eventual testing or disposal to slaughter. The remaining three properties contained the majority of breeding cattle that were removed from the case property. Of the total of 8600 breeding cattle on these three properties, more than 6000 have been sent for slaughter, with the remainder to be consigned as soon as can be arranged. Quarantine remains in place on these properties. In addition, a further 400 cattle have been consigned for slaughter from the case property. No TB has been detected in any of these slaughtered cattle.

The investigation and eradication programs that have been put in place are consistent with the Standard Definitions and Rules of the Tuberculosis Freedom Assurance Program (TFAP). The Queensland TFAP Property Program Group has been fully involved in development and approval of these programs.

## Hendra virus

There have been four separate incidents in which horses have been examined and the possibility of infection by Hendra virus ruled out on laboratory testing. The most notable was a 16-year-old stock horse mare in Calliope Shire that had a rectal temperature of 40 ºC and was in severe respiratory distress, with pink foam pouring from her nostrils. Euthanasia of the mare occurred within 24 hours of the development of signs of disease and a restricted post mortem was performed. A severe inflammatory interstitial pneumonia was evident and samples were referred to the Australian Animal Health Laboratory. Hendra virus was excluded as the cause by serological tests and viral isolation. Work is still continuing in an attempt to identify the agent responsible.

## Botulism

During July and August there were three outbreaks of botulism in south-east Queensland that killed more than 30 head of cattle. Each case was caused by the cattle having access to poultry litter. The first two outbreaks were dairy farms where pasture had been fertilised with poultry litter and grazed after several weeks. The third property involved beef cattle accidentally gaining access to a mound of litter intended as fertiliser for small crops. Laboratory confirmation of toxin was obtained from the carcass of a domestic fowl from the third property.

### Tick paralysis in farmed rusa deer

Fifteen rusa deer from a group of 120 in Pine Rivers Shire were found dead over a two-week period. One fawn presented for necropsy was bright and alert, but had flaccid paralysis (more pronounced in the hindlimbs) and laboured respiration. A total of eight engorged and semi-engorged female *Ixodes holocyclus* were removed from the submandibular region, in addition to three males. Significant gross and histological lesions were absent, negative results were obtained for the botulism enzyme linked immunosorbent assay (ELISA), and a presumptive diagnosis of tick paralysis was made.

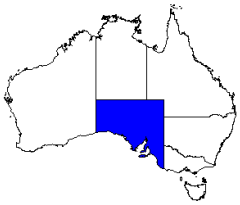
### Equine infectious anaemia

Positive equine infectious anaemia (EIA) serology continues to be reported in the far west of the State from horses with any indication of debilitation being routinely tested. There was significant flooding of the river systems in the west earlier in the year, providing ideal conditions for biting flies, which are the vectors of EIA. On one station in the south-west that had EIA diagnosed in March of this year, 23 stock horses were re-bled to check for further seroconversion following the wet season. Four more were positive and two were suspect for EIA. A blood sample from one feral horse was negative for EIA. To control the disease on this property, the owner is considering humanely destroying all the horses, both domestic and feral.

### Infectious laryngotracheitis

A large poultry farm experienced 10% morbidity in 24 000 layers aged 33 weeks. The affected birds had a respiratory 'snicker' and cough as the only signs and no deaths were recorded. The birds had been vaccinated at 4½ and 12 weeks with an infectious laryngotracheitis (ILT) vaccine. A range of tests on eight birds isolated ILT virus but the clinical signs and pathology suggested the virus involved was a strain of low virulence or possibly the vaccine virus.

## South Australia



*Contributed by:*
*Kim Critchley*
*PISA*

### *Pasteurella haemolytica* in stillborn lambs

*Pasteurella haemolytica* was cultured from stomach contents and placentas of fresh stillborn lambs in a flock with a higher than expected rate of stillbirths. The relevance of this finding is uncertain as many consider *P. haemolytica* apathogenic.

### *Dermatophilus* in a camel

Histopathological examination of skin from a camel presented with a draining sinus indicated the likelihood of a *Dermatophilus* infection. No material was available for culture.

### Possible urolithiasis in an alpaca

An alpaca presented with an apparent colic, tenseness of abdomen, and flank-watching. The animal was medicated with a muscle relaxant, whereupon it suddenly produced a normal stream of urine and its behaviour returned to normal.

### Diseases with nervous syndromes

Listeria was diagnosed in three sheep flocks and one cattle herd. A number of reports and confirmed cases of phalaris toxicity coincided with the spring growth of the grass. Low Vitamin B12 was also noted in some of these flocks. White muscle disease and suspected associated cardiomyopathy was seen in goat and sheep flocks.

### Abortion in horses

A number of mares on one property aborted over a fortnight. Histopathological examination on some of the foals revealed the presence of herpes-type inclusions in many organs.

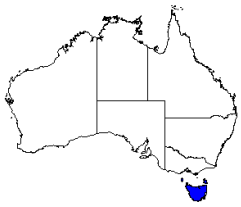
**Disease Watch Hotline — 1800 675 888**

The Disease Watch Hotline is a toll-free telephone number that connects callers to the relevant State or Territory officer to report concerns about potential exotic or other emergency disease situations. Anyone suspecting an exotic disease outbreak should use this number to get immediate advice and assistance.

*Contact: Chris Bunn, Office of the Chief Veterinary Officer, AFFA.*

# Tasmania

*Contributed by:*
*John Elliott*
*DPIWE, Tasmania*



## Possible oleander poisoning

An outbreak of diarrhoea and sudden death of dry cows on King Island was investigated. Twenty cows died. Lesions included myocarditis, abomasitis and hepatic microabscesses.

The cattle were being cell-grazed under very wet conditions. The initial laboratory diagnosis was salmonella. More deaths occurred when the cattle were placed back in the same paddock. Investigation of garden cuttings suggested oleander poisoning. This would have produced the clinical signs that were reported (profuse scouring and sudden death with subnormal temperatures and cardiac failure). The salmonella was likely to have been a secondary infection precipitated by the poor grazing conditions, lack of food, and the poisoning.

## Hepatic necrosis in sheep

Massive hepatic necrosis was observed histologically in three animals submitted from a flock in which 100 sheep in a group of 1800 had died. A plant or mycotoxin poisoning after consumption of rough dog's tail (*Cynosurus echinatus*) was suspected.

## 3-Methyl indole toxicity

Fifty wethers died after they were moved onto lush improved pasture. Post mortem findings were pulmonary oedema with interstitial pneumonia. Similar losses had occurred last year. 3-Methyl indole toxicity was considered to be the cause.

## *Yersinia pseudotuberculosis* in sheep

High mortalities (one involving about 20% of 2000 sheep) in two outbreaks of diarrhoea in young sheep were diagnosed as due to infection with *Yersinia pseudotuberculosis.*

## Dicoumarol poisoning

Thirty young dairy calves died on a property in north-western Tasmania. These calves were normal at birth. Affected calves usually died within 24 hours and had blood running from all external orifices. Cows were not affected clinically, although their clotting times were prolonged.

For about a fortnight before calving, the cows had been fed sweet vernal grass (*Anthoxanthum odoratum*) hay. This hay had been cut and baled the same day and left in the paddock to dry. Dicoumarol was found in the hay.

## Listerosis in goats

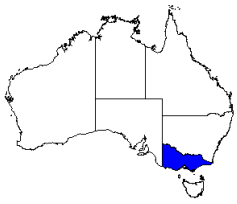
Listeriosis was diagnosed as the cause of severe neurological disease in a herd of goats. Typical histological lesions were seen in the two animals submitted, and *Listeria monocytogenes* was isolated from one of them. Prior antibiotic therapy was considered the reason for negative culture in the second goat. Of four other goats submitted for autopsy one had lesions consistent with enterotoxaemia; the other cases had massive worm burdens.

## Notifiable diseases

The number of accessions during the quarter, and the results, for suspected notifiable diseases are summarised in the following table:

| Disease / Species | Animals Tested | Accessions Number | Positive |
|---|---|---|---|
| **Hydatids** | | | |
| Bovine | 1 | 1 | 0 |
| Ovine | 1 | 1 | 0 |
| **Salmonellosis** | | | |
| Avian | 27 | 6 | 0 |
| Bovine | 64 | 38 | 4 |
| Porcine | 7 | 3 | 0 |
| Ovine | 33 | 20 | 0 |
| Caprine | 5 | 5 | 1 |
| Wildlife | 13 | 9 | 2 |
| ***Listeria monocytogenes*** | | | |
| Bovine | 1 | 1 | 1 |
| Caprine | 1 | 1 | 1 |
| Ovine | 5 | 3 | 3 |
| **American foulbrood** | | | |
| Honey bee | 1 | 1 | 1 |
| **Leptospirosis** | | | |
| Bovine | 13 | 7 | 6 |
| Equine | 1 | 1 | 0 |
| Human | 7 | 7 | 0 |
| Ovine | 2 | 2 | 0 |
| Wildlife | 1 | 1 | 0 |

# Victoria



*Contributed by:*
*Tristan Jubb*
*DNRE, Victoria*

## Southdown neurocutaneous syndrome ('leathery lambs')

Lambs with a dermatological and neurological syndrome have been born on a Southdown stud farm each year for the past five years. The condition is present at birth and affected lambs can live for a day or two if tube-fed. Cases seem to be linked to one particular ram or his sire, and both males and females have been affected. No cases have been seen in a Southdown–Texel flock that is run in conjunction with the Southdown stud. Skins are thickened and wrinkled (neck region particularly), with reduced hair cover. The lambs shiver and shake in lateral recumbency, and cannot stand, even with assistance. Appendicular and trunk musculature appear normal, and a flexor withdrawal response is present. However, no response occurs if the feet simply touch the floor. Ocular positioning and reflexes are normal, and a strong suckling reflex is present. A glucocerebrosidase deficiency was suspected, and testing at the Women's and Children's Hospital in Adelaide by culture of fibroblasts has confirmed this.

## Bovine abortions

Seven cows from a herd of 70 produced dead near-term calves. One was a schistosomus reflexus monster, but the others looked normal. A similar episode occurred in this herd in November 1993. Autopsy of the last two cases revealed that they had not breathed and there was no subcutaneous oedema as usually seen with dystocia. Laboratory examination of blood and foetal tissues found no microbiological or serological evidence of *Brucella abortus*, campylobacter, salmonella or listeria. No diagnosis was made.

## Vulvovaginitis in merino ewes

A self-replacing merino flock of about 1000 ewes flock has experienced variable fertility and vulvovaginitis for 10–12 years. Lambing percentages as low as 45% have been recorded but in general 50–70% is normal. Over the period there has been noticeable vulvitis in the ewes and pizzle rot in wethers and rams. This is most marked during the warmer months and least noticeable during winter. Previous attempts to determine the cause of, and remedies for, the genital lesions have not provided any lasting solutions. Injectable and oral antibiotics have temporarily cleared the condition. Neighbouring flocks are unaffected.

In about 5% of ewes there was severe ulcerative vulvitis and purulent vaginitis, vulval oedema and distortion of the vulva. Incontinence was obvious with noticeable burning of the skin below the vulva, due to urine. About 70% displayed lesions on the vulva, ranging from a small 3-mm diameter scab (usually on the tip of the vulva), to more extensive ulceration and scab formation on the vulval lips. Oedema of the vulva was increased in proportion to the degree of ulceration. Weaners as young as 3–4 months have been affected. Lifted vulval scabs were superficial, and cause no noticable haemorrhage. Granulomatous vaginitis was not a feature. Lesions appear to begin at the tip of the vulva and extend inward eventually involving vaginal, urinary tracts and internal reproductive organs in advanced cases. The property is located in a 450 mm rainfall area and is unique in the area in that all stock water is supplied by bores to troughs and dams from groundwater sources that are highly alkaline (pH 8–8.5) and low in salt. Pastures are average for the area and consist of subterranean clover, phalaris and volunteer grasses. The clover content of pasture has fallen in recent years. A trial is planned to examine the use of a salt supplement to increase urinary flushing.

## Equine abortions

Equine herpesvirus 1 was ruled out by PCR test on 19 aborted thoroughbred foetuses/perinatal foals. Leptospirosis was ruled out by PCR test in 10 of these. Diagnoses included placentitis (7), *Actinobacillosis equuli* (1), dystocia (1), pneumonia (2), bacterial septicaemia (1) congential abnormalities (1), and probable cord rupture prior to delivery (1).

Four thoroughbred abortions were reported from one property that had a history of abortion last year, but no single cause was identified. Pneumonia was evident in two foetuses. Streptococcus (non-typable by Lancefield grouping) was cultured from foetal stomach contents and lung of one of these; *E. coli* was cultured from foetal stomach contents and lung

of the other. The liver of the latter foetus was positive for leptospira by PCR but the significance of this is uncertain. One of the aborting mares tested MAT positive 1:200 to *Leptospira bratislava* (but not the mare that aborted the foetus with a positive PCR); two others tested negative to *L. bratislava*, *pomona* and *icterohaemorrhagiae*.

### Ross River virus

Because there has been much very early mosquito breeding, Victoria started its sentinel polutry flocks and mosquito trapping for Ross River virus (RRV) a month earlier than usual. Until recently, only an IgG ELISA was available to test for RRV at DNRE's Attwood laboratory. However, because IgG is the second antibody response to an infection and IgG antibody can persist for a very long time, a positive test merely demonstrates that the horse has been infected with RRV in the past. The IgM ELISA developed by Attwood researchers now detects the first antibody that occurs after infection. IgM appears 7–10 days post-infection, peaks after about three weeks, then diminishes. This means, for instance, that a high positive IgM result with a corresponding low, or zero, IgG result should indicate a current infection. Conversely, a low or zero IgM result with a corresponding high IgG result would indicate an older infection. Certainly, a strong correlation appears to be developing between clinically ill horses and high titres of IgM with corresponding zero or low titres of IgM. Serial bleeds of horses with high initial IgM and zero IgG show a rapid decline in IgM and a corresponding rapid increase in IgG titres, also suggesting recent infection. The combination of serial IgM plus IgG testing enables veterinarians to determine with more confidence whether the clinical signs shown by a sick horse are due to a current infection with RRV or are completely unrelated.

### *Salmonella* Typhimurium

Three incidents were reported in horses at pasture, one from the Mornington Peninsula and the other two from north-eastern Victoria.

In the Mornington Peninsula incident, two yearlings died suddenly. One of these, a filly, had a mild diarrhoea for the week preceding death but was eating. She was listless on the day before death. Post mortem examination revealed an acute fibrinous septic colitis and suppurative hepatitis. There was also a substantial parasite burden, presumably cyanthostomes. *S.* Typhimurium 9 was cultured from peritoneal fluid. Faecal culture was *Salmonella* positive.

*S.*. Typhimurium 135 was isolated from the faeces of another pony foal that died. On post mortem examination, the carcase was anaemic and emaciated, with petechial haemorrhages in lymph nodes and mucosa of the large colon.

*S.* Typhimurium 64 was isolated from the faeces of another horse with diarrhoea.

### *Brucella canis* surveillance

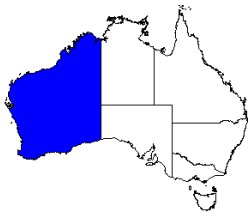
Following the identification of seropositive St Bernard dogs in New Zealand, 31 St Bernard dogs that were imported to Victoria from New Zealand, or were mated with the imported dogs, were tested for *Brucella canis*. All were negative.

### Hendra virus

Hendra virus was ruled out by histopathology in a case of sudden death of a horse with bacterial pleuritis and frothy nasal discharge in north-eastern Victoria.

## Western Australia

*Contributed by:*
*Richard Norris*
*Agriculture WA*



### Laboratory investigations

There were 589 investigations of animal disease requiring laboratory testing during the report period. Of these, 181 were cost-recovery (private benefit) cases and 408 were charge-exempt (public benefit and therefore funded directly by the government). Seven notifiable diseases were reported and there were two exotic disease alerts.

### John's disease

In June, ovine Johne's disease (OJD) was confirmed in a goat in the Central Agricultural Region. As at 10 November, no other infected animals have been found in WA. Testing, involving serology and faecal culture, has been completed in 9463 animals from 34 herds and flocks. There are currently 14 properties in quarantine (1 Infected; 13 Suspect).

### Annual ryegrass toxicity

There were numerous reports of annual ryegrass toxicity during the spring, mostly from the north-eastern wheatbelt. Some cases involved the deaths of large numbers of sheep and cattle. The unusual growing season (ryegrass heads matured earlier than normal) and the extension of infected pastures into the northern wheatbelt are thought to be responsible.

### Exotic disease alerts

A high proportion of sick and dead pigs at Bullaring in August led investigating veterinarians to suspect classical swine fever because of the clinical appearance and post mortem findings. However, prompt attention was able to rule out classical swine fever. The diagnosis was pasteurella septicaemia, an unusual condition that has many similarities to classical swine fever in the field.

A horse was diagnosed as a 'wobbler' at Murdoch University but had equivocal radiographic findings. At post mortem examination, no gross lesions were seen but a histopathological diagnosis of multifocal non-suppurative meningoencephalomyelitis was made. Samples have been sent to AAHL to test for lyssavirus and Hendra virus and to exclude exotic diseases such as rabies.

### New diseases

A condition called 'red gut' was seen for the first time in Western Australia in sheep run on a pure stand of lucerne at Borden, north of Albany. The disease is caused by torsion of the intestines induced by excess large bowel fermentation, which occurs when sheep graze lucerne. It is not uncommon in NSW.

Hairy toad flax (*Linaria elatine* or *Kickxia elatine*) was thought to have caused the deaths of 50 sheep at Moora. This plant, which occurs throughout the agricultural areas of Western Australia on rough ground and roadside verges, is thought to contain cardiac glycosides.

### Notifiable diseases

Seven notifiable diseases were recorded during the quarter. These included: bovine genital campylobacteriosis (4 cases); mucosal disease (2 cases); echinococcosis (hydatid disease) (2); caprine arthritis–encephalitis virus infection (1); fowl cholera (1); listeriosis (2); and bovine babesiosis (in the West Kimberley.

## Quarterly Disease Statistics

### Laboratory testing

The results of serological testing for a range of viral diseases from routine laboratory submissions for the quarter are shown in Table 1.

**Table 1: Serological testing from routine submissions to State and Territory laboratories**

| | Akabane | | Bluetongue | | Bovine ephemeral fever | | Enzootic bovine leucosis | | Equine infectious anaemia | | Equine viral arteritis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tests | +ve | Tests | +ve | Tests | +ve | Tests | +ve | Tests | +ve | Tests | +ve |
| Jul–Sep 99 | 1526 | 248 | 2004 | 172 | 923 | 182 | 1264 | 5 | 9539 | 5 | 839 | 70 |
| Oct–Dec 99 | 1839 | 286 | 3092 | 218 | 1762 | 274 | 2665 | 8 | 1584 | 1 | 458 | 19 |
| Jan–Mar 00 | 1778 | 741 | 6436 | 302 | 2336 | 508 | 1326 | 0 | 779 | 0 | 445 | 22 |
| Apr–Jun 00 | 1345 | 558 | 3712 | 594 | 1152 | 162 | 1734 | 0 | 933 | 6 | 328 | 2 |
| Jul–Sep 00 | 1093 | 255 | 4707 | 654 | 1596 | 434 | 6744 | 0 | 1697 | 11 | 779 | 18 |
| NSW | 42 | 3 | 365 | 15 | 124 | 3 | 121 | 0 | 703 | 0 | 425 | 4 |
| NT | 653 | 101 | 578 | 164 | 1149 | 355 | 0 | 0 | 6 | 0 | 0 | 0 |
| QLD | 282 | 124 | 3270 | 464 | 191 | 71 | 94 | 0 | 567 | 11 | 9 | 2 |
| SA | 4 | 0 | 348 | 0 | 2 | 0 | 0 | 0 | 55 | 0 | 4 | 0 |
| TAS | 0 | 0 | 12 | 0 | 0 | 0 | 284 | 0 | 0 | 0 | 0 | 0 |
| VIC | 16 | 0 | 74 | 0 | 60 | 0 | 253 | 0 | 288 | 0 | 270 | 12 |
| WA | 96 | 27 | 60 | 11 | 70 | 5 | 5992 | 0 | 78 | 0 | 71 | 0 |

# Control activities

## Bovine brucellosis

Although bovine brucellosis is now exotic to Australia, surveillance is maintained through abortion investigations and miscellaneous testing of cattle for export or other reasons. A total of 336 abortion investigations were performed during the reporting period — all with negative results for bovine brucellosis. The results of recent brucellosis surveillance are shown in Table 2.

**Table 2: Surveillance for bovine brucellosis**

| | Abortion Investigations | | Test for other reasons | |
|---|---|---|---|---|
| | Tests | +ve | Tests | +ve |
| **Jul–Sep 99** | 175 | 0 | 2398 | 0 |
| **Oct–Dec 99** | 115 | 0 | 2719 | 0 |
| **Jan–Mar 00** | 143 | 0 | 2646 | 0 |
| **Apr–Jun 00** | 195 | 0 | 2509 | 0 |
| **Jul–Sep 00** | 336 | 0 | 9569 | 0 |
| **NSW** | 237 | 0 | 872 | 0 |
| **NT** | 0 | 0 | 0 | 0 |
| **QLD** | 51 | 0 | 1219 | 0 |
| **SA** | 12 | 0 | 15 | 0 |
| **TAS** | 7 | 0 | 4 | 0 |
| **VIC** | 7 | 0 | 122 | 0 |
| **WA** | 22 | 0 | 7337 | 0 |

## Tuberculosis

Australia was declared a Free Area for bovine tuberculosis (TB) on 31 December 1997. The National Granuloma Submission Program is the major surveillance tool for TB. Table 3 summarises results from the Program. During the quarter, TB was detected in a single granuloma — see the Queensland State report for further details.

**Table 3: Results of the National Granuloma Submission Program**

| | Granulomas submitted | TB +ve |
|---|---|---|
| **Jul–Sep 99** | 777 | 2 |
| **Oct–Dec 99** | 645 | 0 |
| **Jan–Mar 00** | 899 | 0 |
| **Apr–Jun 00** | 1190 | 0 |
| **Jul–Sep 00** | 1189 | 1 |
| **NSW** | 87 | 0 |
| **NT** | 7 | 0 |
| **QLD** | 647 | 1 |
| **SA** | 55 | 0 |
| **TAS** | 20 | 0 |
| **VIC** | 62 | 0 |
| **WA** | 311 | 0 |

## Enzootic bovine leucosis

Enzootic bovine leucosis (EBL) accreditation programs have been operating in the dairy industries in Queensland and NSW for several years. Victoria, South Australia, Western Australia and Tasmania are undertaking a program of bulk milk testing of all dairy herds. Table 4 shows the number of dairy herds tested free of EBL at the end of the quarter.

**Table 4: Dairy herds tested free of enzootic bovine leucosis at 30 September 2000**

| | NSW | NT | QLD | SA | TAS | VIC | WA | AUS |
|---|---|---|---|---|---|---|---|---|
| **Free** | 1554 | 0 | 1465 | 698 | 679 | 7985 | 520 | 12 901 |
| **Herds** | 1595 | 0 | 1498 | 702 | 741 | 8453 | 520 | 13 509 |

## Ovine brucellosis

Contagious epididymitis, caused by *Brucella ovis*, is present in commercial flocks at a low level that varies around the country. Voluntary accreditation programs (usually in stud flocks) for ovine brucellosis freedom are operating in all States. Table 5 shows the number of accredited flocks at the end of the quarter.

**Table 5: Ovine brucellosis accredited-free flocks at 30 September 2000**

| NSW | NT | QLD | SA | TAS | VIC | WA | AUS |
|---|---|---|---|---|---|---|---|
| 1250 | 0 | 67 | 496 | 130 | 747 | 86 | 2776 |

### Johne's disease

Johne's disease (JD) occurs primarily in dairy cattle and sheep in Australia and to a lesser extent in beef cattle, goats and camelids. JD occurs in NSW, Victoria, Tasmania and South Australia. Surveillance programs have not identified endemic JD in Queensland, Western Australia and Northern Territory, and active measures are taken to stamp-out any incursions. Table 6 shows the number of herds and flocks known to be infected. A National Ovine Johne's Disease Control and Evaluation Program will be completed in 2003. Programs for bovine JD are currently being evaluated. Market Assurance Programs (MAPs) are in operation for cattle, sheep, goats and alpaca, with the number of herds or flocks that have reached a status of Monitored Negative 1 (MN1) shown in Table 7.

*Information about components of the National JD Control Program can be obtained from State coordinators and Animal Health Australia's JD coordinators, David Kennedy 02 6365 6016 or Bruce Allworth 02 6036 9233. Lists of beef, dairy and alpaca herds and sheep flocks assessed in the Market Assurance Programs are available on a fax-back service on 1902 940 579 or on the internet (at http://www.aahc.com.au/jdmap).*

**Table 6: Herds/flocks with JD at 30 September 2000**

| STATE | Cattle | Sheep | Goats | Alpacas | Total |
|---|---|---|---|---|---|
| NSW | 136 | 474 | 8 | 1 | 619 |
| NT | 0 | 0 | 0 | 0 | 0 |
| QLD # | 2 | 0 | 0 | 0 | 2 |
| SA | 37 | 29 | 0 | 0 | 66 |
| TAS | 40 | 21 | 9 | 0 | 70 |
| VIC | 1598 | 48 | 16 | 9 | 1671 |
| WA @ | 0 | 0 | 1 | 0 | 1 |
| AUS | 1813 | 572 | 34 | 10 | 2429 |

# Two herds in Queensland are in quarantine in response to finding an infected animal introduced from an endemic State.

@ In WA, JD has been found in only one goat on one property. However a sheep flock also grazes on the same property. The infected property will be destocked of all sheep and goats for a period consistent with SDRs. Nearly 10 000 animals in 34 herds and flocks have been tested without detection of further infection.

**Table 7: Herds/flocks with a JDMAP status of at least MN1/TN1 status at 30 September 2000**

| STATE | Cattle | Sheep | Goats | Alpacas | Total |
|---|---|---|---|---|---|
| NSW | 913 | 325 | 27 | 72 | 1337 |
| NT | 0 | 0 | 0 | 0 | 0 |
| QLD | 0 | 7 | 0 | 0 | 7 |
| SA | 121 | 221 | 2 | 29 | 373 |
| TAS | 83 | 40 | 0 | 0 | 123 |
| VIC | 76 | 130 | 4 | 19 | 229 |
| WA | 0 | 0 | 0 | 0 | 0 |
| AUS | 1193 | 723 | 33 | 120 | 2069 |

## Surveillance activities

### Salmonella surveillance

The National Enteric Pathogen Surveillance Scheme (NEPSS) is operated and maintained on behalf of the Commonwealth and States/Territories by the Microbiological Diagnostic Unit at the University of Melbourne. Data on isolates of salmonellae and other pathogens are submitted to NEPSS from participating laboratories around Australia. Quarterly newsletters and annual reports of both human and non-human isolates are published, and detailed data searches are provided on request to NEPSS. Table 8 summarises *Salmonella* isolations from animals notified to NEPSS for the quarter.

*Contact: National Enteric Pathogen Surveillance Scheme, Microbiological Diagnostic Unit, University of Melbourne*

**Table 8: Salmonella notifications, 1 July to 30 September 2000**

| Serovars | avian | bovine | canine | equine | feline | ovine | porcine | other | Total |
|---|---|---|---|---|---|---|---|---|---|
| *S.* Bovismorbificans | 0 | 29 | 1 | 0 | 0 | 0 | 0 | 5 | 35 |
| *S.* Dublin | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 87 |
| *S.* Infantis | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| S. Typhimurium | 7 | 109 | 0 | 6 | 3 | 1 | 7 | 8 | 141 |
| Other | 10 | 30 | 6 | 0 | 2 | 0 | 10 | 50 | 108 |
| Total | 18 | 256 | 7 | 6 | 5 | 1 | 17 | 63 | 373 |

## National Residue Survey

Of 3453 samples tested during the quarter for agricultural and veterinary chemicals, 25 (0.72%) had residues above the maximum residue limit (MRL). However, 11 of these detections were found to be naturally occurring (see below). Thirteen were for antimicrobials — all pig samples, with twelve oxytetracycline residues and one chlortetracycline residue (only two of which were above the National Registration Authority-recommended MRL for oxytetracycline of 0.60 mg/kg in kidney).

Five contraventions were detected in beef samples — one 19-nortestosterone and four zeranol residues. The residues of zeranol were found in conjunction with the *Fusarium* spp. mycotoxin zearalenone and its

**Table 9: National Residue Survey, 1 July to 30 September 2000**
Each pair of figures gives the number of samples above either the maximum residue limit or the maximum permitted concentration and the number of samples tested.

| | NSW | | NT | | QLD | | SA | | TAS | | VIC | | WA | | AUS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anthelmintics** | | | | | | | | | | | | | | | | |
| cattle | 0 | 68 | 0 | 3 | 0 | 109 | 0 | 10 | 0 | 0 | 0 | 25 | 0 | 13 | 0 | 228 |
| pigs | 0 | 11 | 0 | 0 | 0 | 8 | 0 | 7 | 0 | 0 | 0 | 9 | 0 | 2 | 0 | 37 |
| sheep | 0 | 99 | 0 | 0 | 0 | 12 | 0 | 14 | 0 | 3 | 0 | 48 | 0 | 36 | 0 | 212 |
| other | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 9 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 21 |
| Total | 0 | 178 | 0 | 3 | 0 | 135 | 0 | 40 | 0 | 3 | 0 | 88 | 0 | 51 | 0 | 498 |
| **Antimicrobials** | | | | | | | | | | | | | | | | |
| cattle | 0 | 115 | 0 | 4 | 0 | 166 | 0 | 13 | 0 | 8 | 0 | 65 | 0 | 20 | 0 | 391 |
| pigs | 1 | 83 | 0 | 0 | 3 | 103 | 4 | 43 | 0 | 8 | 5 | 68 | 0 | 38 | 13 | 343 |
| poultry | 0 | 11 | 0 | 0 | 0 | 13 | 0 | 9 | 0 | 0 | 0 | 2 | 0 | 10 | 0 | 45 |
| sheep | 0 | 57 | 0 | 0 | 0 | 3 | 0 | 13 | 0 | 2 | 0 | 28 | 0 | 30 | 0 | 133 |
| other | 0 | 8 | 0 | 1 | 0 | 18 | 0 | 11 | 0 | 0 | 0 | 14 | 0 | 1 | 0 | 53 |
| Total | 1 | 274 | 0 | 5 | 3 | 303 | 4 | 89 | 0 | 18 | 5 | 177 | 0 | 99 | 13 | 965 |
| **Growth promotants** | | | | | | | | | | | | | | | | |
| cattle | 0 | 186 | 0 | 11 | 5 | 321 | 0 | 18 | 0 | 13 | 0 | 49 | 0 | 11 | 5 | 609 |
| pigs | 0 | 8 | 0 | 0 | 0 | 16 | 0 | 5 | 0 | 0 | 0 | 14 | 0 | 4 | 0 | 47 |
| sheep | 5 | 83 | 0 | 0 | 0 | 7 | 1 | 20 | 0 | 1 | 0 | 21 | 0 | 36 | 6 | 168 |
| other | 0 | 9 | 0 | 0 | 0 | 30 | 0 | 9 | 0 | 0 | 0 | 10 | 0 | 6 | 0 | 64 |
| Total | 5 | 288 | 0 | 11 | 5 | 375 | 1 | 53 | 0 | 14 | 0 | 94 | 0 | 57 | 11 | 892 |
| **Insecticides** | | | | | | | | | | | | | | | | |
| cattle | 0 | 138 | 0 | 8 | 0 | 185 | 0 | 17 | 0 | 3 | 0 | 47 | 0 | 22 | 0 | 420 |
| pigs | 0 | 36 | 0 | 0 | 0 | 24 | 0 | 12 | 0 | 1 | 0 | 28 | 0 | 9 | 0 | 110 |
| poultry | 0 | 3 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 12 |
| sheep | 0 | 124 | 0 | 0 | 0 | 23 | 0 | 19 | 0 | 7 | 1 | 73 | 0 | 45 | 1 | 291 |
| other | 0 | 22 | 0 | 2 | 0 | 44 | 0 | 14 | 0 | 3 | 0 | 4 | 0 | 3 | 0 | 92 |
| Total | 0 | 323 | 0 | 10 | 0 | 281 | 0 | 63 | 0 | 14 | 1 | 153 | 0 | 81 | 1 | 925 |
| **Metals** | | | | | | | | | | | | | | | | |
| cattle | 0 | 27 | 0 | 1 | 0 | 24 | 0 | 3 | 0 | 1 | 0 | 9 | 0 | 6 | 0 | 71 |
| pigs | 0 | 14 | 0 | 0 | 1 | 12 | 0 | 3 | 0 | 0 | 0 | 6 | 0 | 3 | 1 | 38 |
| poultry | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13 |
| sheep | 0 | 24 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 0 | 0 | 17 | 3 | 11 | 3 | 61 |
| other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total | 0 | 70 | 0 | 1 | 1 | 44 | 0 | 15 | 0 | 1 | 0 | 33 | 3 | 20 | 4 | 184 |
| **Miscellaneous** | | | | | | | | | | | | | | | | |
| cattle | 0 | 27 | 0 | 2 | 0 | 34 | 0 | 4 | 0 | 2 | 0 | 10 | 0 | 4 | 0 | 83 |
| pigs | 0 | 8 | 0 | 0 | 0 | 13 | 0 | 8 | 0 | 0 | 0 | 6 | 0 | 3 | 0 | 38 |
| sheep | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 | 18 |
| other | 0 | 13 | 0 | 0 | 0 | 17 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 34 |
| Total | 0 | 56 | 0 | 2 | 0 | 66 | 0 | 14 | 0 | 2 | 0 | 23 | 0 | 10 | 0 | 173 |

metabolites. *Fusarium* spp. are known to infest improved ryegrass pastures and stored grain and the zearalenone mycotoxin they produce can be ingested by livestock and detected in urine, faeces and liver. The zearalenone toxin can be metabolised in the ruminant to zeranol, which is indistinguishable from zeranol administered as a growth promotant. The fact all zeranol detections contained zearalenone metabolites indicates the source of zeranol was from natural ingestion rather than treatment.

There were seven detections of 19-nortestosterone, one in cattle and six in sheep. In all instances the detections were less than the action level of 0.01 mg/kg. Nortestosterone (alpha) is endogenous in pregnant cows, goats, sheep, horses and neonates with responses generally less that 0.01 mg/L and nortestosterone (beta) is endogenous in boars and stallions. Urine levels of 'alpha' nortestosterone above a certain level (>0.01 mg/L) are suggestive of administration of a hormone, as is the detection of the 'beta' form (except in boars and stallions). No follow-up investigation was undertaken because the low levels detected were probably due to endogenous production.

One dieldrin violation was detected in a lamb, which could not be reliably traced due to multiple property consignments involved in the sale. Table 9 summarises the results for the quarter.

Further information can be found on the internet (at http://www.nrs.gov.au) where there are sections on:

- About the National Residue Survey;
- NRS staff contacts;
- NRS Operational Plan & Expenditure Program 2000–01;
- Monitoring of Chemical Residues in Farmed Animals, Game, Poultry and Eggs, July 2000–June 2001;
- NRS Results Report 1999 January–June;
- Recent publications and papers;
- Maximum Residue Level and Export Slaughter Interval Information.
- Frequently asked questions;
- Information for laboratories; and
- Associated web sites .

*Contributed by: Jonathan Webber*
*National Residue Survey, AFFA*
*Phone: 02 6272 3762*

## Zoonoses

The National Notifiable Diseases Surveillance System (NNDSS) of the Communicable Diseases Network Australia New Zealand (CDNANZ) collects statistics about many human diseases. A summary of information about six important zoonoses is submitted to NAHIS each quarter — see Table 10.

*Contact: Communicable Diseases Intelligence, Australian Department of Health and Aged Care*
*(internet address: http://www.health.gov.au/pubhlth/cdi/cdihtml.htm )*

**Table 10: Notifications of zoonotic diseases in humans**

| Disease | Q3–99 | Q4–99 | Q1–00 | Q2–00 | Q3–00 | Current quarter | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Australia | | | | AUST | ACT | NSW | NT | QLD | SA | TAS | VIC | WA |
| **Brucellosis** | 21 | 68 | 59 | 4 | 7 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| **Hydatidosis** | 7 | 46 | 44 | 5 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 1 |
| **Leptospirosis** | 36 | 401 | 393 | 88 | 34 | 0 | 6 | 1 | 19 | 2 | 0 | 6 | 0 |
| **Listeriosis** | 22 | 76 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ornithosis** | 18 | 114 | 108 | 26 | 23 | 0 | 0 | 1 | 0 | 2 | 0 | 18 | 2 |
| **Q fever** | 112 | 656 | 661 | 108 | 147 | 0 | 37 | 0 | 91 | 8 | 0 | 4 | 7 |

## National TSE Surveillance Program

The OIE International Animal Health Code requires that countries (such as Australia) claiming to be free of transmissible spongiform encephalopathies (TSEs) have in place a surveillance system to detect BSE and scrapie should they occur. The National TSE Surveillance Program (NTSESP) is an integrated national program jointly funded by industry and governments to demonstrate Australia's ongoing freedom from BSE and scrapie, and to provide early detection of these diseases should they occur.

Table 11 summaries the activity of the program over the past five quarters. Specimens from a small number of animals were unsuitable for testing. All specimens tested were negative for TSEs. Information about NTSESP is available on the internet (at http://www.brs.gov.au/aphb/ntsesp).

*Contact: Chris Baldock, Animal Health Australia's NTSESP National Coordinator*

**Table 11: Number of animals tested under NTSESP (All were negative for TSE)**

| | Jul – Sep 99 | | Oct – Dec 99 | | Jan – Mar 00 | | Apr – Jun 00 | | Jul – Sep 00 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cattle | Sheep | Cattle | Sheep | Cattle | Sheep | Cattle | Sheep | Cattle | Sheep |
| NSW | 53 | 51 | 33 | 26 | 29 | 22 | 38 | 24 | 65 | 29 |
| NT | 8 | 0 | 4 | 0 | 9 | 0 | 1 | 0 | 10 | 0 |
| QLD | 67 | 12 | 45 | 2 | 28 | 7 | 38 | 18 | 47 | 16 |
| SA | 4 | 8 | 3 | 1 | 2 | 0 | 0 | 0 | 3 | 6 |
| TAS | 5 | 0 | 2 | 3 | 1 | 0 | 1 | 1 | 2 | 2 |
| VIC | 39 | 30 | 22 | 20 | 8 | 14 | 19 | 17 | 48 | 40 |
| WA | 18 | 27 | 11 | 15 | 9 | 33 | 10 | 30 | 7 | 28 |
| AUS | 194 | 128 | 120 | 67 | 86 | 76 | 107 | 90 | 182 | 121 |

## Northern Australia Quarantine Strategy

In recognition of the special quarantine risks associated with Australia's sparsely populated northern coastline, AQIS conducts an animal disease surveillance program as an integral component of the Northern Australia Quarantine Strategy (NAQS). The NAQS surveillance program provides early warning of disease threats to livestock industries, and in some cases human health. NAQS surveillance activities include both offshore and onshore components. Table 12 summarises NAQS activity over the past five quarters.

The major part of NAQS's surveillance for screw-worm fly is done by inspecting traps in coastal areas across northern Australia. No screw-worm flies have been found. Surveillance for screw-worm fly, Asian bees and bee parasites is also done as part of AQIS's recently started Port Surveillance program (*AHSQ* Vol. 4, No. 4). Table 13 shows the number of times that the insect trap sites were inspected during a quarter.

*Contact: David Banks, Biosecurity Australia*

**Table 12: Summary of recent NAQS activity**

| | Jul – Sep 99 | | Oct – Dec 99 | | Jan – Mar 00 | | Apr – Jun 00 | | Jul – Sep 00 | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tested | +ve | Tested | +ve | Tested | +ve | Tested | +ve | Tested | +ve | |
| Avian influenza | 0 | 0 | 0 | 0 | 30 | 0 | 119 | 0 | 0 | 0 | |
| Asian mite | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | |
| Aujeszky's disease | 193 | 0 | 98 | 0 | 16 | 0 | 185 | 0 | 0 | 0 | |
| Hog cholera | 100 | 0 | 98 | 0 | 16 | 0 | 181 | 0 | 0 | 0 | |
| Infectious bursal disease | 0 | 0 | 1 | 0 | 0 | 0 | 92 | 0 | 0 | 0 | |
| Japanese encephalitis | 71 | 0 | 234 | 0 | 327 | 5 | 301 | 13 | 22 | 0 | a |
| Newcastle disease | 0 | 0 | 0 | 0 | 30 | 0 | 105 | 0 | 0 | 0 | |
| Porcine reproductive and respiratory syndrome | 193 | 0 | 98 | 0 | 16 | 0 | 181 | 0 | 0 | 0 | |
| Surra | 248 | 0 | 248 | 0 | 148 | 0 | 275 | 0 | 0 | 0 | |
| Swine influenza | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Transmissible gastroenteritis | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Tropical canine pancytopaenia | 3 | 0 | 2 | 0 | 0 | 0 | 16 | 0 | 9 | 0 | |

## Notes

**a** In 1995–97, animals at sentinel sites on islands in the Torres Strait, but not the Australian mainland, seroconverted to Japanese encephalitis during the latter part of the wet season (March–April). In March 1998, seroconversions occurred at a number of sentinel sites on islands in the Torres Strait (Saibai, Badu, Moa and Mabuiag), and for the first time on the mainland, near Bamaga, at the tip of Cape York Peninsula. During the first half of 2000, sentinel pigs seroconverted on the island of Badu, but no clinical cases were detected in humans or animals.

**Table 13: Number of inspections of insect traps**

| | Jul – Sep 99 | | Oct – Dec 99 | | Jan – Mar 00 | | Apr – Jun 00 | | Jul – Sep 00 | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tested | +ve | Tested | +ve | Tested | +ve | Tested | +ve | Tested | +ve | |
| **NAQS** | | | | | | | | | | | |
| Screw-worm fly | 109 | 0 | 146 | 0 | 253 | 0 | 144 | 0 | 30 | 0 | |
| **Port surveillance** | | | | | | | | | | | |
| Asian honeybee | | | | | | | 21 | 0 | 28 | 0 | |
| Screw-worm fly | | | | | 40 | 0 | 35 | 0 | 36 | 0 | |

## Suspect exotic or emergency disease investigations

There were 29 investigations of diseases suspected to be either exotic or a possible emergency reported during the quarter, as shown in Table 14.

**Table 14: Exotic or emergency disease investigations reported during 1 July to 30 September 2000**

| Disease | Species | Date | State | Response (key below) | Finding |
|---|---|---|---|---|---|
| Asian honey bees | apian | QLD | Sep | 2 | common honey bee |
| Bat lyssavirus | fauna | SA | Aug | 2 | negative |
| Bat lyssavirus | fauna | WA | Jul | 3 | negative |
| Bat lyssavirus | fauna | WA | Jul | 3 | negative |
| Bovine brucellosis | bovine | WA | Aug | 2 | negative for *Brucella abortus* |
| Bovine brucellosis | bovine | WA | Aug | 2 | negative for *Brucella abortus* |
| Bovine brucellosis | bovine | NSW | Jul | 3 | negative |
| Bovine spongiform encephalopathy | bovine | QLD | Sep | 3 | negative |
| *Brucella canis* | canine | VIC | Sep | 3 | negaitive |
| *Ehrlichia canis* | canine | NT | Jul | 3 | negative |
| Equine morbillivirus | equine | QLD | Sep | 3 | equine infectious anemia |
| Foot-and-mouth disease | bovine | NSW | Aug | 3 | pestivirus |
| Hendra virus | equine | QLD | Sep | 3 | purpura haemorrhagica |
| Hendra virus | equine | QLD | Sep | 3 | negative |
| Hendra virus | equine | QLD | Aug | 5 | interstitial pneumonia |
| Hendra virus | equine | NSW | Jul | 3 | negative |
| Infectious bursal disease | avian | VIC | Aug | 3 | *E. coli* |
| Newcastle disease | avian | NSW | Sep | 3 | negative |
| Newcastle disease | avian | NSW | Sep | 3 | septicaemia |
| Newcastle disease | avian | NSW | Sep | 3 | non-suppurative encephalitis |
| Newcastle disease | avian | NSW | Jul | 2 | negative |
| Newcastle disease | avian | WA | Jul | 2 | negative |
| Newcastle disease | avian | WA | Jul | 2 | negative |
| Newcastle disease | avian | WA | Jul | 2 | negative |
| Newcastle disease | avian | WA | Jul | 2 | negative |
| Transmissible spongiform encephalophathies | camelid | TAS | Sep | 2 | negative |
| Transmissible spongiform encephalophathies | ovine | TAS | Sep | 3 | negative |
| Varroasis | apian | QLD | Aug | 2 | no mites detected |
| Vesicular disease | bovine | VIC | Aug | 3 | negative |

**KEY to highest level of response:**

1 Field investigation by Government Officer
2 Investigation by State or Territory government veterinary laboratory
3 Specimens sent to the Australian Animal Health Laboratory (or CSIRO Division of Entomology)
4 Specimens sent to reference laboratories overseas
5 Regulatory action taken (quarantine or police)
6 Alert or standby

# NAHIS contacts

The National Animal Health Information System (NAHIS) collects summaries of animal health information from many sources. NAHIS is on the internet (at **http://www.aahc.com.au/nahis**). Because NAHIS does not duplicate the data in those systems, the relevant person below should be contacted if further details are required.

| Name | Role | Phone | Fax | e-mail |
|---|---|---|---|---|
| Chris **Baldock** | National NAHIS Coordinator | 07 3255 1712 | 07 3844 5501 | chris@ausvet.com.au |
| David **Banks** | Northern Australia Quarantine Strategy | 02 6272 5444 | 02 6272 3399 | David.Banks@aqis.gov.au |
| Janet **Berry** | Qld State Coordinator | 07 4658 4414 | 07 4658 4433 | BerryJ@dpi.qld.gov.au |
| Chris **Bunn** | Emergency Disease Preparedness, AFFA | 02 6272 5540 | 02 6272 3372 | Chris.Bunn@affa.gov.au |
| Kim **Critchley** | SA State Coordinator | 08 8207 7908 | 08 8207 7852 | critchley.kim@saugov.sa.gov.au |
| John **Elliott** | Tas. State Coordinator | 03 6336 5334 | 03 6336 5374 | John.Elliott@dpiwe.tas.gov.au |
| Graeme **Garner** | Commonwealth NAHIS Coordinator | 02 6272 5369 | 02 6272 4533 | Graeme.Garner@affa.gov.au |
| Robert **Harmata** | Acting NT Coordinator | 08 8999 2168<br>08 8999 2094 | 08 8999 2098 | Robert.Harmata@aqis.gov.au |
| Angela **Merianos** | Communicable Diseases Intelligence | 02 6289 1555 | 02 6289 7791 | http://www.health.gov.au |
| Tristan **Jubb** | Vic. State Coordinator | 03 5430 4545 | 03 5430 4520 | tristan.jubb@nre.vic.gov.au |
| David **Kennedy** | Ovine Johne's Disease Coordinator | 02 6365 6016 | 02 6365 6088 | david@ausvet.com.au |
| Diane **Lightfoot** | National Salmonella Surveillance Scheme | 03 9344 5701 | 03 9344 7833 | d.lightfoot@ microbiology.unimelb.edu.au |
| Geoff **Neumann** | CEO AAHC | 02 6232 5522 | 02 6232 5511 | aahc@aahc.com.au |
| Richard **Norris** | WA State Coordinator | 08 9368 3637 | 08 9367 6248 | rnorris@agric.wa.gov.au |
| Melanie **O'Flynn** | National Residue Survey | 02 6272 4549 | 02 6272 4023 | Melanie.Oflynn@affa.gov.au |
| Evan **Sergeant** | NSW State Coordinator | 02 6391 3687 | 02 6361 9976 | Evan.Sergeant@agric.nsw.gov.au |
| Neville **Spencer** | National Granuloma Submission Program | 02 6271 6650 | 02 6272 5442 | neville.spencer@aqis.gov.au |