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QUARTERLY REPORT

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Preface

The threat to Australia of emerging infectious diseases will be countered by a new Cooperative Research Centre that will, over the next seven years, enhance national capacity for prevention of, preparedness for, and response to disease.

This issue includes the first of what will be regular reports from the Australian Wildlife Health Network. Other topics include highlights of disease surveillance activities, items of interest from States and Territories, and summaries of disease monitoring and surveillance 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. *AHSQ* is available on the Animal Health Australia website (at www.aahc.com.au/nahis).

Gardner Murray
Australian Chief Veterinary Officer

Australian Biosecurity CRC

The Australian Biosecurity Cooperative Research Centre (CRC) is one of 30 new CRCs recently announced by the Commonwealth Government. The CRC will address a key national priority identified by the Council of Australian Governments (COAG) in April 2002 — enhancing the national capacity for prevention of, preparedness for, and response to emerging infectious disease (EID) threats such as foot-and-mouth disease and other emergency diseases.

PARTICIPANTS

CRCs bring together researchers from universities, CSIRO and government laboratories, private industry, and public sector agencies, in long-term collaborative arrangements which support research, development and education activities that achieve real outcomes of national economic and social significance. General information about the Commonwealth Government's

CRC programme can be found on the internet (at www.crc.gov.au).

The Australian Biosecurity CRC will receive \$17.5 million from the CRC program over seven years from July 2003 and with a further \$50 million in cash and in-kind contributions from participants.

The core participants in the Australian Biosecurity CRC are:

- University of Queensland;
- Curtin University of Technology;
- CSIRO Livestock Industries' Australian Animal Health Laboratory (AAHL);
- Commonwealth Department of Agriculture, Fisheries and Forestry — Australia (AFFA);
- Australian Department of Health and Ageing (DHA);
- Animal Health Australia; and
- Australian Pork Ltd.

Supporting participants in the Australian Biosecurity CRC are:

- University of Sydney;
- Queensland Department of Primary Industries;
- Northern Territory Department of Business, Industry and Resource Development;
- Western Australian Department of Agriculture;
- Department of Industry and Technology — Western Australia;
- Queensland Health;
- Western Australian Centre for Pathology and Medical Research;
- Ambri Ltd;
- PANBIO Ltd;
- AusVet Animal Health Services;
- Innovation Partners Australia;
- Meat and Livestock Australia;
- Office International des Epizootics (OIE) South East Asian Foot-and-Mouth Disease Control Campaign; and
- US Consortium for Conservation Medicine.

The CRC is building links with a number of international organisations such as the World Health Organization, the US Centers for Disease Control and Prevention, the Institut Pasteur's Centre de Recherche Mérieux-Pasteur in Lyon, the Mailman School of Public Health at Columbia University in New York, the Papua New Guinea Institute of Medical Research, the National Institute for Communicable Diseases of South Africa, and the Institute of Virology and Environmental Microbiology in Oxford.

OBJECTIVES

The aim of the CRC is to protect Australia's health, livestock, wildlife and economic resources by developing new capabilities to monitor, assess, predict and respond to emerging infectious disease threats to national and regional biosecurity. Fundamental to this is the development of advanced early warning systems, which require rapid detection of disease and nationally and regionally coordinated surveillance networks and systems. Early warning also requires the development of 'real time' surveillance capabilities, which either do not exist or are underdeveloped in Australia at a time when exposure to risks is increasing. Accordingly, the CRC's Research Program will:

- Develop new and improved detection methods for significant EID threats, resulting in devices to detect pathogens on-site; and new technologies to enhance the speed, sensitivity and specificity of laboratory and on-site tests.

- Elaborate the disease ecology of key EID threats, and the susceptibility of Australian livestock and fauna to develop methods to identify risk factors for transmission and identify strategically important points in the natural history of disease.
- Integrate the outcomes of the research programs to develop new methods and capability for (i) systematic and efficient capturing of data; (ii) organising and linking data from an expanded range of data sources; and (iii) developing new decision support tools and systems that exploit the potential of spatial analysis and computer modelling.

The CRC will target a number of significant EID threats to meet its aims. The disease focus of the CRC will include foot-and-mouth disease; important zoonoses such as Japanese encephalitis, Nipah and Hendra viruses; and emerging human disease threats such as pandemic influenza and potential biowarfare agents. The geographical focus of the CRC will cover northern Australia, and Australia's near neighbours across South-East Asia and the Pacific because these regions are both at particular risk of EID incursions and present major challenges for surveillance, preparedness and response.

Fundamental to EID preparedness is the development of disease response capacity. This requires an appropriately skilled workforce that can implement industry-wide, farm-level and community-based measures to reduce the likelihood of disease establishment, and reduce the rate of spread and extent of impact of EIDs. The CRC's Education and Training Program will produce research graduates with high-level experience in disciplines such as virology, parasitology and applied epidemiology, and train postgraduate students and animal and public health professionals.

Technology transfer and knowledge exchange will be facilitated through the CRC's extensive collaborative network and through integrated initiatives within the CRC's Application and Linkage Program. The expected commercial outcomes include the development of diagnostics, remote sensing technologies, and education and training tools.

Contacts:

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Newcastle disease outbreak in New South Wales

Virulent Newcastle disease (ND) was confirmed on two layer farms in Horsley Park, in Sydney South in October. A Restricted Area (RA) of three kilometres radius around the first property was instituted and surveillance commenced. A second property was detected within the RA in early November, and the RA was increased and surveillance extended.

The Emergency Animal Disease (EAD) Response Agreement was invoked to stamp-out known infected flocks. Poultry on the infected properties were depopulated and premises decontaminated following the protocols in the Australian Veterinary Emergency Plan (AUSVETPLAN). Surveillance of RA poultry farms, backyard flocks and trace-forward properties outside the RA included repeated sampling and testing. All trace-forward properties tested negative and no further clinical cases were detected in the RA. Virulent ND virus was identified on one vaccinated broiler farm in the RA as part of the routine surveillance, but was not associated with any reports of clinical manifestations.

Production and mortality data were collected from all poultry farms in the Control Area (CA) on a regular

basis to identify presence or spread of the disease. ND was not detected in the CA.

A vaccination register was established to ensure immediate and continuous preventive vaccination against ND of all commercial flocks in the Sydney Basin in accordance with the national standard operating procedures. The type of vaccine used (live or killed) depends on the enterprise type and the serological status of the flock.

In December 2002, governments and industry supported new priority management options including the adoption of a two-tiered approach to designation of States or Territories as *Vaccinating* (all States/Territories except WA) or *Non-vaccinating* (WA). These priority management approaches are part of a National ND Management Plan that has been developed to ensure the long-term prevention of ND.

Contact: Peter Thornber, Manager, Animal Health and Emergency Services, Animal Health Australia

Small hive beetle

The exotic small hive beetle (SHB, *Aethina tumida*), was detected at Richmond in western Sydney in October 2002. It has since been found in 103 apiaries in NSW and 11 in Queensland. The level of infestation and historical reports suggest that SHB may have been present in NSW for more than a year.

The National Management Group for SHB (NMG) was formed and concluded that, although the full extent of the spread was not known, the outbreak could not be eradicated and the likelihood of containment was uncertain. Given this, the relevant parties agreed that beekeeper controls should be implemented and a strong national approach implemented to provide effective management. NMG requested Animal Health Australia to coordinate the development of a National SHB Management Plan.

SHB is considered to be a secondary apiary pest in its native Africa. However, in the United States, since its entry in 1998, SHB is now considered a major pest of European bee colonies, with information from a number of American states suggesting it is more damaging to the apiary industry than in Africa.

Primary damage to apiaries and stored honey is through the feeding activity of the larvae that feed on brood, pollen and honey causing it to ferment and give off an odour like sour oranges. Stored supers of honey or extracted frames can be ruined by infestation with

adult beetles and larvae. SHB has been reported to be capable of destroying strong honeybee colonies in a matter of weeks. Feral colonies of bees are also susceptible and provide a significant haven and reservoir.

The most severe impact so far has been the restrictions placed on owners detected with the pest during the initial investigation, and on the live bee export industry. It is difficult to predict the potential impact on the commercial apiary industry and, because the beetle can complete its life cycle in certain fruits, on the fruit and vegetable industries. Following consultation, plant industry representatives through Plant Health Australia have indicated that they are maintaining a watching brief and monitoring market access.

A SHB Steering Committee met in December 2002 and endorsed the development of a plan to:

- Reduce the impact on productivity, slow the spread of the SHB and minimise the damage in infested apiaries by identifying and implementing measures (chemical, non-chemical and management) that minimise the risk of harmful chemical residues.
- Implement cost-effective surveillance to enable the spread of the pest to be monitored and reported.
- Develop an ongoing communications program to keep beekeepers informed.

- Provide cost-effective national coordination and review.

The costs of implementing this strategy will be borne by both government and industry participants. An initial mix of funding responsibilities will be developed

OIE Animal Health Code

The Animal Health Code for the international trade in animals and animal products has been developed by the Office International des Epizooties (OIE) to avoid the transfer of disease agents that are pathogenic for animals or humans. The code provides detailed definitions of health guarantees that are required of trading partners. Australia has made a significant contribution to the development and revision of the code.

A report from the December 2002 meeting of the Bureau of the OIE International Animal Health Code Commission has recently been released. Some points of interest are:

- Foot-and-mouth disease — issues related to vaccination and the role of the carrier animal and non-structural protein tests are to be considered.
- BSE — issues related to monitoring and surveillance are considered, including a proposal to require all countries to conduct surveillance programs on fallen, dead on-farm, and emergency slaughter cattle.
- Scrapie — developing guidelines for recognition of historical freedom from this disease.

Review of rural veterinary services

A review of Australia's rural veterinary services (AHSQ Vol. 7, No. 2) was commissioned by the Commonwealth Government to examine the role, availability and capability of rural veterinarians to meet Australia's future animal health needs. The review was conducted by the Chairman of Livecorp and the Cooperative Research Centre for Cattle and Beef Quality, Peter Frawley.

The review reached three broad conclusions:

- Australia's rural veterinary services are meeting its animal health private and public needs, but will need to be enhanced to meet future livestock producer and public needs.
- Rural veterinarians are meeting the production needs of livestock producers, but lifestyle issues and the generally low returns significantly affect the retention of practitioners in rural areas. This has implications for the infrastructure of rural veterinary services, particularly for surveillance and emergency response capability.

for the first year of operation, with refinement once sufficient information allows the conduct of a cost-benefit analysis.

Contact: Peter Thornber, Manager, Animal Health and Emergency Services, Animal Health Australia

- Animal disease notification — OIE is moving towards a single list of animal diseases comprising all current list A and B diseases, with the urgency for notifying outbreaks to OIE depending on epidemiological events in each country or zone.
- Avian influenza — issues related to the definition of the disease and the use of compartmentalisation.
- Animal welfare — report from the first *ad hoc* group meeting in October and an outline of its work plan.
- Animal production food safety — report from the group's first meeting in November 2002 and its work plan.
- Diseases of bees — after numerous comments from members, the chapters will be re-examined and submitted for comment after the July 2003 meeting of the Code Commission.

Member countries have until May 2003 to comment on the proposed changes before voting on the new code at the OIE General Session (18–23 May 2003).

*Contributed by: Andrew Cupit,
Office of the Chief Veterinary Officer, AFFA*

- Policies that will build demand for veterinary services will be more effective than policies that might artificially induce supply.

The review also recommended the establishment of a national veterinary reserve to be drawn on should a major disease outbreak occur in Australia.

The review found that veterinary science education in Australia is comparable with the best overseas, and that Australian institutions are currently producing a sufficient number of veterinary science graduates. The majority of veterinary graduates are women and they have contributed to 78% of the increase in the number of rural veterinarians over the past decade.

The Commonwealth Government is considering the report before developing its response. The report is on the internet (at www.affa.gov.au/ruralvets).

*Contact: David Bateman, 02 6272 4962,
PIAPH, AFFA*

Veterinary Committee — Animal Health Committee

Veterinary Committee consists of the Chief Veterinary Officers of the Commonwealth, the States and Territories, and New Zealand, together with CSIRO and Biosecurity Australia representatives. Animal Health Australia has permanent observer membership.

As part of a new reporting framework, Veterinary Committee will be called Animal Health Committee (AHC), and will have responsibilities that include animal welfare, domestic quarantine and veterinary public health, as well as animal health matters.

With the establishment of the Primary Industries Health Committee (PIHC) under the Primary Industry Standing Committee (PISC) (*AHSQ* Vol. 7, No. 1), sub-committees of PISC, such as AHC, will now report to both PIHC and PISC. PIHC has been established to develop a streamlined approach to reporting arrangements to PISC by its sub-committees, allowing the standing committee to be more efficient and effective in considering the key issues of the day. PIHC's areas of responsibility have been organised into five supporting committees:

- Animal Health Committee;
- Aquatic Animal Health Committee;
- Plant Health Committee;
- Forest Health Committee; and
- Product Safety and Integrity Committee.

OCTOBER MEETING

At its meeting in Brisbane in October, Veterinary Committee discussed the changes to its terms of reference and its new responsibilities. Members discussed in detail priorities for the next six months. These included:

- Provision of technical and policy advice on a range of issues associated with FMD responses, including vaccination, stock stand-still, zoning, laboratory capacity, and carcase disposal.
- Monitoring and advising on international developments and providing input into animal health and welfare standards.

Aquatic animal health

WA SIMULATION EXERCISE

In October 2002, members of the Western Australian Department of Fisheries (from Perth and the Geraldton Regional Office) supported by staff from the Western Australian Department of Agriculture and the AMWING Pearling Association took part in a two-day simulation exercise designed to examine preparedness to respond to an emergency disease incident in the

- Provision of advice on zoonoses and emerging threats including West Nile Virus and BSE.
- Continued work on quarantine issues such as post barrier management of imported animals and disease free zoning.

Each area of responsibility will be coordinated by a member of the Committee. Although the committee usually rotates the chair on a yearly basis, members decided that the current chair would continue for the next year, to ensure the transition from Veterinary Committee to AHC runs smoothly.

Other issues covered at the meeting included:

- FMD — issues including vaccination (supply, type, application, capability, animal welfare, consumer reaction etc), national livestock standstill, zoning, and carcase disposal.
- BSE — ruminant feed ban, stockfeed tests, and DNA testing of cattle to Japan.
- Newcastle disease — outbreak in Sydney (page 3).
- Bovine Johne's disease (JD) — endorsed a number of risk-based arrangements to free the movement of some classes of cattle between zones, and referred papers to the technical advisory group (TAG) on the Performance of Absorbed ELISA in cattle and the cross-infection between cattle and sheep of JD for consideration and recommendation.
- Ovine JD — agreed to amendments to 'Guidelines for sheep shows' and the SheepMAP.

The next face-to-face meeting will be in April 2003 in NSW. Information about AHC's activities is available in an online-newsletter *VetCommunique* (at www.affa.gov.au — click on 'Product Integrity/Animal and Plant Health', and follow the links to 'Animal Health Committee').

Contributed by: Jill Mortier, Animal Health Secretariat, PIAPH, AFFA

AMWING pearling industry. This industry is based on the oyster species *Pinctada margaritifera*, *Pinctada albina* and *Pteria penguin* located in several areas around the central Western Australian coast from Exmouth to the Abrohlos Islands.

The first day focused on the operation of a Local Disease Control Centre (LDCC) and addressed the difficulties of mounting an emergency response at a

remote location — an island situated 50 km off the coast. The day highlighted the need for a team approach to the response, with industry members' expertise, labour and equipment proving vital to a rapid and effective response. Both industry-specific and site-specific issues in the areas of destocking, disinfection and safe disposal of infected stock were considered. The particular problems of designing a surveillance plan that involved both farm stock and wild oysters were also addressed.

The second day was designed to introduce industry members to the management of emergency diseases. Producers and government staff worked in small teams acting as the staff of a pearl farm. During the day, each team had to respond to the threat of a disease outbreak, first on a neighbouring farm and then on their own farm. The strategies and techniques identified during the day will be used in the AMWING industry's code of practice to minimise the chance of introduction of an exotic disease into the region.

INTERNET ACCESS TO MANUALS

The internet address for AQUAVETPLAN manuals has changed to www.affa.gov.au/AQUAVETPLAN. When completed, other manuals will be added to the five manuals already available:

- enterprise manual;
- control centre manual;
- disease strategy manual — furunculosis;
- destruction manual; and
- disposal manual.

The Australian and New Zealand Standard Diagnostic Procedures can now be accessed via a link at www.affa.gov.au/AQUAPLAN. There are currently eight procedures available (with more expected soon):

- *Bonamia*;
- crayfish plague;
- haplosporidiosis;
- spring viraemia of carp;
- yersiniosis;
- viral diseases of salmonids;
- health testing protocols; and
- investigation of diseases of finfish.

REGIONAL ADVISORY GROUP

The Asia Regional Advisory Group on Aquatic Animal Health (AG) was established in 2001 as an international expert group advising the Network of Aquaculture Centres in Asia-Pacific (NACA) on aquatic animal health matters. AG has 10 members, selected on the basis of their expertise. Formal linkages to OIE and the Food and Agriculture Organization (FAO) are established through representatives of those organisations. Eva-Maria Bernoth, from OCVO, is a member of AG. The first meeting of the Group was

held at the NACA Headquarters, Bangkok, Thailand in November 2002.

Concerns with emerging finfish diseases were raised, in particular about a mass mortality that spread through koi and common carp in Indonesia in mid to late 2002. There is no definitive diagnosis. Although koi herpesvirus was initially suspected, pathology, viral isolation and *in situ* hybridisation have not indicated the presence of this agent. However, disease signs and the epidemiological data are consistent with an infectious aetiology, and the disease seems to have been imported to Indonesia and spread through fish movement.

This event reinforced the need for effective surveillance programs in the region, for the implementation of workable quarantine and health certification measures, and for contingency plans to respond in a timely manner to disease emergencies. AG recommended that the outbreak and emergency response should be analysed as a case study to develop strategies to deal with future aquatic animal disease emergencies. OIE delegates stressed that cooperation with livestock authorities with experience in dealing with disease emergencies would be useful.

Concerns relating to several emerging crustacean disease issues in Asia were also raised. These included recent reports of Taura syndrome virus spreading in the region (probably related to the continuous introduction of *Panaeus vannamei*), concern over the possibility that pathogens of *P. vannamei* may be passed on to *P. monodon*, the probable transmission of infectious hypodermal and haematopoietic necrosis virus from *P. monodon* to *P. vannamei* and other potentially important emerging diseases of prawns.

A revision of the regional Quarterly Aquatic Animal Disease list took into account changes to the international list of aquatic animal diseases notifiable to OIE, the OIE list of other significant diseases, and the aquatic animal disease situation in the region. Australia will consider the effects of those changes on its National List of Reportable Diseases of Aquatic Animals later in 2003.

More detailed information on these and other topics dealt with at the meeting can be found on the internet (at www.enaca.org).

AQUACULTURE DISEASE SYMPOSIUM

In November, almost 300 delegates attended the 5th Symposium on Diseases in Asian Aquaculture, held in Queensland. Presentations covered a wide range of topics. A predominant theme that emerged from the conference was the continuing spread of diseases such as white spot virus and Taura syndrome virus of prawns. Despite an increased knowledge of these

viruses and their modes of spread, they have spread to new locations through the movement of contaminated broodstock and postlarvae. The conference highlighted the movement towards science-based policy by governments of the region with presentations, including several by AFFA staff, on the use of scientific studies to support import risk analyses and other biosecurity matters.

Two workshops were held after the conference. The first, attracting 35 participants, dealt with epidemiology in aquaculture. It included presentations on zoning, surveillance systems, sources of information on the web, reporting systems and the use of health information in import risk analyses.

The second workshop, a practical course over five days on the diagnosis of disease in molluscs, was the second phase of the FAO/NACA-initiated Regional Programme on Aquatic Animal Health Management. It focused on enhancing knowledge of, and diagnostic capacity in, molluscan health in the Asia-Pacific region, and on providing a foundation for regional countries to develop their own national programs for molluscan health assessment and monitoring, risk analysis, and control of outbreaks. A third phase is planned for 2004 (possibly in Korea) to conduct follow-up training and evaluate results from the second phase.

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

Australian Wildlife Health Network

The Australian Wildlife Health Network has started receiving reports of disease incidents in both free-living and captive wildlife. Some of these are outlined in this summary report. The Network is interested in receiving reports of wildlife disease incidents and definitive diagnoses of causes of death in wildlife in Australia. A draft list of diseases of particular interest to the Network is being prepared and will be circulated for comment next quarter.

FREE-LIVING WILD ANIMALS

Clinical signs and histological findings suggest that unusually high mortalities in shy albatross (*Thalassarche cauta*) chicks on Albatross Island, Bass Strait, were due to infection with a poxvirus. Serological tests were negative for avian influenza and infectious bursal disease, and a single serum sample had a positive titre against Newcastle disease (ND) virus.

A report was received of the deaths of ten silver gulls (*Larus novaehollandiae*) from infection with *Pseudomonas fluorescens* and severe underlying granulomatous hepatitis caused by parasitic flukes (schistosomes). Both organisms are not uncommon in an aquatic environment and individually do not usually cause disease. Interaction between the two agents may have resulted in the death of these birds. Serological tests were negative for ND virus but three birds had positive titres against avian influenza virus.

Pathologists at the Australian Registry of Wildlife Health at Taronga Zoo diagnosed an outbreak of neurological disease due to systemic coccidiosis in green sea turtles (*Chelonia mydas*), an endangered species. Turtles were brought to the zoo's veterinary hospital in mid-October 2002 after being found stranded on beaches in northern New South Wales. Neurological signs including head-tilt and difficulty

swimming, which were consistent with signs seen in systemic coccidiosis infection of green sea turtles associated with mortalities in 1991 in Moreton Bay, Queensland. Histopathological examination showed fungi with a morphology consistent with *Caryospora cheloniae*, which was subsequently confirmed by oocyst maturation and sporulated oocyst morphology. The epidemiology of this condition is not understood and investigations are focusing on the possible role of concurrent algal bloom and changes in sea surface temperatures in expression of this condition.

Reports have also been received of a suspected outbreak of botulism in waterbirds at Alice Springs, in the Northern Territory, and of the deaths of 26 koalas (*Phascolarctos cinereus*) over a five-week period at Raymond Island in the Gippsland Lakes, Victoria. Investigations into these incidents are continuing.

CAPTIVE WILD ANIMALS

Protozoal dermatitis was diagnosed in a red kangaroo (*Macropus rufus*) from the Northern Territory. On histopathological examination, the morphology of the promastigotes was consistent with that of *Leishmania* spp. More definitive identification is pending.

Acid-fast bacteria were identified within the walls of several pulmonary abscesses from an emaciated, captive Barbary sheep (*Ammotragus lervia*). Mycobacteria did not grow in culture of lung samples that had been frozen at the time of the autopsy. Polymerase chain reaction (PCR) was unsuccessful in identifying the organism, probably due to the time the tissues had been fixed in formalin. Further tests are being conducted on the remainder of the flock.

Contributed by: Chris Bunn, Office of the Chief Veterinary Officer, AFFA, and Rupert Woods, AWHN Coordinator.

National Arbovirus Monitoring Program

The National Arbovirus Monitoring Program (NAMP) is a national program jointly funded by industry and government to monitor the distribution of economically important insect-borne viruses such as bluetongue, Akabane and bovine ephemeral fever (BEF) and their vectors.

This report covers the second half of 2002, during which a low level of arboviral activity in northern Australia is usual. No seroconversions were detected in southern States.

BLUETONGUE

In Western Australia (WA), seropositive animals were detected in the Kimberley and the Pilbara in the second half of the year. Evidence of infection was detected south of the known affected area in the Pilbara, leading to the expansion of the zone boundaries in the area. In the Northern Territory (NT), activity was early and widespread in the north with seroconversions in three herds in the third quarter and five herds in the fourth quarter. In Queensland, sentinel herd monitoring showed no viral activity in the third quarter and usual activity for the remainder of the year in northern and coastal sites at Normanton, Townsville and Rockhampton.

AKABANE

In WA, seropositive animals were detected in the Kimberley and the Pilbara in the second half of the year. In NT, activity was limited to three herds in the far north in the third quarter but was more widespread in the fourth quarter with seroconversions at five sites. In Queensland, activity was restricted to northern and coastal areas at Normanton, Townsville and Rockhampton.

BOVINE EPHEMERAL FEVER

Seropositive animals were detected in the Kimberley and the Pilbara areas of WA during the period from

AUSVETPLAN

The bovine spongiform encephalopathy (BSE) and anthrax manuals were endorsed by Animal Health Committee and Industry Peak Councils and are undergoing their final edit.

The revisions of the following manuals will be considered by the AUSVETPLAN Technical Review Group soon:

- Wild Animal Response Strategy;
- Control Centres Management Manual Part 1;
- Summary Document; and
- Disposal Manual.

July to December In NT, activity was limited to the three most northerly sites in the third quarter and at only one site near Darwin in the fourth quarter. In Queensland, activity was detected in the north at Normanton and Pentland, with some limited activity in early spring at Rockhampton.

INSECT TRAPPING

Insect vectors were collected from a number of sites in WA in the third quarter and *Culicoides brevitarsis* was trapped at sites near the boundaries of the zone of possible transmission, which has subsequently been expanded to include these sites. Generally, lower numbers of *Culicoides* were collected in vector traps in WA during the last quarter of 2002. No vectors were collected at the port of Geraldton for the six-month period. *C. brevitarsis* was detected at Roebuck Plains Station, about 30 km east of Broome, in both the third and fourth quarters, and *C. actoni* was collected from Wyndham in November.

In NT, *C. actoni*, *C. brevitarsis* and *C. fulvus* were found at the usual locations and concentrations for the third and fourth quarters. In October, *C. brevitarsis* was found at Rockhampton Downs for the first time. There was only one collection of *C. wadai*, from a site 60 km south of Darwin in October.

Dry to drought conditions continued throughout Queensland. *C. brevitarsis* was the only vector collected and it was collected in the coastal sites of Townsville (not the port) and Rockhampton as usual. It also overwintered successfully at the inland sites of Biloela and Pentland and, surprisingly, Winton. It was not collected at any inland sites south of Winton.

No vectors were found at the ports of Darwin, Mourilyan, Brisbane and Townsville during the six-month period.

*Contributed by: Peter Black,
Office of the Chief Veterinary Officer, AFFA*

The Dairy Enterprise Manual has undergone substantial revision and will be structured to reflect on-farm and processing factory components. The dairy EAD response components will become integrated into that industry's quality assurance 'whole of chain' management plans.

AUSVETPLAN manuals are available on the internet (at www.aahc.com.au/ausvetplan).

Contact: Peter Thornber, Manager, Animal Health and Emergency Services, Animal Health Australia

7th International Colloquium on Paratuberculosis

About 20 Australians were among the 270 attendees of the 7th International Colloquium on Paratuberculosis in Spain in June 2002. This marked increase in attendance compared to the previous Colloquium in Melbourne in 1999 reflects increasing interest and investment in Johne's disease (JD) research and control in many parts of the world.

Although recognising difficulties and challenges still facing people involved in JD control, the number, quality and diversity of scientists now addressing many of these issues is encouraging. Presentations and discussions highlighted Australia's position as a leader in JD research, market assurance, and control. Some points of interest from the Colloquium include:

- There is continuing evidence that the infection is spreading and affecting new species.
- The analysis of the genetic makeup of *Mycobacterium paratuberculosis* is nearly complete. This, together with new technology identifying genes and their effects, and new

approaches to detecting DNA by polymerase chain reaction (PCR), may lead to better diagnostic tests.

- There have been no real advances in serological tests. New profiling methods are being tested to improve interpretation of results both for individual animals in infected herds and at the herd level.
- An international study of methods for culturing *M. paratuberculosis* found a wide range of capabilities among laboratories and emphasised the need for a high degree of quality control.
- *M. paratuberculosis* was reported to have been identified more frequently in a sample of people with Crohn's disease in Europe. There have been some genetic differences in organisms cultured from animals and people.

The next International Colloquium will be held in Denmark in 2005.

Contributed by: David Kennedy, Animal Health Australia's JD coordinator

Bovine tuberculosis

The Commonwealth, the States and Territories, and the Cattle Council of Australia are supporting the continuation of the Tuberculosis Freedom Assurance Program (TFAP) — a program developed to protect international recognition of Australia's freedom from bovine tuberculosis (TB).

Australia was declared free of TB in December 1997. Since the inception of the national program in 1970, industry and governments have spent \$1 billion on eradicating bovine brucellosis and TB.

TFAP was established in January 1998 to monitor and respond to the expected occasional incidents of TB, following the 27-year eradication program. It was a joint industry, State/Territory and Commonwealth funded program managed by Animal Health Australia on behalf of the stakeholders.

TFAP2 is a continuation of the previous national program and will run for a further four years from 1 January 2003. It will ensure that sporadic new cases detected are eradicated and that the international animal health standards for surveillance in a TB-free country continue to be met.

Protection of Australia's TB-free status is essential due to the competitive advantage to be gained for a free country in the international marketplace. In 2001–02, Australia's meat and meat product export industry was valued at approximately \$4.3 billion and the live cattle industry at about \$526 million.

NGSP

The National Granuloma Submission Program (NGSP) and its successor, NGSP2 (implemented in abattoirs on 1 October 2001), are the cornerstones in surveillance for TB under TFAP.

NGSP2 focuses on targeting higher risk animals for the submission of granulomas and doubled the target submission rate to one granuloma submitted for every 1000 slaughtered cattle with two or more permanent teeth. Nationally, both of the target submission rates were met during their respective periods of operation during 2002.

Under NGSP2 in 2002, abattoirs in Western Australia, South Australia, the Northern Territory (NT) and Queensland target the submission of granulomas from cattle with two or more permanent teeth; in New South Wales and Victoria submission of granulomas from the head and thorax of these animals; and in Tasmania, granulomas from any beast for which an inspector is unsure of the cause of the lesion.

ACTIVITY IN 2002

TB was detected on two separate occasions in lymph nodes submitted under NGSP2. In January 2002, TB detected in a bronchial lymph node of a buffalo cow with eight permanent teeth was traced to a station in the NT. As a consequence, TB was detected in 11 buffalo on two adjoining properties near Darwin during 2002. Both herds and two adjacent herds have

been totally destocked (nearly 1300 animals) and surveillance testing was carried out on neighbouring properties.

In Queensland, eradication and investigation activities were successfully completed on two properties — one in which TB had been detected in 2000 and another, in southern Queensland, where TB was diagnosed in a retropharyngeal lymph node of a steer with eight permanent teeth (detected by the NGSP in March). No further TB was found on either property after destocking and testing programs were carried out.

Further confirmatory testing on both properties is to occur during 2003. The origin of infection in the only animal found infected during 2002 was demonstrated by DNA typing at the Australian Reference Laboratory for bovine TB (in Perth) to be identical to that detected in 2000, originating from Bollon in southern Queensland. The animal had evidently not been slaughtered as initially indicated by trace-forward investigations.

Contact: Simon Winter, Manager, Animal Disease Surveillance Program, Animal Health Australia

State and Territory reports

New South Wales

*Contributed by:
Barbara Moloney
NSW Agriculture*



ANTHRAX

During early October, anthrax was confirmed as the cause of a further four lambs deaths on the property that had mortalities in September (*AHSQ* Vol. 7, No. 3).

A new case, in December, resulted in the death of three of 1100 adult sheep from a property near Coonamble. These deaths occurred following the introduction of grain feeding during drought conditions. There was no known history of anthrax on this property, but significant soil movement may have been associated with dust storms.

Thirteen other investigations of mortalities during the quarter were negative for anthrax. One of these was on a property with a history of anthrax, but smears were negative, and rock fern toxicity was a possible alternative diagnosis. The causes of the other mortalities were not determined.

STRANGLES

There were 18 reports of strangles outbreaks in the quarter. In one case, in a group of about 60 riding horses, more than half were affected. Several cases occurred in racing stables. Most cases occurred in studs and were spread by movements of mares and foals to and from stud farms for the breeding season.

JOHNE'S DISEASE IN RED DEER

Johne's disease (JD) was diagnosed in two deer from the central slopes area of NSW. The animals, both young red deer stags bred on the property, had been in poor condition with diarrhoea since weaning. Gross and microscopic lesions were consistent with JD. *Mycobacterium paratuberculosis* was isolated from tissues and typed as the cattle strain. The owner

suspects other cases may have occurred in recent years, but these were regarded as 'winter death syndrome' and not fully investigated. Like most deer farms in Australia, this property has introduced animals from a number of other deer farms, with a significant risk of direct and indirect introductions from herds with unknown JD status.

INFECTIOUS LARYNGOTRACHEITIS

In mid-October infectious laryngotracheitis (ILT) was diagnosed on one broiler farm in Sydney and in late October on one broiler farm in the Mangrove Mountain area. Vaccination commenced, but since vaccine supplies were limited, required a very selective approach. Three more nearby farms (one vaccinated) in the Sydney area were suspected but never confirmed. One broiler farm in the Mangrove Mountain area was suspected but not confirmed. It is now believed that on all the suspect farms a variant infectious bronchitis virus may have been responsible for the clinical signs and gross pathology.

AVIAN TUBERCULOSIS

Mycobacterium avium infection was found to be the cause of ill-thrift and mortalities in two small backyard poultry flocks during November. Gross pathology showed emaciation and nodular lesions in multiple organs. Histopathology showed numerous acid-fast bacilli within the granulomatous lesions.

LYSSAVIRUS EXCLUSIONS

A number of cases involving humans being bitten by bats were investigated for Australian bat lyssavirus (ABL). All results were negative. A feral cat, which lived near a bat colony, was observed to have passive behavioural changes, but then bit a person. Investigations for ABL were negative. In addition, a dog reported to have shown aggressive behavioural changes some 10 days after being seen to eat a bat, was euthanased at the owner's request. Test results for ABL were negative.

Northern Territory

Contributed by:
Diana Pinch
DBIRD



BOTULISM

Six of 23 bulls died with signs consistent with botulism on an Alice Springs property in October. There was evidence of carcase chewing and the bulls were unvaccinated. Botulism vaccination is not widely practised in the region. Algal intoxication was the main differential diagnosis. However, algae invading the local turkey nest (water dam) were identified as green algae, and not the toxic blue-green algae.

Seven of 300 weaners died on a Tennant Creek station over a fortnight in October. Many more became sick and recumbent before recovering, raising suspicion of bovine ephemeral fever (BEF). It is not unusual for BEF outbreaks to occur during October in the Tennant Creek region. Further investigations into stock deaths the following month enabled a final diagnosis of botulism on the basis of clinical signs, post mortem examination, and high antibody levels to type D botulinum toxin. Only local cattle were dying, as introduced cattle had been effectively vaccinated.

Cattle deaths at another station in the Tennant Creek area were investigated. The single cow that had a post mortem examination was emaciated, dehydrated and had very high field exposure levels of antibody to type D botulinum toxin. The introduced cattle had only been vaccinated against type C botulinum. Although botulism was implicated, the local cattle on the bore/dam were equally affected by lack of feed and stagnant fetid water in the dam itself.

In late December, there was more than 75% mortality in a flock of about 60 Muscovy 'ducks' in the Darwin region. Over a period of five days, birds of all ages were affected. They showed leg paralysis that progressed to profound weakness with flaccid wings and neck. Botulism (type C toxin) was confirmed by the mouse protection test.

PLANT POISONING

The loss of ten bullocks on an Alice Springs station was investigated. Clinical signs and post mortem evidence indicated poisoning by *Acacia georginae* (gidgee poisoning) as the cause. The toxin contained in this small tree is fluoroacetate. This station does not experience such losses often.

In the Katherine region during October, there was a classic case of post-transport Cooktown ironwood (*Erythrophleum chlorostachys*) poisoning in breeder cattle. The cattle had been transported from an area where ironwood does not occur. About 5% mortality occurred 12 to 48 hours after arrival. Affected animals developed severe colic and diarrhoea without blood, and became dehydrated, recumbent and died. Presence of easily recognisable ironwood leaves in the rumen was the main feature of the post mortem examination.

Two Jersey cattle in the Darwin region developed profuse, watery diarrhoea. One animal was recumbent, unable to stand, and severely dehydrated. It was destroyed, and post mortem examination revealed a rumen full of mangoes and a large knot of plastic, rope and irrigation tubing. The rumen fluid had a pH of 4.1. There were 14 weaners and yearlings in the paddock, which had a small amount of green pick. Several days earlier, a large field bin of mangoes was dropped in the paddock for the cattle. The two Jerseys were the only horned animals in the group, and they dominated the other stock when feeding on the mangoes.

TETANUS

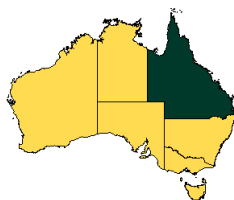
Two young buffalo were reported to have died over a six-day period on a property near Batchelor. Another two, both nine months old, had a staggering gait before becoming recumbent. Examination showed both had a fever, were in lateral recumbency, and were slightly bloated with stiff legs. The upper legs were held clear of the ground by the rigid muscles. The third eyelids were slightly prolapsed. The jaws could not be opened and a slight stimulus would set off muscle spasms. The stock had been grazing a fairly bare paddock, and were supplemented with export cattle cubes. It is thought that under some conditions tetanus toxin might be absorbed from the gut resulting in outbreaks in young stock.

BEES

Activities in the Northern Territory following the discovery of small hive beetle (page 3) included the production of quarantine awareness posters that were delivered to major airfreight companies, the airport and the post offices. This activity led to the discovery of three shipments of bees, two of which had no health certificate. In response to concern about small hive beetle, a beekeeper submitted dying bees to Berrimah Veterinary Laboratories. However, investigations revealed poisoning from nearby rambutan spraying. Seven of 13 hives were lost.

Queensland

Contributed by:
Janet Berry
QDPI



ANTHRAX INVESTIGATIONS

The sudden death of five calves at a small feedlot west of Wondai were investigated in late November to exclude anthrax. The bodies had bloody discharges from the nose and anus. The cause of the deaths was unable to be determined although a presumptive diagnosis of pneumonia was made on clinical examination of live animals, which were in very poor condition with raised temperatures, severe conjunctivitis and respiratory distress. Blood smears from four of the calves were negative for anthrax.

On an extensive property 100 km west of Longreach, about 80 cattle had died over the past year. All died around one water point but clinical signs were unknown as they were all found dead and too decomposed for post mortem examination. The owner did report a bloody discharge from the nose and anus of the carcasses. A visit was made to investigate the losses, although there were no animals to examine. Soil samples collected for anthrax testing proved negative. A possible cause of at least some of the deaths was caustic vine (*Sarcostemma viminalis* subsp. *australe*), which was growing fairly profusely among gidgee trees on the property.

MYCOTOXICOSIS IN CALVES

A presumptive diagnosis of *Aspergillus clavatus* mycotoxicosis was made in a herd of 23 month-old Brahman-cross steers at Kilcoy in late September. This is thought to be the first such case recorded in Australia. Nine steers were affected in a herd of 45 grazing kikuyu and clover pasture with a very small ryegrass component. Hay and four-day-old hydroponic barley shoots were offered as supplementary feeding. The calves showed ataxia with knuckling of the hind fetlocks progressing to sternal or lateral recumbency, but retained their appetite. On histopathological examination, lumbar spinal cord lesions were detected, with necrosis or chromatolysis of individual neurones in the ventral grey matter. No white matter degeneration was seen. No significant lesions were seen in the liver, kidney or heart. *A. clavatus* was confirmed as heavily infesting the barley samples collected from the property. These findings are consistent with reports of this syndrome from South Africa, Israel, Britain, France and China where various grains used as feedstuffs were infested with the fungus. The identity of the toxin responsible is not reported in the literature.

LEAD POISONING

Cases of lead poisoning have occurred across the State during the quarter. Three heifers had convulsions and diarrhoea before becoming prostrate and dying near Gin Gin during late October. The level of lead in the blood was significantly high. Another four calves died near Gympie in early October from lead poisoning. Abomasal contents, liver and kidney all contained high levels of lead. These calves were poisoned by the lead from old batteries. Lead poisoning was also found to be the cause of three deaths, with four more apparently blind in a group of seventy 12-month-old cattle on a property in the Mackay Shire.

WHITEWOOD POISONING

About 20 of 500 cattle died within a month on a property at Boulia in far western Queensland. They were four-year-old Brahman cows that were found within 500 m of a water point. Sucker regrowth from whitewood (*Atalaya hemiglauca*) trees, the only green feed in the paddock, was heavily grazed and evidence of plant material was found in the rumen contents of a dead cow. Most animals died suddenly, although some were lethargic and depressed before showing terminal struggling and convulsions. Recorded field evidence has suggested that grazing the young shoots of this plant can sometimes cause staggers in cattle.

NEWCASTLE DISEASE

Samples were referred to the Australian Animal Health Laboratory (AAHL) for category 2 exclusion of Newcastle disease (ND) from two situations, both associated with a change in feed. The first case involved increased mortalities in broiler breeders on a property with 20 000 birds. The signs observed were respiratory distress, muscle tremor and paralysis. The heads and combs of the birds were cyanotic and the crop was distended with feed, with some regurgitation into the oropharynx suggesting possible choke. ND virus was not isolated. The second case involved an increased mortality and a large production drop in a flock of 75 000 layer birds. There were no significant gross or microscopic findings and ND virus was not isolated.

URINARY CALCULI

In the far south-west of Queensland, six Brahman-cross steers about two years old are known to have died with severe abdominal distension and more may have been lost. The animals were grazing very dry pasture and on bore water. Examination of affected animals showed fluid gathering under the skin and down the legs. At post mortem examination, the kidneys were three times their normal size, the liver was the colour of bronze, and the abdomen was distended with urine. The bladder was ruptured, with

darkened thick black walls and calculi embedded in the bladder wall felt like sandpaper. Biochemistry showed renal damage with high levels of serum creatinine. The peritoneal fluid had a high content of creatinine and urea. The calculi were analysed as calcium carbonate. Deliberations are continuing on the possibility of installing a purifier to remove salts from the bore water.

FUNGAL INFECTION FROM FEEDING BREAD

Many sources of feed have been used during the drought, some more beneficial than others. South of Townsville, cattle showed aggressive behaviour and a nasal discharge before becoming recumbent and dying. Thirteen in a mob of 44 died and an investigation was conducted to exclude BSE and other diseases. Rumenitis was evident at autopsy and it appeared that a fungal infection of the rumen was secondary to an abnormal fermentation associated with the ingestion of bread. Histology showed extensive haemorrhages throughout the rumen, thrombi in large vessels, and extensive inflammation especially adjacent to the serosal aspect. Fungal mycelia had invaded all layers of the rumen.

PIG DISEASES INVESTIGATED

Three six-month-old pigs with enlarged lymph nodes and localised hyperaemia and necrosis of the skin were reported from a property with 1500 finisher pigs. The inguinal lymph nodes were enlarged and hyperaemic and the kidneys enlarged with a marked diffuse fibrinous glomerulitis with occasional syncytial giant cells. The skin had a marked focal acute haemorrhagic dermatitis with leucocytoclastic vasculitis. Sections of lymph nodes showed a diffuse pyogranulomatous lymphadenitis and occasional syncytial giant cells. Fresh tissues and paraffin embedded blocks were referred to AAHL for exclusion of any exotic disease, including porcine dermatitis–nephropathy syndrome (PDNS).

Fresh tissues from weaners showing ill-thrift were also submitted from another farm with a history of infrequent cases post-weaning wasting, inclusion body rhinitis, and gastric ulceration. None of the affected pigs showed any of the multi-organ lymphogranulomatous inflammation typically associated with post-weaning multisystemic wasting syndrome (PMWS) overseas. Attempts to isolate porcine circovirus type 2 were negative.

South Australia

Contributed by:
John Weaver
PISA



TOXICITY/DEFICIENCY PROBLEMS

Ryegrass staggers has been reported from a number of districts and both pasture and hay have been incriminated as sources.

The Mallee region has been affected by the drought and many farmers have been feeding onions to sheep. On one property, cattle that had been fed onions died from a severe haemolytic anaemia, a recognised danger associated with the feeding of onions to cattle and horses.

Polioencephalomalacia is diagnosed occasionally, usually in younger animals, but in the past few months it has been seen across a range of age groups in cattle. The TSE surveillance program may have initiated more submissions than in the past, so that the increased numbers may be an artefact of improved surveillance.

Pyrrolizidine alkaloid poisoning compounded by possible copper toxicity was seen in a sheep flock in the Clare area. It is a well-recognised complex in the area, when sheep on marginal country, grazing pasture that including plants containing the alkaloid, are moved onto improved pasture. The liver damage reduces an animal's ability to handle copper intake and deaths are more likely due to copper toxicity than the alkaloid.

POULTRY

The earlier than normal warm weather may explain the many reports of problems with fowl tick. The tick cause irritation to the birds but a number of premises are unfortunate in that the ticks are infected with the tick fever organism that can lead to significant mortalities.

Inclusion body hepatitis caused mortalities of up to 20% in consecutive flocks on a small meat chicken rearing unit. Changing the hatchery source and improving clean-out between batches seems to have corrected the problem.

ACTINOMYCES MENINGITIS

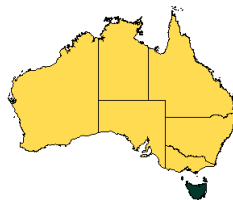
A goat herd in which animals had been exhibiting nervous signs and some had died was investigated. Two separate submissions were received and histologically both had a severe pyogranulomatous meningoencephalitis. A tentative diagnosis of listeriosis was made but *Actinomyces pyogenes* was cultured from both brains.

Tasmania

Contributed by:

John Elliott

DPIWE, Tasmania



LEUKAEMIA IN SALMON

During routine surveillance of mortalities in farmed salmon, two fish from one farm were found to have multiple large pale lumps in the skin, muscle and internal organs. Histologically, this was identified as plasmacytoid leukaemia. The neoplastic cells infiltrated most organs and there was a marked presence in the circulating blood. The tumours were foci of replicating cells.

The condition resembles one reported in 1990 in which high mortalities were experienced in net pens of chinook salmon in British Columbia. It was observed in market-sized (2–4 kg) fish and caused high mortalities on several farms. Cell culture and transmission electron microscopy failed to reveal any agent but infection was transmitted using tissue homogenates.

SUSPECTED HEMLOCK POISONING

Six of 30 3–4-month-old dairy calves died suddenly over a period of two weeks. The remainder appeared healthy. The reporting veterinarian was not able to autopsy any carcasses or to examine the live animals closely. However, the carcasses had a distinctive smell. Hemlock in the pasture had been grazed. The alkaloids in hemlock are excreted by the lungs and kidneys results in the characteristic 'mousy' smell.

BLACKHEAD IN TURKEYS

Over three months, 25 turkeys died in a group of 41. Affected birds had yellow diarrhoea and died within 24 hours of the onset of abnormal signs. Autopsy and histopathology showed a necrotising enterohepatitis with frequent round intracellular protozoal organisms. Their size, shape and structure were consistent with them being histomonads.

DEATHS IN FUR SEALS

Sixty-five Australian fur seal carcasses were washed ashore on a northern Tasmanian beach. Two of the seals were adult bulls and the rest were pups. The carcasses almost certainly came from a nearby offshore colony. It was estimated that this number of dead pups meant the colony had lost at least 25% of this season's pups. The carcasses were too decomposed for full post mortem examination. Lung samples were taken to be tested for phocine distemper virus. PCR carried out at AAHL found no evidence of this disease.

Biologists who examined the carcasses reported that 20 of the pups had crushed skulls. The deaths were probably due to a stampede on the island colony,

perhaps caused by a thunderstorm. However, human interference cannot be ruled out.

BRONCHOPNEUMONIA IN CHICKENS

Several 6–10-months-old birds died over a week in a backyard poultry flock. The signs included weakness, weight loss, coughing and sneezing. One sick bird was submitted for laboratory examination. The bird was in good condition, bright and had been eating. No significant changes were seen in the brain, sciatic nerves, pancreas, kidney, spleen or gut. In the lungs and air sacs, there was chronic bronchopneumonia and a heavy infestation with mites, probably *Cytodites nudus*. This mite is usually regarded as non-pathogenic but the heavy infestation and the tissue response are consistent with the clinical signs reported.

LABORATORY ACCESSIONS

During the quarter, there were 238 aquaculture accessions, 1168 livestock accessions, 120 companion animal accessions, 68 wildlife accessions and 29 accessions from other sources. The following investigations into possible cases of notifiable diseases were done during the quarter.

Disease	Investigations	
	+ve	No.
Anthrax	0	4
Aujeszky's disease	0	1
Avian psittacosis	2	8
Bacterial kidney disease	0	110
Bluetongue virus	0	8
<i>Brucella abortus</i>	0	15
<i>Brucella ovis</i>	0	21
Classical swine fever	0	1
Clinical salmonellosis	35	136
Enzootic bovine leucosis	0	4
Epizootic haematopoietic necrosis	0	16
Johne's disease	32	169
<i>Leptospira hardjo</i>	6	21
<i>Leptospira pomona</i>	2	21
Listeria	4	7
Negative fish bacteriology*	0	105
Negative fish virology ⁺	0	15
Piscirickettsiosis	0	17
Q Fever	0	5
<i>Salmonella abortus ovis</i>	0	37
<i>Salmonella enteritidis</i>	0	6
Shellfish Diseases [#]	0	6
Verotoxic <i>E. coli</i>	0	160

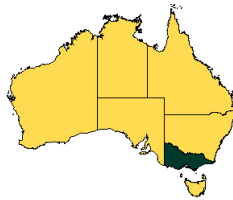
* Furunculosis, goldfish ulcer disease, marine aeromonad disease, streptococcosis of salmonids

⁺ Epizootic ulcerative syndrome, infectious haemopoietic necrosis, infectious pancreatic necrosis, onchorynchus masou virus disease, spring viraemia of carp, viral encephalopathy and retinopathy, viral haemorrhagic septicaemia

[#] Bonamiasis, iridovirus of shellfish, nocardiosis of shellfish, perkinsosis of shellfish

Victoria

Contributed by:
Tristan Jubb
DPI, Victoria



NEW DEPARTMENTAL STRUCTURE

Following the Victorian State elections in November 2002, the Department of Natural Resources and Environment was restructured into the Department of Primary Industries and the Department of Sustainability and Environment.

ANTHRAX IN A HEIFER

In late November 2002, a private veterinarian examined a 17-month-old Hereford heifer that had died suddenly on a property west of Swan Hill in north-western Victoria. Examination of samples submitted to ascertain the cause of death included tests for anthrax. Laboratory testing based on examination of blood smears, positive culture, and the new rapid anthrax diagnostic test (being evaluated at VIAS Attwood) confirmed anthrax as the cause of death. The carcass of the anthrax case was incinerated, the death site decontaminated, all remaining cattle on the property (170 head) were vaccinated, and the property was quarantined for 42 days. There was no evidence that the disease had occurred on neighbouring properties and there have been no further cases on this property. Anthrax had not previously been recorded on farms west of Swan Hill. Investigations found no obvious source of introduction of anthrax onto the property, so the most likely explanation is that there was previously an anthrax death on the farm (perhaps many years ago) and that the animal had been exposed to the contaminated death site. The dry seasonal conditions could partly explain why cattle might have ingested contaminated soil at a previous anthrax death site.

SPORADIC BOVINE ENCEPHALOMYELITIS

In north-western Victoria, sporadic bovine encephalomyelitis was diagnosed in a beef herd suffering a 10-year history of bouts of ill-thrift, lameness and ataxia affecting the hind limbs in single animals or small groups, with occasional mortalities in animals that became recumbent. The diagnosis was based on autopsy and microscopic findings in a recumbent heifer of polyserositis including spectacular fibrinous peritonitis and pleuritis, and meningoencephalitis with widespread perivascular cuffing as a dominant feature. Sera from the heifer and eight of 15 herd mates were positive to a chlamydial complement fixation test. However, convalescent sera in the herd mates taken two weeks later showed no significant increase in number or level of titres. The results of aerobic culture, yolk sac inoculation and

Gram's stain of stifle and peritoneal fluid from the recumbent heifer were negative. The heifer had been treated with antibiotics before autopsy.

SEGMENTAL AXONOPATHY

Incoordination and ataxia in medium-fine wool merino weaners were investigated on a property near Bendigo in central Victoria. Affected sheep had been observed in the flock for several years, with 10–20 weaners affected each year. The first indication was 'knuckling-over' of the fetlocks and a swaying gait as a result of ataxia of the hindquarters. No gross changes were found at autopsy but histopathological changes consistent with a neuraxonal dystrophy that produced ballooning of axons in the brain and spinal cord were found, similar to those described as segmental axonopathy. This is considered to be synonymous with Murrurundi disease (first recorded in the Murrurundi region of NSW), which was thought to be an inherited condition of merino sheep. This condition has been seen in Victoria since the early 1980s.

LEAD POISONING IN YOUNG CATTLE

Three incidents of lead poisoning in young beef and dairy cattle were reported from across the State. A total of 19 cattle died. Observed signs included weakness, incoordination, blindness, convulsions and rapid death. Diagnosis was based on the discovery of lead fragments in the reticulum and supported by finding elevated kidney and blood lead concentrations. The source of lead in all three outbreaks was old car batteries in paddocks where rubbish had been dumped.

ORGANOPHOSPHATE POISONING OF BIRDS

Post mortem examination of four ibis and 13 Wonga pigeons found dead near Bairnsdale in east Gippsland did not show significant lesions. However, lethal concentrations of fenthion were found in crop and gizzard contents. Since fenthion is an organophosphate used as an insecticide, it is possible that fenthion may have been used to kill maggots or other insects in discarded food.

QUATERNARY AMMONIUM POISONING OF POULTRY

A layer farm (40 000 birds) on the Mornington Peninsula experiencing an increase in mortalities and reduced egg production was investigated by DPI to rule out Newcastle disease. The clinical signs included blue combs, inactivity and inappetence. Post mortem examination found the combs to be small and dark, the subcutis dry, and the kidneys pale. Histologically, the lesions were consistent with benzalkonium chloride (BAC) toxicity. In response to an increase in the thickness and pink colour of yolks the farmer had previously changed the water sanitiser to a product containing BAC, which is a quaternary ammonium

compound, using it at 25 times the recommended dose rate. Two days after adding the new sanitising agent, the egg shells became brittle, the birds stopped drinking and production had halved. By the fourth day, birds began to die. The two worst affected sheds lost about 8% of their layers and production was down to 15%. The highest mortalities occurred in flocks of a particular genetic line and in cages at the end of the watering system. Use of the sanitiser ceased after changes to eggs were noticed two days after the addition of BAC. Peak mortality rate occurred after a week. At the end of a fortnight, egg production and mortalities had returned to normal. It was later learnt that the thick, pink yolks were due to a variation in the oil composition of the feed.

SUNBURN IN DORPER-CROSS SHEEP

In late December, about 20 of 100 October-shorn Dorper crossbreed sheep in north-western Victoria were found to have severe skin necrosis manifest as scabs and cotted wool along the length of the back line. Scabs were worst beneath wool brands. The lesions were similar to the sunburn seen in Damara sheep in the district in December 2001.

YERSINIA RUCKERI INFECTION IN FISH

High mortalities of brown trout fry associated with *Yersinia ruckeri* Type O1B infection occurred on a north-east Victorian fish farm. The bacteria were strain-typed to differentiate them from Type O1A, which is responsible for the exotic disease enteric red mouth. The bacterium is water-borne and thought to be associated with disturbances of silt and debris. Young fry suffering nutritional and temperature stress are predisposed. Brown trout are considered to be 'bottom feeders', which may explain the higher mortalities in the brown trout compared to the rainbow trout on the farm. Losses due to *Y. ruckeri* infection had occurred in both species in the two previous years but not to such an extent. The bacterium is reported as responsible for losses of trout in Tasmania, particularly after heavy rains, which presumably increases silt and bacterial contamination. Mortalities were brought under control by reducing stocking rates and administering antibiotics in the feed.

VESICULAR DISEASE EXCLUSION

A suspect case of vesicular disease in a 14-month-old heifer on a property near Thorpdale in Gippsland was reported to DPI in October by a private veterinarian. The animal had not eaten for a few days and was agitated and drooling saliva. Clinical examination found dark reddening of the mucosae of the ventral tongue and gums, and the skin of the muzzle was dry

and crusty. Rectal temperature was normal. There were no lesions suggestive of FMD. Pestivirus antigen ELISA and FMDV capture ELISA for serotypes O, A and Asia 1 were negative. No other animals were affected on the farm and the affected heifer recovered quickly over the next few days. The animal probably had acute bovine viral diarrhoea.

CATTLE TICK EXCLUDED

About two weeks after the arrival of 140 calves purchased from a number of properties in NSW in early December, the owners found a single tick on the calves. The description of the tick was consistent with a number of tick species including *Haemaphysalis longicornis* (bush tick), *Ixodes holocyclus* (paralysis tick), *Aponomma* sp., *Amblyomma* sp. and *Boophilus microplus* (the 'cattle tick'). The reported size and description of the tick, 'as big as a thumb nail (1.5 cm diameter), with a light green body and dark brown legs', suggested that it was more likely to be *Amblyomma* or *Aponomma* sp. and less likely to be *Boophilus microplus*. In addition, the properties of origin in northern NSW were not in or near known cattle tick areas. A further inspection of the calves revealed another tick, which was identified as *Amblyomma moreliae*. As the description of the first tick was consistent with this species, no further action was taken.

Introduction of cattle ticks into Victoria is a concern because, although they will not persist in Victoria through a cold winter, they could survive and multiply throughout the summer and autumn and cause an outbreak of tick fever. Tick fever is caused by the parasites *Babesia bovis*, *Babesia bigemina* and *Anaplasma marginale*, which are carried and transmitted by cattle tick.

RABIES EXCLUSION IN A DOG

The brain of an Australian red heeler dog showing neurological signs including aggressive behaviour, convulsions, and frothing salivation was examined for lyssavirus and found negative.

PHOSPHORUS DEFICIENCY IN CATTLE

Phosphorus deficiency was reported in a number of herds in north-eastern Victoria. The farms were suffering drought conditions and the cattle were being fed grain and/or hay with very little pasture. Typically, only a few animals in a herd showed abnormal clinical signs. Affected animals were usually two to four years old, lactating and in poor condition with a stiff-legged gait and arching of the back. Marked improvement was usually seen within days of weaning the calves.

Western Australia

Contributed by:

Richard Norris

WA Department of Agriculture



Laboratory testing was conducted on 389 investigations of animal disease during the period. Of these, 125 were cost-recovery (private benefit) cases and 264 were charge-exempt (public benefit and therefore funded directly by the Government).

NOTIFIABLE DISEASES

All six cases of notifiable diseases reported during the quarter were category C (discretionary quarantine) diseases. There were four cases of annual ryegrass toxicity in sheep, one case of echinococcosis in a sheep, and one case of bovine genital campylobacteriosis.

EXOTIC DISEASE ALERTS

All four cases were category 1 alerts (low index of suspicion) in domestic fowl flocks. One was a case of egg drop in a fully vaccinated commercial flock in which Newcastle disease was the main exotic disease ruled out. There were two cases of respiratory disease in back yard chickens where avian influenza was ruled out and a case of neurological disease in back yard domestic fowl where Newcastle disease was ruled out.

OVINE YERSINIOSIS

Enteric yersiniosis is a reasonably common cause of winter scours in sheep in NSW and Victoria, but is rare in WA. Examination of a specimen collected during ovine Johne's disease surveillance at a Narrikup abattoir (source unknown but probably southern region) revealed histopathological lesions characteristic of yersiniosis and *Yersinia pseudotuberculosis* was isolated. In the same week, *Y. enterocolitis* was isolated (mostly from non-scouring sheep) in a trial looking at causes of scouring in adult sheep with low worm egg counts. No histopathological change characteristic of yersiniosis was seen and the significance of this isolate is not certain. *Y. pseudotuberculosis* is reported to be more pathogenic than *Y. enterocolitis*.

PDNS AND CONGENITAL TREMORS

Porcine dermatitis–nephropathy syndrome (PDNS), congenital tremors (type AII) and post-weaning multi-systemic wasting syndrome (PMWS) are emerging

diseases of concern in most pig-rearing countries. There is a possible link between these syndromes and porcine circovirus 2 (PCV-2) infection. There have been a number of individual pigs affected by a PDNS-like condition in the State but PCV-2 has not been detected. During the quarter, a case of congenital tremors occurred in a pig herd in Beverley. Results of polymerase chain reaction (PCR) tests are still pending. The herd had received pigs from a property that had previously experienced an outbreak of congenital tremor and had animals positive to PCV-2 by PCR testing. Trials are currently underway at Murdoch University to investigate the pathogenicity of Australian strains of PCV-2.

BOVINE FODDER FACTORY DEATHS

The owners of Lynden Station (north of Carnarvon) were using flood hydroponics to produce 8-day-old barley sprouts for feeding to cattle. The production data from a trial were remarkably good but following the trial, two of the ten trial animals became ill. A preliminary diagnosis of hypomagnesaemia was made. However, there was no indication of hypomagnesaemia in the blood samples taken nor were any abnormalities detected on histopathology. Some of the animals had high plasma methylmalonic acid (MMA) results but vitamin B12 assays indicate that they did not have a vitamin B12 deficiency, suggesting something else in the diet was causing the elevated MMA. Elevated MMA can be associated with high levels of proprionate in the diet. Further work is necessary to confirm the production data and investigate the pathogenesis of the elevated MMA without elevation of vitamin B12.

OVINE CHRONIC SUBMUCOSAL ENTERITIS.

The officer inspecting intestinal tracts for evidence of ovine Johne's disease (OJD) at the Narrikup abattoir was very concerned that a mob of sheep from a mixed line from Katanning sales had gross thickening of the ileum with prominent lymphatics and OJD could not be ruled out. Histopathological examination revealed that, similar to previous cases, there was marked submucosal lymphatic dilation and thickening, with associated intense inflammation. This case may be more acute than those seen previously as there is not the granulomatous response seen in other cases. The cause of this syndrome is undetermined but it seems to be a particular pathological entity. OJD was ruled out by histopathology and mycobacterial culture.

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.

For information about the Disease Watch Hotline, contact Jamie Penrose, Animal Health Australia.

Quarterly Disease Statistics

Quarterly disease statistics — control activities

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 1 shows the number of dairy herds tested free of EBL at the end of the quarter.

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 69 abortion investigations were performed during the reporting period — all with negative results for bovine brucellosis, as shown in Table 2.

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 3 shows the number of accredited flocks at the end of the quarter.

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, deer 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 4 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 developed. 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) or higher shown in Table 5.

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 the internet (at www.aahc.com.au/jdmap).

Table 1: Dairy herds tested free of enzootic bovine leucosis at 31 December 2002

	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
Free Herds	1298	0	1163	549	679	7067	360	11 116
	1300	0	1172	549	741	7157	360	11 279

Table 2: Surveillance for bovine brucellosis

	Abortion investigations		Test for other reasons	
	Tests	+ve	Tests	+ve
Oct–Dec 01	128	0	7008	0
Jan–Mar 02	146	0	5125	0
Apr–Jun 02	275	0	7082	0
Jul–Sep 02	182	0	2336	0
Oct–Dec 02	69	0	3617	0
NSW	24	0	597	0
NT	0	0	835	0
QLD	33	0	613	0
SA	1	0	17	0
TAS	11	0	52	0
VIC	0	0	330	0
WA	0	0	1173	0

Table 3: Ovine brucellosis accredited-free flocks at 31 December 2002

NSW	NT	QLD	SA	TAS	VIC	WA	AUS
825	0	58	481	104	615	138	2221

Table 4: Herds/flocks with JD at 31 December 2002

	Cattle	Sheep	Goats	Deer	Alpaca	Total
NSW	146	1123	12	1	1	1283
NT	0	0	0	0	0	0
QLD [#]	0	0	0	1	0	1
SA	49	52	0	2	0	103
TAS	20	38	6	0	0	64
VIC	1150	57	7	7	4	1225
WA	0	0	0	0	0	0
AUS	1365	1270	25	11	5	2676

[#] The Queensland herd is in quarantine after finding an infected animal introduced from an endemic area.

Table 5: Herds/flocks with a JDMAP status of at least MN1/TN1 status at 31 December 2002

	Cattle	Sheep	Goat	Alpaca	Total
NSW	926	316	30	124	1396
NT [#]	0	0	0	0	0
QLD [#]	1	10	0	0	11
SA	249	234	17	37	537
TAS	117	35	2	1	155
VIC	345	156	6	37	544
WA [#]	0	0	0	0	0
AUS	1638	751	55	199	2643

[#] Herds/flocks in Free or Protected Zones are equivalent to status of MN1 or better because of the zone's status.

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 6 summarises results from the program. Table 7 summarises the national case register for bovine TB for the 13 years since 1990.

Table 6: Results of the National Granuloma Submission Program

	Granulomas submitted	TB +ve
Oct – Dec 01	1508	0
Jan – Mar 02	1072	2
Apr – Jun 02	1435	0
Jul – Sep 02	1576	0
Oct – Dec 02	1368	0
NSW	184	0
NT	0	0
QLD	852	0
SA	66	0
TAS	17	0
VIC	66	0
WA	183	0

Table 7: National case register for bovine tuberculosis

	BTEC			BTEC - impending free					TFAP - free				
	90	91	92	93	94	95	96	97	98	99	00	01	02
NSW	1	0	1	0	0	1	0	0	0	0	0	4	0
NT	2	1	2	7	5	5	3	4	2	1	0	0	2
QLD	5	6	4	1	2	1	1	2	2	0	2	3	1
SA	0	0	1	0	0	0	1	0	0	0	0	0	0
TAS	0	0	0	0	0	0	0	0	0	0	0	0	0
VIC	0	2	1	0	0	1	1	0	0	0	0	0	0
WA	0	0	0	1	0	1	1	1	1	0	0	0	0
AUS	8	9	9	9	7	9	7	7	5	1	2	7	3

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 8.

Table 8: 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
Oct–Dec 01	7827	352	8138	242	2564	361	7298	2	1167	11	547	16
Jan–Mar 02	2732	410	4826	140	1896	318	3640	2	755	0	414	22
Apr–Jun 02	14469	123	15133	594	2219	532	9918	5	920	5	473	2
Jul–Sep 02	12945	530	21771	265	1196	273	11428	7	1142	0	432	22
Oct–Dec 02	3222	358	12223	462	1754	243	8155	4	1127	1	417	12
NSW	13	0	1701	7	448	59	6286	0	477	0	124	1
NT	639	183	1121	271	637	75	842	3	35	0	0	0
QLD	366	138	843	137	389	85	384	0	271	1	60	4
SA	9	0	77	0	10	0	2	0	6	0	2	0
TAS	30	0	35	0	0	0	142	0	0	0	0	0
VIC	1115	0	7229	0	99	0	499	1	338	0	155	2
WA	1050	37	1217	47	171	24	0	0	0	0	76	5

Quarterly disease statistics — 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 9 summarises *Salmonella* isolations from animals notified to NEPSS for the quarter.

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

Table 9: Salmonella notifications, 1 October to 31 December 2002

Serovars	avian	bovine	canine	equine	feline	ovine	porcine	other	Total
S. Bovismorbificans	0	8	0	17	1	0	0	0	26
S. Dublin	0	34	0	0	0	0	0	0	34
S. Infantis	0	1	2	0	0	0	0	0	3
S. Typhimurium	4	22	4	3	2	3	5	0	43
Other	2	12	18	9	0	7	7	8	63
Total	6	77	24	29	3	10	12	8	169

ZOONOSES

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

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

Table 10: Notifications of zoonotic diseases in humans

Disease	Q4-01	Q1-02	Q2-02	Q3-02	Q4-02 AUST	Current quarter							
						ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Brucellosis[#]	4	12	6	11	11	0	0	0	11	0	0	0	0
Leptospirosis	38	71	55	17	25	0	11	1	3	1	1	7	1
Listeriosis	11	15	18	16	13	0	6	0	2	1	1	1	2
Ornithosis	37	17	52	97	33	0	21	0	1 ⁿⁿ	1	0	9	1
Q fever	169	183	193	181	196	0	107	0	69	11	0	3	6

nn disease is not notifiable in these States

Brucella melitensis and *Brucella abortus* are exotic to Australia.

AUSTRALIAN MILK RESIDUE ANALYSIS SURVEY

The Australian Milk Residue Analysis (AMRA) Survey is an independent monitoring program for agricultural, veterinary residues and environmental contaminants in raw cow's milk. The AMRA Survey is currently coordinated by Dairy Food Safety Victoria on behalf of the Australian Dairy Authorities Standards Committee (ADASC) and the Australian dairy industry. The AMRA Survey is an integral part of the Australian dairy industry efforts in securing access to major export markets, including the European Union. The samples taken in the Survey are from bulk milk farm pick-up tankers. Table 11 summarises the results for the quarter.

For further information contact: *Kelly Long (AMRA Survey Coordinator), Dairy Food Safety Victoria, phone 03 9426 5999; fax 03 9427 1895; e-mail klong@dairysafe.vic.gov.au*

Table 11: Australian Milk Residue Analysis Survey, 1 October to 31 December 2002

Each pair of figures gives the number of samples above the maximum residue limit and the number of samples tested.

	NSW		NT		QLD		SA		TAS		VIC		WA		AUS	
Aflatoxins	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	4
Antimicrobials	0	16	0	0	0	7	0	8	0	5	0	68	0	7	0	111
Macrocyclic lactones	0	1	0	0	0	1	0	2	0	3	0	28	0	1	0	36
Organochlorines	0	4	0	0	0	2	0	1	0	1	0	22	0	1	0	31
Organophosphates	0	4	0	0	0	2	0	1	0	1	0	22	0	1	0	31
PCBs	0	4	0	0	0	2	0	1	0	1	0	22	0	1	0	31
Synthetic pyrethroids	0	4	0	0	0	2	0	1	0	1	0	22	0	1	0	31
Triclabendazole	0	16	0	0	0	7	0	8	0	5	0	68	0	7	0	111

NATIONAL TSE SURVEILLANCE PROGRAM

The National Transmissible Spongiform Encephalopathies 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 12 summarises 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 www.aahc.com.au/surveillance/ntseesp).

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

Table 12: Number of animals tested under NTSESP (All were negative for TSE)

	Oct – Dec 01		Jan – Mar 02		Apr – Jun 02		Jul – Sep 02		Oct – Dec 02	
	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep
NSW	14	33	16	17	30	32	29	21	17	19
NT	4	0	0	0	8	0	10	0	6	0
QLD	39	14	36	4	41	8	43	16	69	29
SA	1	18	8	28	1	6	6	17	6	3
TAS	3	7	3	0	3	0	2	5	3	5
VIC	6	15	17	29	17	33	34	24	28	36
WA	3	29	4	29	7	40	5	28	9	36
AUS	70	116	84	107	107	119	129	111	138	128

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. Tables 13 and 14 summarise NAQS activity in Australia over the past five quarters.

Contact: David Banks, Biosecurity Australia

Table 13: Summary of recent NAQS activity in Australia

	Oct – Dec 01		Jan – Mar 02		Apr – Jun 02		Jul – Sep 02		Oct – Dec 02	
	Tested	+ve	Tested	+ve	Tested	+ve	Tested	+ve	Tested	+ve
Aujeszky's disease	86	0	13	0	143	0	179	0	197	0
Classical swine fever	86	0	9	0	143	0	179	0	197	0
Japanese encephalitis	245	0	368	16	48	0	0	0	29	0
Nipah virus					143	0	179	0	197	0
Porcine reproductive and respiratory syndrome	86	0	13	0	143	0	179	0	197	0
Surra	115	0	47	0	72	0	8	0	69	0

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 sites on islands in the Torres Strait, and for the first time on the mainland at the tip of Cape York Peninsula. Sentinel pigs at Badu Island have seroconverted each wet season since then (except for 1999), and seroconversions have been detected on other central Torres Strait islands in surveys. No further seroconversions have been recorded at the mainland sentinel pig locations.

PORTS SURVEILLANCE PROGRAM

Biosecurity Australia conducts the Ports Surveillance Program for *Culicoides*, screw-worm fly, exotic bees and bee mites. Seaports, particularly those servicing returning livestock vessels and those dealing with high risk deck cargo such as timber, mining equipment and containers, are considered to be high risk locations for incursions of such pests. The program increases the capacity to detect any incursions at an early stage, and this in turn increases the probability of a successful eradication program. The *Culicoides* surveillance also supports the livestock export trade by confirming the continuous or seasonal absence of *Culicoides* vectors at ports from which livestock are loaded. Table 14 shows the number of times that insect trap sites were inspected for the Port Surveillance Program — no exotic insects or mites were detected.

Contact: David Banks, Biosecurity Australia

Table 14: Number of inspections of insect trap sites

	Oct – Dec 01	Jan – Mar 02	Apr – Jun 02	Jul – Sep 02	Oct – Dec 02
Port surveillance					
Asian bees	10	5	10	0	12
Bee mites	25	35	22	16	27
<i>Culicoides</i>	32	32	34	35	34
Screw-worm fly	36	35	36	35	33
NAQS					
Screw-worm fly	6	150	39	33	53

NATIONAL RESIDUE SURVEY

Of 3340 samples tested during the quarter for agricultural and veterinary chemicals, there were seven hormones and one metal detected above action levels. Table 15 summarises the results.

17-alpha 19-nortestosterone was detected in four samples of cattle urine and two of sheep urine. One horse sample contained both 17-alpha and 17-beta 19-nortestosterone as well as 17-beta boldenone residues. Since the 17-alpha 19-nortestosterone hormone metabolite can occur naturally in cattle and sheep, an action level of 0.01 mg/L is used to initiate a traceback investigation — all six detections were well below this action level. The presence of both 17-alpha/17-beta 19-nortestosterone is possible in stallions, but the 17-beta boldenone residue suggests possible treatment of the animal with anabolic hormones. The sex of the horse sample is unknown as yet and the result has been referred back to the relevant authorities of the State from which the animal originated for possible traceback investigation.

One sheep sample was found to have a cadmium residue of 1.6 mg/kg. Although this exceeded the maximum level of 1.25 mg/kg, the residue action level of 2.5 mg/kg was not exceeded and so traceback for this sample was not requested.

Further results, reports and information on NRS can be found on the internet (at www.affa.gov.au/nrs).

Contributed by: Peter Miller, National Residue Survey, AFFA

Table 15: National Residue Survey, 1 October to 31 December 2002

Each pair of figures gives the number of samples above the maximum residue limit or the maximum level and the number of samples tested.

	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
Anthelmintics								
cattle	0 47	0 0	0 45	0 9	0 3	0 42	0 4	0 150
pigs	0 6	0 0	0 5	0 3	0 1	0 6	0 1	0 22
sheep	0 94	0 0	0 5	0 31	0 4	0 47	0 37	0 218
other	0 10	0 0	0 0	0 1	0 0	0 8	0 1	0 20
Total	0 157	0 0	0 55	0 44	0 8	0 103	0 43	0 410
Antimicrobials								
cattle	0 80	0 1	0 81	0 13	0 8	0 86	0 10	0 279
pigs	0 30	0 0	0 13	0 6	0 0	0 25	0 3	0 77
sheep	0 245	0 0	0 3	0 89	0 4	0 79	0 96	0 516
other	0 8	0 0	0 4	0 3	0 0	0 6	0 0	0 21
Total	0 363	0 1	0 101	0 111	0 12	0 196	0 109	0 893
Growth promotants								
cattle	0 109	0 0	3 139	0 15	0 4	0 62	1 10	4 339
pigs	0 15	0 0	0 6	0 9	0 1	0 12	0 5	0 48
sheep	2 114	0 0	0 1	0 45	0 3	0 45	0 46	2 254
other	0 6	0 0	0 5	1 1	0 0	0 6	0 0	1 18
Total	2 244	0 0	3 151	1 70	0 8	0 125	1 61	7 659
Insecticides								
cattle	0 114	0 4	0 103	0 22	0 8	0 101	0 20	0 372
pigs	0 9	0 0	0 4	0 4	0 0	0 9	0 0	0 26
sheep	0 186	0 0	0 5	0 77	0 4	0 60	0 86	0 418
other	0 23	0 1	0 21	0 2	0 5	0 11	0 2	0 65
Total	0 332	0 5	0 133	0 105	0 17	0 181	0 108	0 881
Metals								
cattle	0 30	0 0	0 22	0 7	0 2	0 16	0 3	0 80
pigs	0 9	0 0	0 4	0 3	0 0	0 8	0 1	0 25
sheep	0 34	0 0	0 1	0 5	0 0	0 18	1 12	1 70
other	0 1	0 1	0 8	0 3	0 0	0 0	0 2	0 15
Total	0 74	0 1	0 35	0 18	0 2	0 42	1 18	1 190
Miscellaneous								
cattle	0 62	0 1	0 40	0 8	0 1	0 44	0 8	0 164
pigs	0 17	0 1	0 7	0 12	0 0	0 10	0 2	0 49
sheep	0 34	0 0	0 0	0 12	0 0	0 17	0 10	0 73
other	0 3	0 0	0 4	0 0	0 10	0 4	0 0	0 21
Total	0 116	0 2	0 51	0 32	0 11	0 75	0 20	0 307

SUSPECT EXOTIC OR EMERGENCY DISEASE INVESTIGATIONS

There were 31 investigations of diseases suspected to be either exotic or a possible emergency reported during the quarter, as shown in Table 16.

Table 16: Exotic or emergency disease investigations reported from 1 October to 31 December 2002

DISEASE	SPECIES	STATE	DATE	RESPONSE	FINDING
African horse sickness	equine	NSW	Oct	3	Crofton weed poisoning
Anthrax	bovine	VIC	Dec	2	negative
Anthrax	bovine	VIC	Dec	2	negative
Anthrax	bovine	VIC	Dec	2	negative
Anthrax	bovine	VIC	Nov	2	negative
Anthrax	bovine	VIC	Nov	2	anthrax
Anthrax	bovine	VIC	Nov	2	grain poisoning
Anthrax	bovine	VIC	Nov	2	negative
Anthrax	bovine	QLD	Dec	2	plant poisoning
Anthrax	bovine	QLD	Nov	2	negative
Avian influenza	avian	WA	Oct	3	negative
Avian influenza	avian	WA	Oct	3	negative
Equine influenza (virus type A)	equine	NSW	Oct	3	negative
Foot-and-mouth disease	bovine	VIC	Oct	2	acute bovine viral diarrhoea
Foot-and-mouth disease	porcine	NSW	Nov	3	spirochaete stomatitis
Foot-and-mouth disease	bovine	TAS	Oct	1	negative, photosensitisation suspected
Newcastle disease	avian	VIC	Nov	2	benzalkonium chloride toxicity
Newcastle disease	avian	NSW	Dec	2	possible zinc toxicity (new wire disease)
Newcastle disease	avian	NSW	Nov	3	negative
Newcastle disease	avian	QLD	Nov	3	negative
Newcastle disease	avian	QLD	Nov	3	negative
Newcastle disease	avian	NSW	Oct	5	virulent Newcastle disease
Newcastle disease	avian	NSW	Oct	3	avian encephalomyelitis
Newcastle disease	avian	NSW	Nov	2	negative
Newcastle disease	avian	WA	Nov	3	negative
Newcastle disease	avian	WA	Dec	3	negative
Porcine reproductive and respiratory syndrome	porcine	QLD	Nov	2	negative
Pullorum disease (<i>S. pullorum</i>)	bovine	QLD	Nov	2	<i>Haemophilus parasuis</i>
Screw-worm fly	canine	QLD	Dec	1	mange and old age
Screw-worm fly	equine	NT	Dec	2	negative, larvae of <i>Chrysomya saffrana</i>
Small hive beetle	avian	NSW	Oct	6	Small hive beetle

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 www.aahc.com.au/nahis). Because NAHIS does not duplicate the data in those systems, the person indicated 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@affa.gov.au
Janet Berry	Qld State Coordinator	07 4658 4414	07 4658 4433	janet.berry@dpi.qld.gov.au
Chris Bunn	Emergency Disease Preparedness, AFFA	02 6272 5540	02 6272 3372	Chris.Bunn@affa.gov.au
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Animal Health Surveillance

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