ANIMAL HEALTH SURVEILLANCE QUARTERLY

Newsletter of Australia's National Animal Health Information System

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# Preface

Australian livestock producers and animal health authorities have long recognised the threat posed by the introduction of foot-and-mouth disease (FMD), which remains a serious problem in many parts of the world. Recent outbreaks in previously free countries such as Japan and Korea show the importance of remaining vigilant.

In May, Dr Graeme Garner, a veterinary epidemiologist in the Office of the Chief Veterinary Officer (OCVO), was invited to participate in an Office International des Épizooties (OIE) mission to Korea to assess the situation following the outbreak of FMD there. His report provides an overview of the emerging FMD situation in the Asian region.

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

*Gardner Murray*
*Australian Chief Veterinary Officer*

# FMD in Asia — a growing threat

## Overview of FMD in Asia

Asia is currently experiencing a serious pandemic of FMD Type O due to a South Asian topotype. This strain of virus Type O (PA) — PA for pan-Asia — is distinct from the pig-adapted Type O strain reported in South-East Asia (Philippines, Hong Kong, Vietnam) that caused such devastation to the Taiwan pig industry in 1997. The new strain is also distinct from the Type O strain endemic in cattle and buffalo in South-East Asia.

According to information from the FMD World Reference Laboratory at Pirbright in the United Kingdom, the new strain appears to have emerged from India in the early 1990s. From there it spread both west and east. By 1994 it had reached the Arabian peninsula and from there spread north-west as far as Europe (Turkey, Bulgaria and Greece). Heavy losses were reported in Iraq in 1998–99. The strain also spread eastwards.

The new Type O (PA) virus has now been reported in many countries in South-East Asia, including Malaysia, Vietnam, Thailand, Laos and Cambodia. In these countries, both cattle and pigs have been affected, although infection in native cattle has not always been associated with obvious clinical disease. The strain has spread to north and east

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Asia. In 1999 and 2000, countries such as Taiwan, Japan, Republic of Korea, Russian Federation (Siberia) and Mongolia reported outbreaks. Most of these were previously free of FMD, some having been free for many years.

## FMD in northern Asia

### *Taiwan*

Taiwan has experienced two distinct FMD epidemics in recent years. In 1997 there was a large outbreak of the pig adapted Type O virus. In 1999 and 2000 Type O (PA) was reported. The latter was initially detected in yellow (native) cattle on Kinmen Island, which is very close to the Chinese mainland. It was not associated with obvious clinical disease in native cattle. Subsequently, the virus was reported on Taiwan itself, producing typical FMD in dairy cattle and severe disease in goats.

### *Japan*

Outbreaks were reported between 25 March and 11 May. Three outbreaks occurred at Miyazaki in the south of the country and one on the island of Hokkaido some 1500 km to the north. The outbreaks were associated with very mild clinical disease in Japanese black cattle, with the Hokkaido outbreak being recognised only through serological testing undertaken as part of surveillance activity. The suspected source of the outbreaks was imported Chinese wheat straw used as feed.

### *Republic of Korea*

On 27 March 2000, Korea reported a suspected outbreak of FMD, the first since 1934. Over a 3-week period, 15 outbreaks of FMD were reported. These occurred in three provinces — Kyonggi (3), Chungnam (11) and Chungbuk (1). All involved cattle farms. Altogether, six foci of infection were identified. With the exception of Hongsong, where there were 10 outbreaks, there was only one outbreak in each region. Possible sources of introduction include people, contaminated products or equipment from overseas, imported hay, or wind-borne spread of virus.

### *Russia*

Russia had been free from FMD since 1995. On 15 April, an outbreak was reported in the Primorsky Territory (Siberia). Only pigs were affected and the outbreak did not spread — it was in an area close to the border with China where routine buffer vaccination of cattle is undertaken. It is considered that the disease could have been introduced through the port of Vladivostok in contaminated meat products, or via vehicles crossing the border with China.

### *Mongolia*

Mongolia had been free from FMD since 1974. FMD was reported on 28 April in the south of the country. Cattle, sheep, goats and camels were affected, with disease being found in 26 communally grazed herds. The virus isolated was closely related the O/Taiwan/1999 and O/Russia/2000 viruses. The disease was possibly introduced through illegal movements of livestock from across the border with China.

## Lessons for Australia

What are the lessons for Australia? First, during the past few years there has been a substantial increase in FMD activity in the Asian region and the risks to previously free countries have grown. According to the Food and Agriculture Organization of the United Nations (FAO), the underlying cause of the latest pandemic is probably the expanding global trade (both formal and informal) in live animals, meat, animal products and potential fomites (such as animal feeds) without adequate safeguards being implemented to prevent the movement of FMD virus at the same time. Once the virus has been introduced, lack of emergency preparedness (effective contingency planning) in many countries mitigates against early eradication of the disease. Previous freedom from FMD is no guarantee that it will not occur. Australia needs to be aware of the increased risks in the region and maintain its border quarantine and disease surveillance systems.

Second, the experience in countries like Korea has shown that prompt and efficient implementation of appropriate control measures can contain the disease. Australia has developed extensive contingency plans for responding to exotic disease incursions — collectively known as the Australian Veterinary Emergency Plan (AUSVETPLAN) — and regularly evaluates and updates these plans in response to improved knowledge and technical developments. The likely success of control

measures against FMD is considerably enhanced when disease is recognised early and response measures are implemented promptly. Hence it is important that all people working with livestock are aware of the risks and report any suspicious cases to authorities.

Livestock producers and veterinarians should never exclude exotic diseases from the list of differential diagnoses. If you see lesions that might be FMD, don't assume it could not be FMD because it doesn't occur here. FMD virus is quite persistent and highly infectious. It is readily transmitted via infected boots, clothing and other materials. Early detection and response is critical to combat an incursion of any exotic disease. If you suspect an exotic disease, remember you should not leave the farm but immediately telephone the nearest State Government Veterinary Officer or the Disease Watch Hotline (1800 675 888) for further advice.

*Contributed by: Graeme Garner,*
*Office of the Chief Veterinary Officer, AFFA*

*[In July, a simulation exercise on managing an FMD outbreak, with particular reference to zoning, was held in Canberra. This exercise will be reported in the next newsletter.]*

# Australia's BSE-free status

The European Commission (EC) has published a report of its findings from a geographical bovine spongiform encephalopathy (BSE) risk analysis for 23 countries, including Australia. Australia has been assigned the most favourable Level 1 rating (highly unlikely to have BSE), an outcome that is fully consistent with its claims to meet international requirements for a BSE-free country.

The report, which is available on the internet (at http://europa.eu.int/comm/food/index_en.html), is the result of two years investigations by the EC's Scientific Steering Committee, a panel of veterinarians and other scientists. Australia, through Agriculture Fisheries and Forestry – Australia (AFFA) and the Department of Foreign Affairs and Trade (DFAT), provided an extensive technical submission to the Committee, both at the start of the assessment and in response to draft reports. As a result, to the EC assigned Australia the most favourable Level 1 rating in its final assessment.

The BSE crisis has had an enormous impact worldwide on trade, especially in the mid-1990s following the announcement a link could exist between BSE and a variant form of the human disease, Creutzfeldt–Jacob disease. Extensive regulations enacted by the EC and individual Member States has seen the implementation of extensive BSE monitoring and control systems for countries such as Australia that wish to trade with the European Union.

Australia's response to the occurrence of BSE in the United Kingdom was to tighten quarantine measures to prevent the entry and establishment of the disease here. In addition, Australia implemented the National Transmissible Spongiform Encephalopathy Surveillance Program, a structured surveillance program to provide reassurance about our continuing BSE-free status. A ban on feeding ruminant tissues to ruminant animals that was subsequently extended to include specified mammalian materials, provides additional protection against this group of animal diseases. It is most important that all Australian industry sectors actively support and comply with these quarantine, disease surveillance and feeding measures, designed to protect Australia's BSE-free status.

*Contributed by: Andrew Cupit,*
*Australian Quarantine Inspection Service, AFFA*

**Disease Watch Hotline — 1800 675 888**

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

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

# OIE elections

The Office International des Épizooties (OIE), the world organisation for animal health, is one of the oldest international organisations. It was established in 1924 as a result of an emergency meeting in Brussels to consider an outbreak of rinderpest that had the potential to spread rapidly across Europe. OIE has remained an effective international forum for sharing and reporting disease information. It has provided an essential forum for developing trade standards to prevent the transmission of animal diseases and is now recognised by the World Trade Organization (WTO) as its key scientific reference organisation for animal health.

OIE's membership has grown to 155 countries and the International Committee met in May this year to consider its future direction. A new Director General (Dr Bernard Vallat from France), a new President (Dr Romano Marabelli from Italy), and a new board of management were elected by secret ballot. All of the specialist commissions have new elected members for the next three years. A new strategic plan for 2001–2004 was endorsed, and includes a major review of how the organisation delivers services in the areas of:

- international disease information;
- guidance on the disease prevention, control and eradication of animal (including aquatic animal and wildlife) diseases and zoonoses;
- development of scientific standards; and
- coordination of animal health research.

OIE has recognised the need to strengthen partnerships with other international organisations working in animal production, animal health and veterinary public health. Such organisations include the United Nation's Codex Alimentarius, the Food and Agriculture Organization of the United Nations, the International Standards Organization, the World Health Organization, and WTO.

OIE will develop a stronger focus on veterinary public health in areas such as zoonoses, in recognition of the food continuum and OIE's skills relating to disease associated with animal production. It will establish a working group to look at the scientific aspects of animal welfare and the feasibility of developing animal welfare standards for international trade.

New approaches include strengthening the role of the five regional commissions. This is in recognition of the unique needs and opportunities of specific regions. Australia's Chief Veterinary Officer, Gardner Murray, was elected President of the Regional Commission for Asia, the Far East and Oceania for the next three years. It is anticipated that there will be a strong focus on the control of foot-and-mouth disease within the region.

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

# Aquatic animal health

## Aquatic animal diseases field guide

*Australian Aquatic Animal Diseases Indentification Field Guide* was released in March to raise public awareness of the importance of aquatic animal disease management. It provides an account of the diseases and organisms that threaten Australia's aquatic animal industries and on how these could affect us if they were to occur here. Its audience is veterinarians, aquaculture and seafood processors, as well as recreational and commercial fishers.

Copies of the 92-page full colour booklet can be obtained from the AFFA Shopfront for $13.20 plus $4.40 (P&H) — phone: 1800 020 157, or e-mail: shopfront@affa.gov.au. A descriptive flyer is on the internet (at http://www.affa.gov.au/nat-offices/aquatic).

## Third AQUAPLAN workshop

Stakeholders from industry, State/Territory and Commonwealth governments gathered in Canberra recently for the Third AQUAPLAN Workshop, convened by Australia's Fish Health Management Committee (FHMC). AQUAPLAN is Australia's National Strategic Plan (1998–2003) for aquatic animal health. This year's workshop had extended industry representation with representatives of the five major aquaculture industries (tuna, pearl, salmon, prawn and oyster), the recreational fishing and the ornamental fish industries. In addition, umbrella organisations including the National Aquaculture Council, the Australian Seafood Industry Council, and the Fisheries Research and Development Corporation participated. Over the

two days, participants reviewed the progress of work conducted under each of AQUAPLAN's eight programs and identified priority work areas for the forthcoming year.

A particular emphasis was placed on the issue of future provision of resources for aquatic animal health issues. A discussion paper was tabled that explored a range of options including aquaculture industries joining Animal Health Australia, establishing a separate aquaculture-specific body, and other models of organisation.

The Commonwealth Government has committed an extra $3.4 million over four years to aquatic animal health, specifically to target disease prevention, raise awareness, and improve Australia's ability to respond to emergencies. The funds are to be managed by external organisations with a view to coordinating the interests of industry and Government. In the absence of an industry–government body, funding will initially be managed by FHMC. A small, joint industry/government AQUAPLAN Business Group will advise FHMC on priority areas.

Part of these funds will be used for a consultancy to examine resource and funding options in more detail. The form, nature and cost (including membership fees) of any possible joint industry/government management structure, its potential membership and stakeholders need to be defined. Feasibility studies on either joining an existing body or creating a new joint body need to be conducted. The consultancy must identify industries' needs, such as surveillance and monitoring programs, and the cost of such programs.

## Simulation exercise in Tasmania

Staff from the Office of the Chief Veterinary Officer conducted a simulation exercise in emergency preparedness and response in Tasmania with State government staff and members of the salmon industry. Tasmania has had the Tasmanian Fish Health Emergency Management Plan in place for a number of years. The exercise reviewed the response to recent emergency disease incidents and compared this to the response outlined in this document to identify possible areas for improvement in the plan. The exercise highlighted the need for continual highlevel communication between all those involved in the emergency response across the entire spectrum of industry, umbrella organisations, and State/Territory and Commonwealth governments.

## OIE disease reports

Australia provides quarterly reports on its aquatic animal health status to the OIE Regional Office for Asia and the Pacific (at http://www.oie-jp.org/). These reports contain information on the monthly status of 18 diseases of finfish, molluscs and crustaceans, plus information on serious disease events caused by non-listed diseases or diseases of an unknown aetiology. The latest quarterly report (Jan–Mar 2000) is available on the internet (at www.affa.gov.au/nat-offices/aquatic/index.html).

## Disease incidents

*Aeromonas salmonicida*

In January, a disease outbreak associated with an atypical strain of *Aeromonas salmonicida* (named biovar *acheron*) occurred in one cage of Atlantic salmon in Macquarie Harbour, Tasmania. The affected fish were residual runts from the hatchery. The affected fish were voluntarily destroyed and remaining fish on site were treated with antibiotics. There has been no recurrence of the disease. Bacterial characterisation suggested a strain different to previous known isolates.

Monodon neuropathy and retinopathy

A syndrome temporarily designated ganglioneuritis syndrome but now designated monodon neuropathy and retinopathy (MNR), which occurred in NSW in the second quarter of 1999, recurred on the same prawn (*Penaeus monodon*) farm. As before, MNR was associated with minor-to-major losses (up to 50% mortality rates) in affected ponds on the farm. Major histological lesions were again confined to the nervous system, principally peripheral nerves and eyes. Transmission electron microscopy showed moderate-to-large numbers of intracytoplasmic rod-shaped viral particles, morphologically consistent with gill-associated virus (GAV) nucleocapsids and virions, in cells in the antennal nerve, fasciculated zone of the eye, and in the antennule. It is therefore likely that GAV is the infectious agent of MNR. Results of initial transmission trials were inconclusive; repeat trials are currently in progress. In addition, epidemiological data collected during the outbreaks are being analysed to identify risk factors.

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

# National Arbovirus Monitoring Program

This report of the National Arbovirus Monitoring Program (NAMP) covers activity during the period October 1999 – March 2000.

## Akabane virus

In the Northern Territory (NT), Akabane virus was widespread with sentinel cattle in six herds in the northern half of the Territory seroconverting during the last quarter of 1999. In the following quarter, activity was far more limited.

In Queensland during the last quarter of 1999, Akabane viral activity was widespread in the southern half of the State, but no sentinel cattle in the northern half seroconverted. In the following quarter, sentinel animals at Townsville, central Queensland, and south to Warwick and Goondiwindi, where bluetongue activity is normally absent, were infected with Akabane virus.

Sentinel animals on the north coast of New South Wales (NSW) as far south as Camden were infected during the first quarter of 2000, but none seroconverted in the previous quarter. There were no reports of sentinel cattle being infected with Akabane virus elsewhere in the country during the period.

## Bluetongue virus

Bluetongue viral activity was limited to the Top End of the NT during the period. In the last quarter of 1999, only one sentinel herd seroconverted — at Katherine in December. In the first quarter of 2000, the Katherine herd continued to seroconvert, and viral activity was detected in sentinel cattle in two herds further north.

Similarly, in Queensland there was very restricted viral activity in the last quarter of 1999, with infection being detected only in the central coast of the State, in November. During the following quarter there was strong activity in a broad band of central and southern Queensland, extending west to Roma, which is the first detection of the virus at this site since monitoring began.

There were no reports of sentinel cattle being infected with bluetongue virus elsewhere in the country during the period.

## Bovine ephemeral fever

Bovine ephemeral fever (BEF) activity was widespread in the northern half of the NT during the last quarter of 1999. In the following quarter, sentinel cattle seroconverted, and there were numerous clinical cases in commercial herds.

In Queensland during the last quarter of 1999, BEF viral activity was restricted to central coast sentinel herds. The distribution increased in the following quarter to central and southern inland areas and the coast.

There were no reports of sentinel cattle being infected with BEF virus elsewhere in the country during the period. There was a mild BEF-like disease on the far north coast of NSW in early 2000, but there was no serological evidence of BEF virus in affected cattle or nearby sentinel herds.

## Vector trapping

During the last quarter of 1999, *Culicoides brevitarsis* and *C. wadai* were identified from trap collections from the far north of Western Australia. All four *Culicoides* species regarded as vectors of bluetongue virus (*C. actoni*, *C. brevitarsis*. *C. fulvus* and *C. wadai)* were trapped in the Top End of the NT. Of the sites monitored in the eastern half of Queensland during the quarter, only Longreach and Charleville remained bluetongue-vector free. In NSW, small numbers of *C. brevitarsis* were trapped on the mid north coast.

In the first quarter of 2000, vector numbers were high and widely distributed in the Top End of the NT, following high monsoonal rainfall. In Queensland, *C. brevitarsis* was more widely distributed than usual, probably because of the preceding mild, wet winter. Seasonal conditions affected the activity of *C. brevitarsis* in NSW. The cool, wet start to summer was followed by warm, very wet weather, and the numbers of midges to the end of March were low compared with other years. A single record of *C. wadai* at Belligen in March is the most southerly record of this species. Vectors of bluetongue and Akabane viruses were not trapped in southern States during the period.

*Contributed by: Geoff Gard,*
*Commonwealth NAMP Coordinator*

# Animal Health Australia

## Animal Health Australia restructure

Animal Health Australia has changed the management of its core activities by creating three program areas and establishing a Program Advisory Committee for each. Independent chairs have been appointed to oversee these Committees, which will provide feedback to the Board on the strategic direction, as well as assisting the management, of each area. The three program areas, with the Committee Chair, are:

- Animal Health Services — Professor Mal Nairn;
- Animal Disease Surveillance — Mr Jim Miller; and
- Emergency Animal Disease Preparedness — Mr Alan Hodges.

The Animal Health Services program will initiate projects in the areas of national field and laboratory systems, and skills maintenance in veterinary and laboratory sectors. It will include the Accreditation Program for Australian Veterinarians.

The Animal Disease Surveillance Program consolidates surveillance programs including the National Animal Health Information System (NAHIS), the National Arbovirus Monitoring Program (NAMP), and the National Transmissible Spongiform Encephalopathy Surveillance Program (NTSESP).

The current Emergency Animal Disease Preparedness Program remains a major component of Animal health Australia's core activities.

John Kerin has accepted the role as Chair of the National Ovine Johne's Disease Control and Evaluation Program Advisory Committee.

## Animal Health in Australia conference

Animal Health Australia, in conjunction with the Department of Agriculture, Fisheries and Forestry and the National Farmers' Federation, will be staging the *Animal Health in Australia — Securing our Future* conference to be held on 2–3 November 2000 in Canberra.

The conference will discuss opportunities and threats to Australia's livestock industries in the area of animal health and explore options to ensure Australia retains its excellent animal health status. Registration forms will be distributed soon. They will also be available on Animal Health Australia's website (http://www.aahc.com.au) or by contacting Ms Doreen Culliver, Australian Veterinary Association Conference Organising Committee on phone 02 6273 8855, fax: 02 6273 8899 or email: avacos@ava.com.au.

*Contact: Michael Parolin,*
*Communications Manager, Animal Health Australia*

# Restrictions on endosulfan use

Following a review by the Board of the National Registration Authority for Agricultural and Veterinary Chemicals (NRA) in June, the registration of ultra-low-volume (ULV) formulations of endosulfan were suspended and strict conditions imposed on the use of remaining stocks.

The decision was based on evidence that unpredictable instances of long-distance spray drift from ULV applications could cause residues in cattle. (The endosulfan monitoring program was described in *AHSQ* Vol. 5, No. 1.) This can occur despite the more stringent rules for ULV endosulfan use introduced for the 1999–2000 season in response to previous residues detected in beef. The NRA Board was not satisfied that the possible risk to the viability of Australia's international beef trade from continued use of ULV endosulfan was acceptable.

Under the new rules, the registration of ULV formulations of endosulfan is suspended and current stocks will be phased out during next season. These existing stocks can only be used with the additional restrictions that:

- the protective downwind buffer zone is doubled from the current 1500 metres to 3000 metres; and
- the maximum allowed rotational speed of atomisers, which dispense ULV endosulfan, is reduced from the current 4000 rpm to 2000 rpm.

These new rules apply to ULV endosulfan used on all crops, not just cotton. The registration of ULV endosulfan products will not be resumed unless NRA can be satisfied that they do not pose an unacceptable risk.

*Contact: David Loschke, NRA, 02 6272 5396*

# The Australian Johne's Disease Program

## Zoning — movements between zones

In late 1999 and early 2000, Veterinary Committee reviewed interzone movement requirements for cattle and other species considered susceptible to bovine Johne's disease (BJD). It was felt that restrictions on trade should be the minimum necessary to maintain disease control. Veterinary Committee agreed in May on the following time frames for phasing out testing of animals that are moved in favour of requiring some form of herd assessment

The requirements for movement (Restricted Zone to Control Zone, Control Zone to Protected Zone) until 30 June 2000 allowed for movement tests of individual animals from a non-assessed (NA) herd. This was recommended to be discontinued. From 1 July 2000 to 31 March 2001 the recommended minimum requirements will be:

- Check Tested herd; or
- Monitored Negative herd (CattleMAP); or
- MAP-equivalent herd test within the previous 12 months.

The conditions after 1 April 2001 will depend on a review of movement requirements that will be undertaken with particular reference to the ongoing use of Check Testing.

Current exemptions for movement of certain classes of cattle (e.g. store and finisher cattle) between zones will continue, but it is proposed that a small working group will review these late in 2000.

Queensland and the Northern Territory introduced Check Testing as the minimum standard for breeding cattle on 1 July. NSW and South Australia will introduce the same standard for entry to their Protected Zones on 1 September 2000.

The minimum standard for movement from a Residual Zone to a Protected Zone is MN1 or testing to MAP standard within the previous 12 months.

## Tasmanian beef herd testing

To make decisions on any future control program for BJD in Tasmania, a survey to determine the likely prevalence of infection in the beef industry was undertaken as part of the National BJD Evaluation program. Most of Tasmania's beef breeding herd is located in regions geographically removed from the dairy industry, which is believed to have a higher prevalence of JD. Producers who sold cattle at the major Tasmanian autumn calf sales were encouraged to participate. Although it was voluntary, this ensured that the main sources of breeding stock within the State were sampled.

Cattle producers who regularly offer calves for sale in autumn own approximately 65% of the State's beef cows. These herds are the major source of commercial breeding stock. Approximately 32% of the total breeding herd was surveyed and about 20% of herds with more than 100 head were sampled in the project.

Overall, 254 herds were Check Tested and 42 herds were Sample Tested to CattleMAP standard. Only 14 ELISA reactors were detected among the 19 300 cattle tested and one infected herd (and three infected cattle) were identified. Although the herd level sensitivity of Check Testing is modest, the results are encouraging for the Tasmanian industry.

*Contributed by: David Kennedy and Bruce Allworth, Animal Health Australia's JD Coordinators*

*Further information on the Tasmanian BJD survey may be obtained from:*

*Rick Campbell, Devonport, 03 6421 7644, Rick.Campbell@dpiwe.tas.gov.au or*
*Brett de Hayr, Launceston, 03 6331 6377, tfga.box3@tassie.net.au.*

**NAHIS web site**

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

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

# Porcine circovirus study

Two emerging pig diseases first recognised in the Northern Hemisphere in the 1990s are causing increasing concern to national pig industries world wide. The diseases, which can occur together or separately, are postweaning multisystemic wasting syndrome (PMWS) and porcine dermatitis and nephropathy syndrome (PDNS). Each disease appears to have a poorly understood, multifactorial aetiology. Porcine circovirus type 2 (PCV-2) is implicated in each, but the virus is widely distributed, often in the absence of the diseases. The related virus PCV-1 has not been associated with disease.

A project being conducted at Murdoch University by Drs R Buddle and G Wilcox, and funded by the Pig Research and Development Corporation, aims at assessing the PCV status of the Australian pig herd. Preliminary serological results, using a PCV serogroup test, indicate that a PCV is present in at least three Australian States. Type-specific tests are required to determine whether this antibody is the result of infection with PCV-1 or PCV-2. Sera collected as part of this survey will be retained in a national pig serum bank, which will be maintained at Murdoch University for the next few years. Investigations are continuing, and limited studies to date have identified a PCV-2-like strain possessing 97% homology to the French and Canadian strains from one property. A more extensive national survey is about to begin. Future research aims at:

- developing improved tests for PCV;
- determining the prevalence of PCV in the Australian pig herd;
- determining the types of PCV present; and
- determining the status of Australian pigs for PMWS and PDNS.

*Contributed by: Ross Buddle, Murdoch University*

# Disease preparedness

## AUSVETPLAN

A revised version on the AUSVETPLAN strategy for Newcastle disease has been released. The new version updates some key references, including the chapter on the OIE's International Animal Health Code on Newcastle Disease. This update, along with other AUSVETPLAN documents, can be found on the internet (at http://www.aahc.com.au/ausvetplan/index.htm). A further major revision of the manual is planned after the AUSVETPLAN Editorial Committee reviews the response to virulent Newcastle disease in New South Wales.

## New response policies developed

Animal Health Australia, with the assistance of Chief Veterinary Officers and the AUSVETPLAN Editorial Committee, is drafting response policies for all exotic animal diseases that have no AUSVETPLAN disease strategy in place, but that are included in the proposed cost-sharing agreement between government and industry for funding eradication efforts.

Each of the 28 diseases that fall into this category now has a draft Response Policy Brief — a 'one–pager' — detailing the causative agent, host organisms, distribution and method of spread of the disease. Taking these and other relevant issues into account, an action plan was formulated for the management of each disease should an outbreak occur in Australia. The next step will be consultation with livestock industries and the public health sector on the adequacy of the plans. It is expected that full AUSVETPLAN manuals will be developed for a few of the most serious diseases.

## Carcase disposal: a burning issue?

The next version of the AUSVETPLAN manual dealing with disposal and destruction of animal carcases in emergency disease management will be revised with a greater awareness of air and water quality, and environmental protection in general. Chris Bunn (AUSVETPLAN Editorial Committee Chair), Dick Jane (NSW), John Galvin (Vic.) and David MacKenzie (EPA, Vic.) recently attended an international conference addressing alternative methods of animal disposal. The conference recognised that because of increasing ethical, social and environmental concerns, alternative methods for handling disease issues must be explored.

As always, it is best to prevent disease outbreaks wherever possible, but a critical factor is preparedness — readiness with the technology and means to dispose of animals, or introduce other methods such as vaccination while protecting human and environmental health. A national forum is planned for next year to bring together stakeholders from government and industry, environmental and agricultural sectors, to progress planning approval.

### Wildlife health network

*AHSQ* Vol. 4, No. 4 reported on the outcomes from a workshop looking at the development of a wildlife health network. Through support from NSW Agriculture and funding received from the Wildlife Exotic Diseases Preparedness Program, a project officer, Ms Hedy Bryant (02 6391 3882), has been appointed to develop the proposal. Her main activities will be to:

- review existing wildlife disease preparedness and diagnostic arrangements in Australia and overseas;
- determine scope of activities required to improve preparedness to deal with wildlife disease in Australia;
- develop possible organisational models for an Australian Wildlife Health network or centre and provide recommendations for the most appropriate structure and functions (business plan); and
- include a cost for each model and investigate possible sources of funding for various options.

*Contributed by: Chris Bunn,*
*Office of the Chief Veterinary Officer, AFFA*

## Australian Registry of Wildlife Pathology

The Australian Registry of Wildlife Pathology was established at Taronga Zoo in 1985 to develop a collection of information and materials relating to healthy and diseased native fauna and zoo animals. Funding for the registry is provided by the Zoological Parks Board of NSW with assistance from corporate sponsors. Since 1985 the Registry has become a significant national and international resource in understanding the health of Australian ecosystems. Registry materials are continually being used by private, government and university veterinarians and biologists as a source of reference for understanding and control of outbreaks of disease. In addition, its extensive collection of normal tissues is invaluable for researchers in native fauna.

Materials from more than 12 000 wildlife pathology cases have been archived in the Registry, which maintains approximately 35 000 glass slides, 21 000 wax tissue blocks and 3 000 colour transparencies. Additional materials contained within the Registry include scanning and transmission electron micrographs, tissues in formalin, written case reports, and a large number of relevant publications. Materials recently contributed to the Registry are now retrievable using a computerised archival system. The system will allow rapid access and electronic communication of information lodged within the Registry, as well as provide a means for data analysis. Access to Registry materials is free to those interested in the study of wildlife health.

The objectives of the Registry include:

- diagnostic pathology services for Taronga Zoo, Western Plains Zoo, National Parks and Wildlife Service, species recovery programs, researchers and wildlife rehabilitators;
- providing advice and expertise on diseases affecting free-living and captive wildlife in Australia to support species conservation and research endeavours;
- archiving materials and information on wildlife diseases for future reference and research;
- disseminating information regarding wildlife health through scientific articles, presentations at conferences, newsletters, and wildlife pathology workshops; and
- providing a window into ecosystem health.

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*web: http://www.wha.org.au/pages/Tprhome.html*

# Fish biotoxin reviews

Food safety remains an important area of work for Australian and overseas veterinary agencies. As part of a watching brief on food safety issues related to natural toxins, the Office of the Chief Veterinary Officer has recently completed major scientific reviews on ciguatera and histamine fish poisoning, and paralytic shellfish poisoning (PSP). These are available on the internet (at http://www.affa.gov.au/nat-offices/ocvo/pubs).

Ciguatera, which occurs in Australia every year, is the most important form of human seafood poisoning. Gastrointestinal, neurological and cardiovascular disturbances begin shortly after eating tropical and sub-tropical fish that look, taste and smell normal, but contain ciguatoxins. These toxins are derived from marine microalgae (*Gambierdiscus toxicus*) indirectly, via the food chain. The toxins are cumulative, and clinical signs and symptoms can last for months or even years. Various tests are available to detect ciguatoxins in fish, but are too expensive for routine preventive screening of individual fish. Ciguatera fish poisoning imposes considerable economic strains on fisheries and tourism, particularly in island economies.

Histamine (or scombroid) fish poisoning is another common form of seafood poisoning. It occurs when contaminating bacteria produce histamine and other tissue breakdown products in spoiling fish of particular species, such as mackerel and tuna. The result is an allergic-like reaction, which can be treated successfully with antihistaminic drugs. Histamine food poisoning is a mild disease, but is important in relation to food safety and international trade.

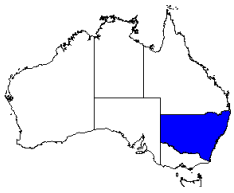
There have been no documented cases of PSP in the Australian medical literature, but this serious neurological illness is a potential threat. Recovery is usually complete, but in severe cases there may be respiratory paralysis and death. Most cases follow consumption of shellfish that have ingested, by filter feeding, large quantities of toxic microalgae containing saxitoxins. Microalgae capable of causing PSP have been recorded in all States of Australia, and major toxic blooms have occurred in Tasmania, Victoria and South Australia. Monitoring and control programs greatly reduce the risk of contracting PSP through consumption of commercially grown shellfish in Australia, but recreational shellfish harvesting may at times be hazardous.

*Contact: Leigh Lehane, 02 6272 4697,*
*Office of the Chief Veterinary Officer, AFFA*

# State and Territory reports

## New South Wales

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



### Newcastle disease

Surveillance programs to confirm the absence of virulent Newcastle disease virus on the depopulated and sanitised farms in the Moonbi area began in June. Serology on all three farms indicates that decontamination was successful. Private practitioners will be providing recommendations to the program on whether these properties should be released from quarantine.

### Ovine brucellosis diagnosed in ewes

Ovine brucellosis has been diagnosed in ewes in the Central Tablelands and Wagga Wagga Rural Lands Protection Boards after insemination with semen from a ram imported from Western Australia. The ram had a *Brucella ovis* complement fixation test (CFT) titre of 8 and was semen culture positive for *B ovis*. CFT reactions in the ewes included titres of 8, 16 and 32. Investigations are continuing.

### Buffalo fly

In mid-March, the cattle pest buffalo fly was confirmed on a property close to Narrabri. Buffalo fly are a yearly problem at Goondiwindi and Kempsey, but are generally not seen at Narrabri. By mid-May, 24 properties centring on Narrabri had reported the presence of buffalo fly on their cattle. However, by the end of May the cold frosty weather brought reports of the disappearance of the flies. These properties will be visited in September this year and throughout spring and summer as part of a surveillance program to monitor the possibility of over-wintering by the buffalo fly.

### Bovine ephemeral fever

The Hunter district had a major outbreak of bovine ephemeral fever in April and June with more mortalities than usual. The disease first appeared in the Singleton district before spreading north to Scone and east to Maitland. It was also confirmed serologically at Raleigh.

### Akabane

Akabane viral infection has occurred further west than usual this year, affecting naive pregnant cows. The congenitally affected calves have had arthrogryposis and craniofacial abnormalities. Abortion, stillbirth and arthrogryposis have occurred in cattle at Barraba, Oodnadatta, Lismore and Coonamble during the quarter.

### Horse abortions

Eight of 14 mares on a property near Port Macquarie have aborted at between 7 and 9 months pregnancy. The first horse aborted in early May and the most recent abortion occurred at the end of July. No infectious or toxicological cause was readily apparent.

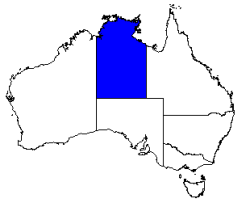
Five aborted foetuses were submitted for laboratory investigation. Of those investigated to date, no consistent pattern has emerged. Equine herpes virus and equine infectious anaemia have been excluded as causes and, although leptospiral antibody titres have been demonstrated in the mares, their significance is unclear.

The horses are fed proprietary feed, chaff and hay. The ration is being tested for ergot contamination. Concern has been expressed at feeding the proprietary feed above the rate recommended on the label. Excess lactic acid in the gut may lead to increased permeability to endotoxins. Investigations are continuing into this perplexing problem.

### Ovine Johne's disease surveillance

Since 1980, 524 infected flocks have been identified in NSW, with 453 (1.4% of the State's flocks) still having an infected status, two-thirds of which are in the Residual Zone. About 8% (305 of 3988) of flocks in the Residual Zone are known to be infected, compared to about 0.5% (148 of 27 887) in the Control Zone. One new infected flock was reported during the month.

## Northern Territory



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

### Horses

Strangles was reported from several locations late in the quarter. A horse on a station in the Darwin region had clinical signs consistent with strangles, and subsequent culture of nasal swabs confirmed *Streptococcus equi* subspecies *equi*. A group of 12 rodeo buckjumpers showed symptoms of strangles. Swabs were taken from abscessed lymph nodes and the presence of *S. equi* subsp. *equi* was again confirmed.

### Cattle

The sudden death of 21 weaners was investigated on a property in the Gulf region. History, clinical signs described by the manager, and gross pathology were all consistent with fierce thornapple (*Datura ferox*) poisoning. The weaners had been held in yards infested with the plant for four days before the losses began. *Datura* species contain tropane alkaloids, and poisoning can affect cattle, horses, sheep, goats, pigs and poultry.

Cattle losses on a Tennant Creek region station were investigated. Numerous stiff and lame cattle, recumbent cattle, and cattle showing full recovery indicated three day sickness (bovine ephemeral fever, BEF) was a major problem at the time. A few steers had been recumbent for over a week, and post mortem examination confirmed BEF. It would appear that this was the southerly continuation of the BEF outbreak observed in the Top End last quarter, due to the large and prolonged wet season.

### Aquaculture

A shipment of juvenile barramundi being held in quarantine at the Darwin Aquaculture Centre (DAC) from interstate had to be euthanased because *Streptococcus iniae* was cultured from the water in which they were transported. This was one of the organisms pinpointed in a risk analysis (the other was nodavirus) as being important not to import into NT waters. Water from the DAC hatchery was cultured and shown to be free of these bacteria, as were brains from several fish at the hatchery. Evidence so far indicates that *S. iniae* is not present in NT waters.

### Poultry

Forty 16-week-old chickens, purchased by a station in the Tennant Creek region, contracted severe respiratory disease within a week of arrival. Ten died and the remainder showed respiratory distress. Post mortem examinations done on the property and at Berrimah Veterinary Laboratories (BVL) showed large amounts of caseous material in the infraorbital sinuses, nares and conjunctival sacs, and enlarged caeca with haemorrhagic caecal cores. Histology showed severe coccidiosis. Mixed bacteria were cultured from the sinuses, including *Pasteurella gallinarum*. Viral isolation on tracheal swabs and sinus mucosa was negative. The cause of the deaths would appear to be multifactorial, including coccidiosis and bacterial infection, exacerbated by the stresses of transport and new accommodation. Exotic diseases were ruled out in the course of the investigation.

Marek's disease caused 800 deaths in 5000 pullets at a commercial poultry farm. The birds showed leg weakness, paralysis and emaciation. Seventeen birds (in three age groups) showing signs of Marek's disease, were submitted to BVL.

Botulism caused sudden death in 500 poultry in a shed of 5000 birds at a commercial farm. Six live birds submitted to BVL exhibited flaccid paralysis, but there were no significant gross or histological changes. Type C botulism was confirmed.

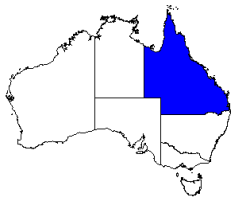
### Macropods

Viruses were isolated from two red kangaroos from the Alice Springs area and an agile wallaby from the Darwin area. Histopathology on a red kangaroo showed acute lesions consistent with vascular damage. Similar lesions were seen in a nail-tail wallaby from Darwin, but virus was not isolated from this case. Two orbiviruses were identified — a virus in the Eubenangee group from the agile wallaby, and a virus in the Wongorr group from both red kangaroos.

### Bees

Hives have been established for the AQIS Ports Surveillance Program for exotic mite incursion. There are two hives in Darwin near the Darwin Port, two near the East Arm Port (on the outskirts of Darwin), and two in Gove (on the north-east tip of the NT).

## Queensland



*Contributed by:*
*Janet Berry*
*Queensland DPI*

### Botulism

An outbreak of botulism in a dairy herd in the Monto shire resulted in significant mortalities. Approximately 70 of the 130 lactating cows died and up to 20 others showed mild paresis or ataxia but subsequently recovered. However, these clinically affected cows could not be milked and were dried off because they would fall down or were unsteady during milking. Some calves that had been fed the same feed as the cows were also affected. No botulinum toxin was isolated from feed sources or clinically affected cows. The diet, a silage-based total mixed ration, was completely changed as soon as botulism was suspected, and the cattle were vaccinated against botulism. However, new cases continued to occur for up to two weeks when a second vaccination was given.

### Equine infectious anaemia

Several properties in south-west Queensland have had horses tested for equine infectious anaemia (EIA). A history of sporadic horse mortalities on a property prompted the testing of all horses both there and on another property that used the same horse drenching equipment. One horse out of a total of 42 tested was positive for EIA on the Coggins agar gel immunodiffusion test. Horses have been tested from two other properties. On one property near Windorah, four of the nine tested were positive and on a property near Eulo one of 15 was positive. The owners are all keen to attempt eradication of the disease and further testing is planned to find further animals that may have seroconverted during the wet season. The prevalence of EIA in brumbies (feral horses) will also be ascertained.

### Poultry deaths

Newcastle disease (ND) and avian influenza (AI) were suspected during the investigation of respiratory distress, diarrhoea, depression and weight loss in poultry in south-east Queensland. Thirty birds died from a group of 200. Autopsies showed proventricular haemorrhage, inflamed and thickened air sacs, splenomegaly, pale mottled

livers, haemorrhages in a leg joint in one bird, and a large pancreatic mass in another. Lesions of Marek's disease were identified histologically and moderate coccidial burdens were detected. Samples were sent to the Australian Animal Health Laboratory and proved serologically and culturally negative for ND and AI.

### Infectious pustular vulvovaginitis

Following the introduction of a 2-year-old bull into a Friesian dairy herd in southern Queensland, numerous cows in a group of 45 developed a purulent and erosive vulvovaginitis. The bull was found to have balanoposthitis. Bovine herpesvirus 1 (BHV1) was isolated from the vagina of five of eight cows sampled and the semen and prepuce of the bull. Infectious pustular vulvovaginitis and balanoposthitis were diagnosed.

### Benign footrot in a goat

Benign footrot was diagnosed in a 10-month-old male Boer goat from a property at Conondale. The goat had recurrent shifting lameness due to footrot, which affected all feet at different times. There was necrosis with underrunning of the horn in the affected hooves. Only one other goat was present on the property and it was normal. Smears of exudate from the lesions were considered suspect for *Dichelobacter nodosus*. Gel-unstable *D. nodosus* was isolated from swabs of the lesions confirming a diagnosis of benign footrot.

### Melioidosis

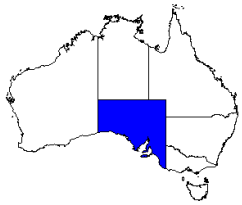
*Pseudomonas pseudomallei* was isolated from a lymph node and splenic abscess found at slaughter in a pig originating from Gayndah. The piggery had a previous detection in January 2000. In the north of the State, goats on two separate properties were serologically positive for melioidosis. A male 11-month-old Boer goat showing lameness and diarrhoea had *P. pseudmallei* isolated from a swelling below the right ear. The second case was a 5-month-old female goat showing lameness. *P. pseudomallei* was isolated from joint fluid.

A three-year-old camel in Townsville belonging to a group of ten animals was serologically positive for *P. pseudomallei*. It showed chronic weight loss, anaemia and a mild cough. The camel, which was treated with anthelmintics three times, has survived.

### Ovine Johne's disease surveillance

As part of a national project to evaluate pooled faecal culture as a diagnostic method for use in the National Ovine Johne's Disease Market Assurance Program, samples are being collected from 30 flocks in the south and west of Queensland where the sheep population is highest. A total of 200 pooled samples, each containing one faecal pellet from each of 50 sheep, will be collected. Toowoomba Veterinary Laboratory will process the samples.

## South Australia



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

### Copper poisoning in sheep

High mortality occurred among sheep being used for antibody production. Pathological investigation indicated possible copper poisoning and this was confirmed by both tissue analysis of dead animals and serology of live animals. It is suspected that the sheep that died may have come from country with a low copper level before being placed on high quality lush pasture.

### Photosensitisation in cattle

Severe photosensitisation was seen in a number of herds in the south-east of the State, generally associated with liver pathology. Similar incidents have been seen for a number of years. The area is considered high rainfall and has seasonal conditions that would allow pathogens like *Pithomyces* to proliferate. This organism is usually found in spring, but this year, with the extended warm autumn, conditions would have been suitable for its growth.

### ILT in meat chickens

For over six months there had been no cases of infectious laryngotracheitis (ILT) reported in a large meat chicken complex. However, a recrudescence of ILT occurred after one growing cycle had gone through without vaccination or disease. Although it holds the disease, vaccination itself is usually associated with a mortality of 1% or more.

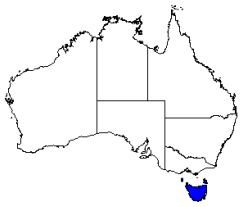
### Mass mortality in marron

Young marron were walking out of their ponds and dying in large numbers. Nothing abnormal was seen grossly or histologically. Cypermethrin had been sprayed within the vicinity but tissue testing failed to reveal synthetic pyrethroids or organophosphates.

### Ulcers in Murray cod fingerlings

Murray cod young were presented with varying degrees of skin ulceration extending into underlying tissues. Fungal elements were seen histologically and the syndrome was considered identical to epizootic ulcerative disease. Nothing grew on special media and the samples have been sent to overseas laboratories for further diagnostic testing.

## Tasmania



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

### Notifiable Diseases

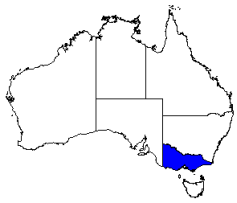
The number of accessions during the quarter, and the results, for suspected notifiable diseases are summarised in the following table:

| Disease<br>Species | Animals Tested | Accessions Number | Positive |
|---|---|---|---|
| **Hydatids** | | | |
| Bovine | 6 | 6 | 3 |
| Ovine | 5 | 4 | 2 |
| **Salmonellosis** | | | |
| Bovine | 26 | 21 | 3 |
| Porcine | 7 | 2 | 0 |
| Ovine | 12 | 6 | 0 |
| Caprine | 3 | 1 | 1 |
| Wildlife | 3 | 3 | 0 |
| ***Listeria monocytogenes*** | | | |
| Bovine | 1 | 1 | 1 |
| **American foulbrood** | | | |
| Honey Bee | 1 | 1 | 1 |
| **Q Fever** | | | |
| Ovine | 2 | 1 | 0 |
| **Leptospirosis** | | | |
| Bovine | 4 | 4 | 2 |
| Canine | 2 | 2 | 0 |
| Human | 20 | 20 | 0 |
| Porcine | 8 | 2 | 2 |
| ***Lactococcus garviae*** | | | |
| Piscine | 2 | 2 | 2 |

### Detection of Cattle Ticks

Ticks found on horses returning from an endurance ride in Queensland were identified as *Boophilus microplus*. These horses had been treated under supervision at the border crossing from Queensland into New South Wales. However, it is likely that the horses were re-infected from untreated horse rugs. Cattle ticks are unlikely to survive in Tasmania during winter. Tasmanian competitors in the endurance ride were contacted, asked to treat their horses and equipment, and advised to keep their horses away from cattle until after treatment.

## Victoria



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

### Sporadic outbreaks of endemic disease

Outbreaks, some severe, of strangles in horses, grass tetany in beef cattle, haemonchosis in sheep, and post-parturient haemoglobinuria in dairy cattle were reported this quarter.

### Syndromes of unknown aetiology

Syndromes of liver damage in cattle and retinal blindness in sheep were recognised in some districts of western Victoria. Common causes have been excluded and laboratory investigations are continuing.

### Dicoumarol poisoning in dairy cattle

Dicoumarol poisoning, akin to mouldy sweet clover poisoning, is suspected in the deaths of 11 yearlings and three cows from one property in south-western Victoria. Clinically, the animals were lethargic and suffering from anaemia. Some had swollen lower limb joints. Some had died suddenly while others had died over a few days. Autopsy revealed severe haemorrhage into tissues, particularly the retro-peritoneal space. Prothrombin and partial thromboplastin times were both prolonged. Dicoumarol was detected in the blood of two affected heifers. Silage consisting predominantly of sweet vernal grass is currently being tested for dicoumarol levels. Toxic levels of dicoumarol in the silage are suspected to have caused the coagulopathy.

### Johne's disease in deer

Following the confirmed diagnosis of bovine Johne's disease (BJD) infection in a deer herd in Victoria, abattoir specimens were taken from 54 cull hinds of varying ages and histories from the property. The specimens taken were whole blood, gut and mesenteric lymph nodes, and faeces. Gross abnormalities, in most cases enlarged lymph nodes, were noted in eight animals at slaughter. Histopathology on samples from these eight animals found one showing signs consistent with JD, two suggestive of JD, and the other five negative.

All serum samples were negative to the OJD AGID test, and the JD CFT test. A modified form of the JD ELISA was also done using an end-point determined as for cattle. Six deer tested positive using this test, including all three of the animals that showed significant histology above. Histopathology was done on the other three ELISA positives, and five of the 'high negatives'. There were three more histologically positive cases, one from the ELISA positive group and two from the high negative group. There were two more suggestive cases, one from the ELISA positive group, and one from the 'high negatives'

In summary, there were four histologically confirmed cases and four suggestive cases, with two of the suggestive cases and all four of the positive cases coming from the same mob as the original index stag. Tissue and faecal cultures are continuing on the remaining tissues. Investigations into the source of JD in this herd are continuing.

### Disease exclusions in horses

Equine infectious anaemia and equine viral arteritis were excluded as the cause of fever, wasting and ventral oedema in a thoroughbred horse in north-western Victoria. Autopsy revealed the horse had severe peritonitis associated with a bacterial infection.

Vesicular stomatitis was ruled out as the cause of extensive oral ulceration in the mouth of a dressage horse. The lesions were suspected to be caused by exposure to a caustic substance.

Hendra virus was ruled out in a case of respiratory disease in a yearling standardbred at Bendigo. The horse presented with respiratory disease, swelling of the face and nasal haemorrhage. Endoscopic examination revealed profuse frothy blood in the trachea. Histopathology suggested the possible cause was a bacterial lung infection.

### Equine abortions

Equine herpes virus 1 was ruled out by PCR test on eight aborted thoroughbred foetuses from single abortions on separate stud premises scattered throughout Victoria. In four cases, opportunistic environmental bacterial pathogens were isolated. The remaining four were undiagnosed but viral and bacterial involvement were considered unlikely. *Taylorella equigenitalis* (the cause of contagious equine metritis) was excluded in a mare with a vaginal discharge after aborting in February 2000.

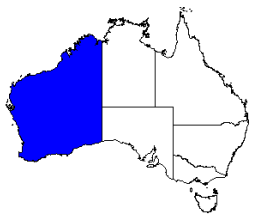
### *Salmonella typhimurium*

*Salmonella typhimurium* was isolated in more than 12 separate disease investigations involving single or multiple animals, including adult cattle, calves, horses and pigeon squabs. In two outbreaks where adult cattle and calves died, the outbreak coincided with both a sudden change to cold weather and the feeding of hay that had been stored in the presence of a significant mice/rat population. The salmonella infections responded to a wide range of antibiotics.

*S. typhimurium* was isolated at examination from an abdominal abscess in the right ventral colon of a 2-year-old thoroughbred horse with chronic peritonitis.

## Western Australia

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



### Bovine

Dual infection with rotavirus and coronavirus caused the deaths of young calves at Pemberton. A severe outbreak of shipping fever (pasteurellosis) was seen in a Busselton feedlot. Acidification of the teat wash caused chemical blistering of the udder, resembling a vesicular disease, in 10% of cows in a Dunsborough dairy herd. Coccidiosis caused the deaths of several neonatal calves at Kojonup. Mucosal disease complicated by bacterial infections was diagnosed in juvenile cattle at Manjimup where a large number showed diarrhoea and weight loss.

### Ovine and caprine

Pasteurella pneumonia was a recurrent problem in Dorper-cross ewes at Merredin. Concurrent lupinosis and adenoviral infection was associated with 15% mortality in weaners at Dandaragan. A skin fragility syndrome in Merino hoggets at Collie was thought to be dermatosparaxis, an inherited deficiency of an enzyme responsible for collagen biosynthesis. An unexplained proliferative enteropathy caused the deaths of 10% goats on a property at Kojonup. In June, adult wethers at Northampton died from Salmonellosis, a disease normally confined to the summer in this area. Facial eczema was diagnosed in sheep at Esperance in May. Johne's disease, caused by the sheep strain of *Mycobacterium paratuberculosis*, was diagnosed in a goat near Northam.

### Porcine

Porcine pleuropneumonia caused sudden deaths in grower pigs at Narrogin. Warfarin was thought to be the cause of a haemorrhagic syndrome in a sow at Boyup Brook. Swine fever was specifically excluded.

### Avian

An unknown hepatotoxin was the cause of poor quality ostrich carcases at a metropolitan abattoir. There was liver and muscle damage microscopically. Marek's disease was seen in free-range poultry at Bickley. Cardiomyopathy caused by vitamin E deficency resulted in deaths in farmed ostrich at Dunsborough — the vitamin premix had been reduced by two-thirds to save on costs. Avian encephalomyelitis caused heavy mortalities in two-week old chickens at Byford. Dietary imbalance was the cause of fibrous osteodystrophy in broilers at Cunderdin.

### Others

*Tetrahymena* infestation was seen in sea horses being farmed commercially. Lyssavirus was excluded from a bat submitted from Barrow Island.

# Quarterly Disease Statistics

### Laboratory testing

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

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

| | Akabane | | Bluetongue | | Bovine ephemeral fever | | Enzootic bovine leucosis | | Equine infectious anaemia | | Equine viral arteritis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tests | +ve | Tests | +ve | Tests | +ve | Tests | +ve | Tests | +ve | Tests | +ve |
| Apr–Jun 99 | 2410 | 443 | 6764 | 500 | 2092 | 348 | 1071 | 5 | 1252 | 3 | 564 | 13 |
| Jul–Sep 99 | 1526 | 248 | 2004 | 172 | 923 | 182 | 1264 | 5 | 9539 | 5 | 839 | 70 |
| Oct–Dec 99 | 1839 | 286 | 3092 | 218 | 1762 | 274 | 2665 | 8 | 1584 | 1 | 458 | 19 |
| Jan–Mar 00 | 1778 | 741 | 6436 | 302 | 2336 | 508 | 1326 | 0 | 779 | 0 | 445 | 22 |
| Apr–Jun 00 | 1345 | 558 | 3712 | 594 | 1152 | 162 | 1734 | 0 | 933 | 6 | 328 | 2 |
| NSW | 71 | 35 | 666 | 38 | 447 | 52 | 208 | 0 | 490 | 0 | 177 | 2 |
| NT | 735 | 343 | 461 | 208 | 1 | 1 | 0 | 0 | 15 | 0 | 0 | 0 |
| QLD | 293 | 152 | 1632 | 317 | 279 | 95 | 283 | 0 | 168 | 6 | 3 | 0 |
| SA | 9 | 0 | 374 | 0 | 2 | 0 | 0 | 0 | 13 | 0 | 5 | 0 |
| TAS | 0 | 0 | 20 | 0 | 0 | 0 | 738 | 0 | 0 | 0 | 0 | 0 |
| VIC | 107 | 0 | 271 | 0 | 258 | 0 | 500 | 0 | 134 | 0 | 62 | 0 |
| WA | 130 | 28 | 288 | 31 | 165 | 14 | 5 | 0 | 113 | 0 | 81 | 0 |

# Control activities

## Bovine brucellosis

Although bovine brucellosis is now exotic to Australia, surveillance is maintained through abortion investigations and miscellaneous testing of cattle for export or other reasons. A total of 200 abortion investigations were performed during the reporting period — all with negative results for bovine brucellosis. The results of recent brucellosis surveillance are shown in Table 2.

**Table 2: Surveillance for bovine brucellosis**

| | Abortion Investigations | | Test for other reasons | |
|---|---|---|---|---|
| | Tests | +ve | Tests | +ve |
| Apr–Jun 99 | 86 | 0 | 835 | 0 |
| Jul–Sep 99 | 142 | 0 | 2339 | 0 |
| Oct–Dec 99 | 85 | 0 | 2648 | 0 |
| Jan–Mar 00 | 141 | 0 | 2712 | 0 |
| Apr–Jun 00 | 200 | 0 | 2649 | 0 |
| NSW | 145 | 0 | 718 | 0 |
| NT | 0 | 0 | 0 | 0 |
| QLD | 34 | 0 | 698 | 0 |
| SA | 1 | 0 | 63 | 0 |
| TAS | 6 | 0 | 1 | 0 |
| VIC | 0 | 0 | 338 | 0 |
| WA | 14 | 0 | 831 | 0 |

## Tuberculosis

Australia was declared a Free Area for bovine tuberculosis (TB) on 31 December 1997. The National Granuloma Submission Program is the major surveillance tool for TB. Table 3 summarises results from the Program.

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

| | Granulomas submitted | TB +ve |
|---|---|---|
| Apr–Jun 99 | 842 | 0 |
| Jul–Sep 99 | 776 | 2 |
| Oct–Dec 99 | 644 | 0 |
| Jan-Mar 00 | 897 | 0 |
| Apr–Jun 00 | 1165 | 0 |
| NSW | 126 | 0 |
| NT | 8 | 0 |
| QLD | 535 | 0 |
| SA | 117 | 0 |
| TAS | 33 | 0 |
| VIC | 92 | 0 |
| WA | 254 | 0 |

## Enzootic bovine leucosis

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

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

| | NSW | NT | QLD | SA | TAS | VIC | WA | AUS |
|---|---|---|---|---|---|---|---|---|
| Free | 1586 | 0 | 1503 | 692 | 679 | 7985 | 455 | 12 900 |
| Herds | 1705 | 0 | 1537 | 696 | 741 | 8453 | 455 | 13 587 |

## Ovine brucellosis

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

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

| NSW | NT | QLD | SA | TAS | VIC | WA | AUS |
|---|---|---|---|---|---|---|---|
| 1250 | 0 | 67 | 510 | 130 | 717 | 86 | 2760 |

### Johne's disease

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

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

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

| STATE | Cattle | Sheep | Goats | Alpacas | Total |
|---|---|---|---|---|---|
| NSW | 142 | 454 | 9 | 1 | 606 |
| NT | 0 | 0 | 0 | 0 | 0 |
| QLD # | 1 | 0 | 0 | 0 | 1 |
| SA | 36 | 25 | 0 | 0 | 61 |
| TAS | 40 | 40 | 9 | 0 | 89 |
| VIC | 1915 | 40 | 16 | 9 | 1980 |
| WA @ | 0 | 1 | 1 | 0 | 1 |
| AUS | 2134 | 560 | 35 | 10 | 2738 |

# The single herd in Queensland is in quarantine in response to finding an infected animal introduced from an endemic state.

@ In WA, JD has been found in only one goat on one property. However, a goat herd and sheep flock graze together on the same property.

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

| STATE | Cattle | Sheep | Goats | Alpacas | Total |
|---|---|---|---|---|---|
| NSW | 836 | 313 | 19 | 59 | 1227 |
| NT | 0 | 0 | 0 | 0 | 0 |
| QLD | 0 | 15 | 0 | 0 | 15 |
| SA | 77 | 214 | 1 | 14 | 306 |
| TAS | 45 | 24 | 0 | 0 | 69 |
| VIC | 50 | 119 | 0 | 26 | 195 |
| WA | 0 | 0 | 0 | 0 | 0 |
| AUS | 1008 | 685 | 20 | 99 | 1812 |

## Surveillance activities

### Zoonoses

The National Notifiable Diseases Surveillance System (NNDSS) of the Communicable Diseases Network Australia New Zealand (CDNANZ) collects statistics about many human diseases. A summary of information about six important zoonoses is submitted to NAHIS each quarter — see Table 8.

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

**Table 8: Notifications of zoonotic diseases in humans**

| Disease | Q2–99 | Q3–99 | Q4–99 | Q1–00 | Q2–-00 | Current quarter | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Australia | | | | AUST | ACT | NSW | NT | QLD | SA | TAS | VIC | WA |
| Brucellosis | 9 | 21 | 68 | 59 | 4 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 |
| Hydatidosis | 12 | 7 | 46 | 44 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 |
| Leptospirosis | 149 | 36 | 401 | 393 | 88 | 0 | 20 | 0 | 64 | 0 | 0 | 4 | 0 |
| Listeriosis | 11 | 22 | 76 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ornithosis | 29 | 18 | 114 | 108 | 26 | 0 | 0 | 0 | 0 | 1 | 1 | 22 | 2 |
| Q fever | 128 | 112 | 656 | 661 | 108 | 0 | 19 | 0 | 78 | 1 | 1 | 6 | 3 |

## Northern Australia Quarantine Strategy

In recognition of the special quarantine risks associated with Australia's sparsely populated northern coastline, AQIS conducts an animal disease surveillance program as an integral component of the Northern Australia Quarantine Strategy (NAQS). The NAQS surveillance program provides early warning of disease threats to livestock industries, and in some cases human health. NAQS surveillance activities include both offshore and onshore components. Table 9 summarises NAQS activity over the past five quarters.

The major part of NAQS's surveillance for screw-worm fly is done by inspecting traps (usually monthly) located at about 24 sites in coastal areas across northern Australia. No screw-worm flies have been found. Surveillance for screw-worm fly, Asian bees and bee parasites is also done as part of AQIS's recently started Port Surveillance program (*AHSQ* Vol. 4, No. 4). Table 10 gives number of times that the insect trap sites were inspected during a quarter.

**Table 9: Summary of recent NAQS activity**

| | Apr–Jun 99 | | Jul–Sep 99 | | Oct–Dec 99 | | Jan–Mar 00 | | Apr–Jun 00 | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tested | +ve | Tested | +ve | Tested | +ve | Tested | +ve | Tested | +ve | |
| Avian influenza | 15 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | |
| Asian mite | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | |
| Aujeszky's disease | 109 | 0 | 191 | 0 | 98 | 0 | 5 | 0 | 77 | 0 | |
| Hog cholera | 109 | 0 | 98 | 0 | 98 | 0 | 5 | 0 | 73 | 0 | |
| Infectious bursal disease | 21 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | |
| Japanese encephalitis | 245 | 0 | 71 | 0 | 154 | 0 | 323 | 5 | 260 | 13 | a |
| Newcastle disease | 15 | 1 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | b |
| Porcine reproductive and respiratory syndrome | 110 | 0 | 191 | 0 | 98 | 0 | 5 | 0 | 73 | 0 | |
| Surra | 44 | 0 | 248 | 0 | 227 | 0 | 51 | 0 | 51 | 0 | |
| Swine influenza | 23 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Transmissible gastroenteritis | 23 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Tropical canine pancytopaenia | 10 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 16 | 0 | |

**Table 10: Number of inspections of insect traps**

| | Apr–Jun 99 | | Jul–Sep 99 | | Oct–Dec 99 | | Jan–Mar 00 | | Apr–Jun 00 | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tested | +ve | Tested | +ve | Tested | +ve | Tested | +ve | Tested | +ve | |
| **NAQS** | | | | | | | | | | | |
| Screw-worm fly | 133 | 0 | 109 | 0 | 146 | 0 | 253 | 0 | 144 | 0 | |
| **Port surveillance** | | | | | | | | | | | |
| Asian honeybee | | | | | | | | | 21 | 0 | |
| Screw-worm fly | | | | | | | 40 | 0 | 35 | 0 | |

### Notes

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

**b** This serological positive was detected in wild birds as part of regular wildlife monitoring in the Northern Territory. The antibody titre indicates that the birds had been exposed at some time to non-pathogenic strains of Newcastle disease virus. There was no evidence of clinical disease in the birds and no history of mortalities in wild birds or poultry in the area at the time.

*Contact: David Banks, AQIS*

## National TSE Surveillence Program

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

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

*Contact: Chris Baldock, AAHC's NTSESP National Coordinator*

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

| | Apr–Jun 99 | | Jul–Sep 99 | | Oct–-Dec 99 | | Jan–Mar 00 | | Apr–Jun 00 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cattle | Sheep | Cattle | Sheep | Cattle | Sheep | Cattle | Sheep | Cattle | Sheep |
| NSW | 33 | 26 | 53 | 51 | 33 | 26 | 29 | 21 | 33 | 24 |
| NT | 3 | 0 | 3 | 0 | 4 | 0 | 4 | 0 | 0 | 0 |
| QLD | 21 | 2 | 25 | 12 | 39 | 2 | 25 | 7 | 24 | 12 |
| SA | 0 | 0 | 4 | 8 | 3 | 1 | 2 | 0 | 0 | 0 |
| TAS | 2 | 0 | 5 | 0 | 2 | 3 | 1 | 0 | 1 | 1 |
| VIC | 17 | 29 | 39 | 30 | 22 | 20 | 6 | 14 | 10 | 11 |
| WA | 12 | 19 | 18 | 27 | 11 | 15 | 4 | 20 | 4 | 18 |
| AUS | 88 | 76 | 147 | 128 | 114 | 67 | 71 | 62 | 72 | 66 |

## Salmonella surveillance

The National Salmonella Surveillance Scheme (NSSS) 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 NSSS 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 NSSS. Table 12 summarises *Salmonella* isolations from animals notified to NSSS for the quarter

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

**Table 12: Salmonella notifications, 1 April to 30 June 2000**

| Serovars | avian | bovine | canine | equine | feline | ovine | porcine | other | Total |
|---|---|---|---|---|---|---|---|---|---|
| **S. bovismorbificans** | 1 | 14 | 0 | 0 | 0 | 1 | 0 | 1 | 17 |
| **S. dublin** | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| **S. infantis** | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| **S. typhimurium** | 5 | 98 | 4 | 5 | 7 | 3 | 7 | 1 | 130 |
| **Other** | 7 | 9 | 11 | 2 | 1 | 0 | 13 | 12 | 55 |
| **Total** | 16 | 156 | 15 | 7 | 8 | 4 | 20 | 14 | 240 |

## National Residue Survey

Of 3754 samples tested during the quarter for agricultural and veterinary chemicals, 6 (0.16%) had residues above the maximum residue limit (MRL). Four of these detections were for antimicrobials — four pig samples with oxytetracycline residues (only one of which was above the National Registration Authority-recommended MRL of 0.60 mg/kg in kidney). Two contravention's were detected in beef samples — a low level trenbolone detection was not investigated as the animal was not marketed as HGP free and therefore the residue most likely resulted from legitimate treatment and an organochlorine (DDT) residue resulted from the animal being held in a yard adjacent to an old contaminated dip site prior to slaughter. Table 13 summarises the results for the quarter.

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

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

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*National Residue Survey, AFFA*
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*E-mail: jonathan.webber@affa.gov.au*

**Table 13: National Residue Survey, 1 April to 30 June 2000**

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

| | NSW | | NT | | QLD | | SA | | TAS | | VIC | | WA | | AUS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anthelmintics** | | | | | | | | | | | | | | | | |
| cattle | 0 | 65 | 0 | 1 | 0 | 104 | 0 | 5 | 0 | 10 | 0 | 33 | 0 | 15 | 0 | 233 |
| pigs | 0 | 24 | 0 | 0 | 0 | 15 | 0 | 8 | 0 | 7 | 0 | 14 | 0 | 9 | 0 | 77 |
| sheep | 0 | 63 | 0 | 0 | 0 | 10 | 0 | 22 | 0 | 7 | 0 | 55 | 0 | 33 | 0 | 190 |
| other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 5 |
| Total | 0 | 152 | 0 | 1 | 0 | 129 | 0 | 38 | 0 | 25 | 0 | 103 | 0 | 57 | 0 | 505 |
| **Antimicrobials** | | | | | | | | | | | | | | | | |
| cattle | 0 | 109 | 0 | 3 | 0 | 167 | 0 | 23 | 0 | 7 | 0 | 60 | 0 | 11 | 0 | 380 |
| pigs | 0 | 89 | 0 | 0 | 0 | 83 | 1 | 53 | 0 | 2 | 3 | 97 | 0 | 32 | 4 | 356 |
| poultry | 0 | 33 | 0 | 0 | 0 | 23 | 0 | 11 | 0 | 2 | 0 | 26 | 0 | 9 | 0 | 104 |
| sheep | 0 | 36 | 0 | 0 | 0 | 3 | 0 | 16 | 0 | 3 | 0 | 36 | 0 | 35 | 0 | 129 |
| other | 0 | 5 | 0 | 0 | 0 | 14 | 0 | 7 | 0 | 1 | 0 | 11 | 0 | 5 | 0 | 43 |
| Total | 0 | 272 | 0 | 3 | 0 | 290 | 1 | 110 | 0 | 15 | 3 | 230 | 0 | 92 | 4 | 1012 |
| **Growth promotants** | | | | | | | | | | | | | | | | |
| cattle | 0 | 165 | 0 | 3 | 1 | 185 | 0 | 22 | 0 | 17 | 0 | 110 | 0 | 23 | 1 | 525 |
| pigs | 0 | 4 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 4 | 0 | 23 |
| poultry | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 11 |
| sheep | 0 | 55 | 0 | 0 | 0 | 10 | 0 | 22 | 0 | 4 | 0 | 61 | 0 | 32 | 0 | 184 |
| other | 0 | 4 | 0 | 0 | 0 | 30 | 0 | 10 | 0 | 0 | 0 | 9 | 0 | 12 | 0 | 65 |
| Total | 0 | 232 | 0 | 3 | 1 | 234 | 0 | 56 | 0 | 21 | 0 | 190 | 0 | 72 | 1 | 808 |
| **Insecticides** | | | | | | | | | | | | | | | | |
| cattle | 0 | 116 | 0 | 2 | 1 | 167 | 0 | 13 | 0 | 14 | 0 | 53 | 0 | 16 | 1 | 381 |
| pigs | 0 | 19 | 0 | 0 | 0 | 17 | 0 | 10 | 0 | 0 | 0 | 22 | 0 | 6 | 0 | 74 |
| poultry | 0 | 11 | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 2 | 0 | 9 | 0 | 3 | 0 | 32 |
| sheep | 0 | 129 | 0 | 0 | 0 | 11 | 0 | 42 | 0 | 8 | 0 | 85 | 0 | 58 | 0 | 333 |
| other | 0 | 41 | 0 | 8 | 0 | 58 | 0 | 26 | 0 | 1 | 0 | 12 | 0 | 10 | 0 | 156 |
| Total | 0 | 316 | 0 | 10 | 1 | 259 | 0 | 92 | 0 | 25 | 0 | 181 | 0 | 93 | 1 | 976 |
| **Metals** | | | | | | | | | | | | | | | | |
| cattle | 0 | 21 | 0 | 0 | 0 | 27 | 1 | 5 | 1 | 5 | 2 | 17 | 0 | 1 | 4 | 76 |
| pigs | 0 | 15 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 7 | 0 | 4 | 0 | 38 |
| poultry | 0 | 11 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 3 | 0 | 9 | 0 | 3 | 0 | 33 |
| sheep | 1 | 23 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 2 | 2 | 18 | 0 | 9 | 3 | 63 |
| other | 0 | 0 | 4 | 7 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 4 | 0 | 1 | 5 | 15 |
| Total | 1 | 70 | 4 | 7 | 0 | 41 | 1 | 24 | 1 | 10 | 5 | 55 | 0 | 18 | 12 | 225 |
| **Miscellaneous** | | | | | | | | | | | | | | | | |
| cattle | 0 | 37 | 0 | 2 | 0 | 62 | 0 | 9 | 0 | 4 | 0 | 32 | 0 | 6 | 0 | 152 |
| sheep | 0 | 26 | 0 | 0 | 0 | 4 | 0 | 8 | 0 | 3 | 0 | 13 | 0 | 11 | 0 | 65 |
| other | 0 | 4 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 11 |
| Total | 0 | 67 | 0 | 2 | 0 | 71 | 0 | 17 | 0 | 7 | 0 | 46 | 0 | 18 | 0 | 228 |

## Suspect exotic or emergency disease investigations

There were 20 investigations of diseases suspected to be either exotic or a possible emergency reported during the quarter as shown in Table 14.

**Table 14: Exotic or emergency disease investigations reported during 1 April to 30 June 2000**

| Disease | Species | Date | State | Response (key below) | Finding |
|---|---|---|---|---|---|
| Bovine spongiform encephalopathy | ovine | Apr | WA | 3 | negative |
| Contagious equine metritis | equine | May | VIC | 2 | negative |
| Foot-and-mouth disease | bovine | Jun | NSW | 3 | pestivirus |
| Foot-and-mouth disease | bovine | May | SA | 3 | negative |
| Hendra virus | equine | Jun | NSW | 3 | myocarditis |
| Hendra virus | equine | May | QLD | 3 | polyserositis |
| Hendra virus | equine | May | QLD | 3 | negative |
| Hendra virus | equine | May | NSW | 3 | Crofton weed poisoning |
| Hendra virus | equine | Apr | QLD | 2 | aneurysm |
| Hog cholera | porcine | Jun | WA | 3 | negative |
| Maedi–visna | ovine | May | SA | 3 | pneumonia |
| Screw-worm fly | ovine | Apr | QLD | 2 | *Calliphora* sp. and *Chrysomya saffranea* |
| Screw-worm fly | canine | Apr | NT | 2 | negative — *Chrysomyia* spp. |
| Newcastle disease | avian | Jun | NSW | 2 | encephalitis |
| Newcastle disease | avian | Jun | TAS | 2 | Marek's disease |
| Newcastle disease | avian | May | QLD | 2 | adenocarcinoma with multiple neoplasia |
| Newcastle disease | avian | Apr | QLD | 3 | coccidiosis and Mareks disease / avian leucosis |
| Newcastle disease | avian | Apr | NSW | 2 | coccidiosis |
| Porcine reproductive and respiratory syndrome | porcine | Apr | TAS | 2 | negative |
| Vesicular disease | equine | May | VIC | 2 | exposure to caustic substance |

**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
7 Eradication

# NAHIS contacts

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

| Name | Role | Phone | Fax | e-mail |
|---|---|---|---|---|
| Chris **Baldock** | National NAHIS Coordinator | 07 3255 1712 | 07 3844 5501 | chris@ausvet.com.au |
| David **Banks** | Northern Australia Quarantine Strategy | 02 6272 5444 | 02 6272 3399 | David.Banks@aqis.gov.au |
| Janet **Berry** | Qld State Coordinator | 07 4658 4414 | 07 4658 4433 | BerryJ@dpi.qld.gov.au |
| Chris **Bunn** | Emergency Disease Preparedness, AFFA | 02 6272 5540 | 02 6272 3372 | Chris.Bunn@affa.gov.au |
| Kim **Critchley** | SA State Coordinator | 08 8207 7908 | 08 8207 7852 | critchley.kim@saugov.sa.gov.au |
| John **Elliott** | Tas. State Coordinator | 03 6336 5334 | 03 6336 5374 | John.Elliott@dpiwe.tas.gov.au |
| Graeme **Garner** | Commonwealth NAHIS Coordinator | 02 6272 5369 | 02 6272 4533 | Graeme.Garner@affa.gov.au |
| Ana **Herceg** | Communicable Diseases Intelligence | 02 6289 1555 | 02 6289 7791 | http://www.health.gov.au |
| Tristan **Jubb** | Vic. State Coordinator | 03 5430 4545 | 03 5430 4520 | tristan.jubb@nre.vic.gov.au |
| David **Kennedy** | Ovine Johne's Disease Coordinator | 02 6365 6016 | 02 6365 6088 | david@ausvet.com.au |
| Diane **Lightfoot** | National Salmonella Surveillance Scheme | 03 9344 5701 | 03 9344 7833 | d.lightfoot@ microbiology.unimelb.edu.au |
| Geoff **Neumann** | CEO AAHC | 02 6232 5522 | 02 6232 5511 | aahc@aahc.com.au |
| Richard **Norris** | WA State Coordinator | 08 9368 3637 | 08 9367 6248 | rnorris@agric.wa.gov.au |
| Melanie **O'Flynn** | National Residue Survey | 02 6272 4549 | 02 6272 4023 | Melanie.Oflynn@affa.gov.au |
| Diana **Pinch** | NT Coordinator | 08 8999 2354 | 08 8999 2024 | diana.pinch@dpif.nt.gov.au |
| Evan **Sergeant** | NSW State Coordinator | 02 6391 3687 | 02 6361 9976 | Evan.Sergeant@agric.nsw.gov.au |
| Neville **Spencer** | National Granuloma Submission Program | 02 6271 6650 | 02 6272 5442 | neville.spencer@aqis.gov.au |
| Peter **Thornber** | International Coordination, AFFA | 02 6271 6343 | 02 6272 5697 | Peter.Thornber@affa.gov.au |