ANIMAL HEALTH SURVEILLANCE QUARTERLY
Newsletter of Australia's National Animal Health Information System

Volume 4 Issue 2
Quarterly Report for 1 April to 30 June 1999

Preface

This issue provides an update on recent outbreaks of Newcastle disease near Sydney in New South Wales (NSW). In May, I attended the 75th Anniversary General Session of the Office International des Epizooties (OIE) where a number of important issues for Australia, including Newcastle disease and surveillance for transmissible spongiform encephalopathies, were discussed. Zones for the control of bovine and ovine Johne's diseases are being implemented from 1 July. On a positive note the exotic honeybees identified in a Darwin suburb last year have been successfully eradicated.

Other topics covered in this issue includes 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). 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

Newcastle disease

August 1999 outbreak

Virulent Newcastle disease (ND) was suspected on a small commercial multi-age layer flock in western Sydney on 19 August. The flock was approximately 3 km from the initial infected farm in the September 1998 outbreak (*AHSQ* Vol 3, Issue 3). Like that outbreak and the 1999 outbreak in the Mangrove Mountain region (*AHSQ* Vol 4, Issue 1), laboratory findings indicate that the ND virus isolated is of Australian origin and not an incursion of an exotic strain.

Once the disease was confirmed on 21 August, NSW authorities began stamping out measures on the infected farm and destruction of all birds was completed the next day. The infected farm has been quarantined and movement restrictions imposed, with a proclaimed infected zone of 3 km around the farm. Surveillance is being conducted, and both laboratory and field investigations are continuing. Further details will be given in the next issue of *Animal Health Surveillance Quarterly*.

Update on Mangrove Mountain outbreak

An outbreak of virulent ND was confirmed in chickens in the Mangrove Mountain area, near Sydney, on 1 April 1999. Between then and 10 May, virulent Newcastle disease was confirmed on 11 commercial poultry farms in the area. Response to the outbreak has been in accordance with the national strategy, as described in AUSVETPLAN, with NSW Agriculture coordinating operations. A Restricted Area was established around the Mangrove Mountain area, with movements of birds in and out of the area prohibited. A larger Control Area was also established to encompass the rest of the poultry industry in that area.

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Destruction of all the birds on all 32 commercial poultry farms within the proclaimed Restricted Area on Mangrove Mountain was completed by 12 May. In addition, all aviary and domestic birds from small non-commercial flocks within the Restricted Area were destroyed by 4 June. More than 1 900 000 birds were destroyed and disposed of by burial or burning.

As an added precaution, approximately two million broilers on all commercial farms in the surrounding Control Area (encompassing the adjoining Peats Ridge, Somersby and Kulnura areas) were processed off under permit and quarantine controls. Restocking of the Control Area was delayed until all farms were empty, and preliminary disinfection of all infected premises had been completed. As part of the intensive surveillance program applied to the Control Area, virulent virus was retrospectively isolated, in the absence of clinical disease, from four more farms close to the boundary of the proclaimed Restricted Area (these farms had already been destocked).

By early July, all commercial operations had been destocked and all infected properties had been disinfected. Properties in the area are now eligible to restock, although movement controls and surveillance will be maintained for several months to ensure that the eradication program has been successful.

Contributed by: Evan Sergeant, NSW Agriculture

AUSVETPLAN update

New releases

Three new documents have been added to the other AUSVETPLAN documents on the NAHIS website (http://www.brs.gov.au/aphb/aha).

A disease strategy for Australian bat lyssavirus (ABL) has been approved. The manual describes the preferred strategy for infected domestic animals and domestic animals exposed to infected bats. It also includes a recommended policy for minimising the risk of infection of humans exposed to bats.

A revised mapping manual provides guidance to disease controllers in defining the location and spread of disease outbreaks. The update introduces sections on newer technologies such as the computer-based tools of geographic information system and global positioning system.

A revision of the AUSVETPLAN Summary Document has also been made. It contains updated information on AUSVETPLAN arrangements and responsibilities, summaries of diseases covered, and revised government apportionment for those diseases covered by the Cost-Sharing Agreement.

Forthcoming releases

Enterprise manuals provide disease control information specifically targeted at particular enterprises considered to pose significant risks in the event of an emergency disease outbreak. Enterprise manuals for saleyards and for artificial breeding centres have been revised after consultation with relevant industry organisations and government agencies, and will be released shortly.

The saleyards manual includes revised information about codes of practice and quality assurance programs in the saleyard and livestock transport sectors.

In the artificial breeding centres manual, changes aimed at reducing the risks of introduction and spread of disease have been made to recommended procedures for semen and embryo collection, distribution and handling.

Other manuals

The management of wild animals in an emergency disease outbreak can pose significant problems. A new wild animal management manual will soon be considered by the Standing Committee on Agriculture and Resource Management (SCARM) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ). The manual will contain strategic information on the behaviour, diet and habitat of wild animals. Control techniques will be outlined, tailored to specific species where appropriate.

A draft strategy on very virulent infectious bursal disease is being considered by SCARM's Veterinary Committee and by industry.

For further information on AUSVETPLAN contact: Chris Bunn (02) 6272 5540, fax (02) 6272 3372 or David Bateman (02) 6272 4962.

Zoning for Johne's Disease

A major step in the National Johne's Disease Control Program was taken when Veterinary Committee (VetComm) agreed to introduce national zoning for ovine Johne's disease (OJD) on 1 July 1999 and for bovine Johne's disease (BJD) on 1 August 1999. Although occasional cross-infections have been detected, BJD and OJD are considered epidemiologically different infections for the purposes of control and assurance programs in Australia.

States and Territories are responsible for animal disease control and, under the original 1997 Standard Definitions and Rules (SDRs) for BJD, some had previously implemented zoning. For instance, Queensland and the Northern Territory have been Protected Zones for BJD and have restricted movements accordingly. SDRs now require VetComm approval of zoning to ensure a consistent standard and to minimise disruption to normal trade in livestock.

Put briefly, in Infected and Residual Zones, JD infection is endemic, there are no restrictions on movement into the zone, and vendor/owner declarations may be used for voluntary movement controls. In an Infected Zone, no or minimal regulatory measures are enforced; in a Residual Zone, JD is notifiable and movement restrictions are enforced for infected flocks.

In a Control Zone, JD may be present in a manageable number of defined locations or on properties where infection has been recently introduced. In contrast, in a Protected Zone, JD does not occur or occurs only sporadically. In both cases, JD is notifiable, there is an approved monitoring program in place, there are restrictions on movements into the zone, and restrictions on infected or suspect properties. A Protected Zone has more stringent conditions than a Control Zone. A Free Zone may be declared when there is sufficient evidence that JD is not present, and when there is an ongoing program to justify this status.

The zones at the beginning of August 1999 are described in Table 1. Figures 1 and 2 show the zones within NSW. Some regions in the current Control Zones may achieve Protected zone status in the medium term if the incidence of JD in these areas remains low and is supported by additional surveillance and increased control. Western Australia (WA) has submitted a case for being declared a Free Zone for both BJD and OJD.

With endemic JD restricted to south-eastern Australia, the new zones are an essential part of the national approach to controlling spread of the disease. The favourable status of the low risk areas is protected by requiring movement controls. Zoning also ensures a rapid response to control or eradicate infection if it is detected in low risk areas. On the other hand, producers in the high risk Residual Zones have to demonstrate the low risk status of their herds or flocks before they can move stock to Control or Protected Zones.

Although movement tests on individual animals are still acceptable for some zone movements, the trend is to demand herd or flock-based assessments. For

Table 1: Johne's disease zones, 1 August 1999

State/Territory	Bovine Johne's disease	Ovine Johne's disease
ACT	Protected Zone	Control Zone
NSW	Combination of Protected and Control Zones (Figure 1)	Combination of Control and Restricted Zones (Figure 2)
NT	Protected Zone to be reconfirmed under 2nd edition BJD SDRs	Zoning not applicable (since no movements from NT and only movements in for slaughter.)
Queensland	Protected Zone	Control Zone
South Australia	Control Zone	Control Zone
Tasmania	Residual Zone (proposing Control Zone in late 1999)	Residual Zone – Flinders Island Control Zone – Tasmanian mainland and King Island
Victoria	Control Zone	Control Zone
Western Australia	Application for Free Zone being considered by SCARM	Application for Free Zone being considered by SCARM

instance, WA requires an assessed negative herd or flock status in the appropriate Market Assurance Program (MAP). Movement of sheep from Residual Zones into Control Zones requires an assessed status or flock testing to the same standard as flocks in the SheepMAP.

Producers in Control Zones are able to trade livestock to other producers in Control Zones and Residual Zones, unless their herd or flock is known to be infected or suspect. Infected or suspect properties in all zones will remain under restriction. Animals from infected properties can be sold direct to an abattoir for slaughter, to an approved 'slaughter-only' saleyard, or to other producers whose properties have been confirmed infected for BJD or OJD.

Because goats and most deer species are susceptible to infection with both the cattle and sheep strains of *M. paratuberculosis*, they are also affected by zoning for both OJD and BJD. Camelids in Australia have been infected with cattle strains and are subject to zoning for BJD.

JD spreads by movement of infected livestock. Zoning gives producers some regulatory protection, which reduces the risk of the disease spreading, but they still have to be careful when buying stock. Signed vendor declarations and buying from MAP-assessed herds and flocks or from Protected Zones, reduces the risk significantly.

Contributed by:
David Kennedy and Bruce Allworth
AAHC's National JD Coordinators

Figure 1: Zoning for bovine Johne's disease in NSW

The shaded areas show the Control Areas; the rest of NSW is a Protected Area from 1 August 1999.

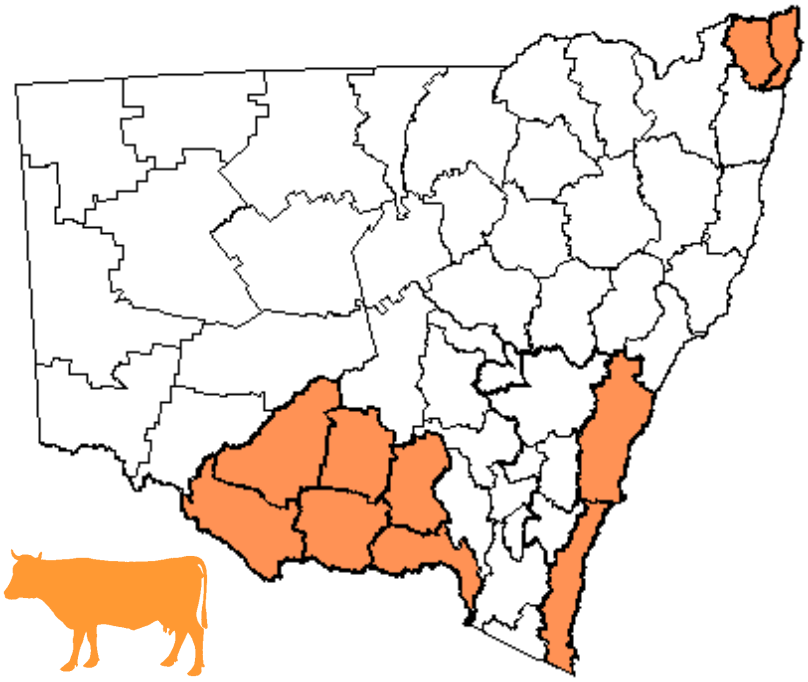
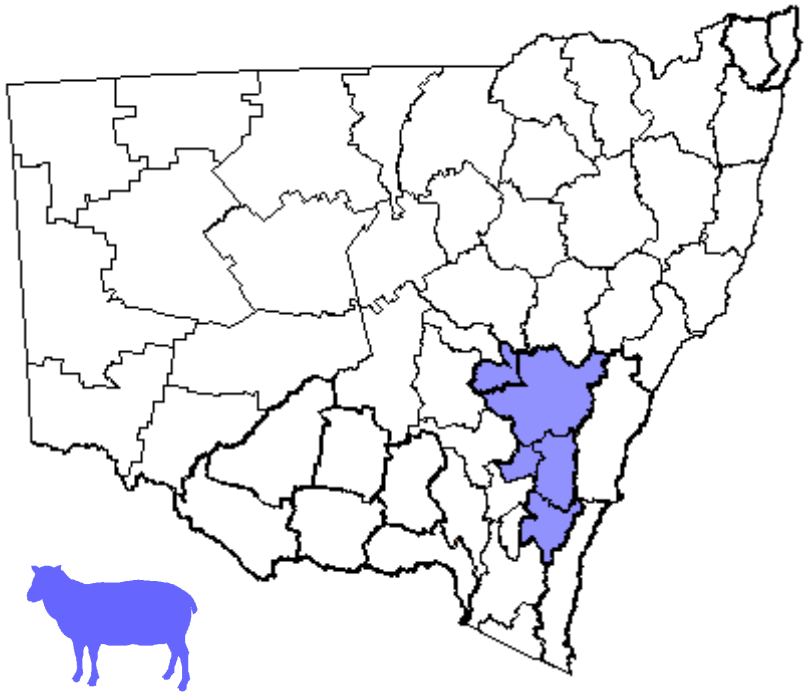


Figure 2: Zoning for ovine Johne's disease in NSW

The shaded areas show the Residual Area; the rest of NSW is a Control Area from 1 July 1999.



OIE 75th anniversary meeting

The 75th Anniversary meeting of the Office International des Epizooties (OIE — the world organisation for animal health) was held in May 1999. The meeting had a major focus on management of animal health emergencies, which was the impetus for the creation of the organisation in 1924. Delegations from 121 Member Countries were present.

The Australian Delegation, led by Gardner Murray, participated in a number of other meetings. These included the annual meeting of commissioners of the Foot-and-Mouth Disease (FMD) International Vaccine Bank, a meeting of the OIE Regional Commission for Asia, the Far East and Oceania, and a meeting of the Quadrilateral Alliance countries (Australia, New Zealand, Canada and the United States).

The main issue of debate was the revised international trade regulatory standards (Code) for bovine spongiform encephalopathy (BSE). There was strong opposition to proposed changes and risk categorisation of non-European countries in respect of this disease.

Members questioned the extrapolation of some basic scientific assumptions based on the incidence of Creutzfeldt–Jakob disease in humans. There was strong opposition about the required number of brains to be examined by countries that consider themselves to be free of animal transmissible spongiform encephalopathies. The requirement to undertake such a level of cattle brain examinations for a seven-year period was also considered unwarranted. As this sampling is not random, the number indicated for collection and examination is a subjective interpretation rather than a strict statistical deduction.

Many of these issues have been referred to an OIE scientific working group of specialists that will consider these important issues in August this year. The revised BSE Code will be subject to ongoing review.

Many member countries discussed the difficulties being experienced whereby new or revised Code chapters are becoming too prescriptive, demanding statistical survey requirements to prove disease freedom, making no allowance for grandfathering or recognition of historical freedom. This is resulting in the requirement for expensive active surveillance, disease by disease, as chapters are revised (e.g. BSE, scrapie, Aujeszky's disease).

OIE will develop a revised Strategic Plan for 2000–2004 that will be considered at the next General Session in May 2000. A new Director General will be appointed at that time, and elections for membership of the specialist commissions for the next three years will be conducted.

Australia objected strongly to a revised definition of virulent Newcastle disease infection that was adopted by majority vote after minimal debate. The new definition refers to *infection in birds*, compared to *disease* in poultry and ratites. This definition has far-reaching implications for every country and effectively means that all countries are infected as it encompasses wild birds, not just domesticated livestock species. The terminology lentogenic and mesogenic have disappeared. Determination of virulence is based upon an intracerebral pathogenicity index (ICPI) of 0.7 or above or on specific genetic sequences of the virus. Australia and other countries have asked that the Standards Commission reconsider this definition in September 1999.

The OIE Regional Commission was fully briefed on the Nipah virus incident by the Malaysian Director General. This will be the subject of further discussion at the 21st Regional Conference in Taiwan in November. FMD remains a major issue in the region, with further outbreaks being recorded in many countries. OIE will also conduct an external review of Phase 1 of the FMD campaign in South-East Asia towards the end of 1999. This review has been prompted by the need to assess the effect of the recent economic down-turn in the region on progress on strengthening veterinary services and related activities.

Contributed by Peter Thornber, Program Manager, International Coordination, National Offices of Animal and Plant Health and Food Safety

Rabbit calicivirus

Five reports from the National Rabbit Calicivirus Disease (RCD) Monitoring and Surveillance and Epidemiology Programs were released on 4 August 1999. The reports were produced by the Bureau of Rural Sciences for the RCD Management Group and were written by the leading scientists working on RCD in Australia.

The reports provide the first comprehensive assessment of the effects of RCD since its release in Australia in 1996. They provide an important report on the effect of RCD as a biological control agent on rabbit populations across Australia. The reports cover the findings of the 1996–98 RCD Monitoring and Epidemiology Programs, and describe the benefits RCD has had for Australian agriculture and the natural environment.

The key findings of the reports are:

- RCD has been more effective in drier areas of Australia. Where annual rainfall is less than 300 millimetres, rabbit numbers have declined to one-third or less of their pre-RCD numbers at nearly three-quarters of monitoring sites. In contrast, where rainfall is more than 300 millimetres, slightly less than half of sites have recorded such good declines in rabbit numbers.
- There has been little recovery of rabbit populations since RCD arrived. At many sites, RCD has now maintained low rabbit numbers for more than two years.
- Where RCD has reduced rabbit numbers, grazing pressure has been reduced and there has been recovery and recruitment of pastures and native vegetation. This should assist graziers to cope with drought, particularly in the drier areas of Australia.
- Cat and fox numbers have declined at several sites. It is too early to evaluate the conservation benefits of this decline for the native species on which foxes and cats prey.
- Flies, rabbit fleas and mosquitoes transmit RCD. The importance of these vectors in spreading RCD in the field continues to be investigated.

Copies of the reports can be obtained, at no cost, from the Department of Agriculture, Fisheries and Forestry Shop Front, (phone 02 6272 5550).

Contributed by
Mary Bomford, Bureau of Rural Sciences

Nipah virus encephalitis and pneumonitis

The outbreak of disease in Malaysia caused by Nipah virus has created a major new challenge for animal health surveillance in Malaysia and all countries in the immediate region. More than 105 people died, more than one million pigs were destroyed. An industry worth some A$500 million a year was brought to a standstill and trade in apparently healthy pigs spread the disease from one part of the country to another.

Late in 1998, an unusual disease was observed in Ipoh, with workers on pig farms being hospitalised with encephalitis. Several went into a coma, and eventually some died. The disease caused local concern, but was attributed to unusual manifestations of the endemic viral disease Japanese encephalitis (JE). Because a few cases of JE were expected nationally each year, this diagnosis did not trigger an urgent response from national public health authorities, or cause a critical investigation of the health status of pigs on affected farms. JE control measures were implemented, but cases of human disease continued. Some affected farmers in the Ipoh area started to sell out of the industry, with the resultant movement of pigs spreading the disease to other parts of Malaysia.

The epidemic of encephalitis in people alerted medical and veterinary authorities that the diagnosis of JE was no longer appropriate. Intensive investigation yielded isolates of a previously unrecognised virus. Dr Chua of the Department of Medical Microbiology at the University of Malaya took the isolate to the Centers for Disease Control and Prevention (CDC) in the United States for identification. The virus was found to be related to Hendra virus, which was first diagnosed in an outbreak of disease in horses and people in Brisbane in 1994. The CSIRO Australian Animal Health Laboratory (AAHL) also confirmed the involvement of a Hendra-like virus from human clinical samples.

At the invitation of medical and veterinary authorities in Malaysia, there was an international response to assist in the investigation and control of the outbreak. Staff from AAHL and from the Queensland Department of Primary Industries (QDPI) were included. The skills they brought included:

- disease investigation under conditions of high levels of biocontainment;
- knowledge of Hendra virus; and
- experience in sampling and testing for Hendra and similar viruses in animals, including wildlife species.

At the time the team assembled, a new focus of active infection in pigs was identified. Malaysian investigators were trained in the safe conduct of field investigations. A case description of Nipah virus encephalitis and pneumonitis was developed to allow veterinarians and farmers to recognise clinical infections. AAHL confirmed that a Hendra-like virus was infecting pigs, and that the respiratory excretions of pigs were a risk factor. Reports of disease in other animals were investigated, and Nipah disease in dogs and in cats was confirmed. Occasional animals of other species on affected pig farms were also seropositive. From some 4000 horses that were tested, infection was identified on only one property, in the Ipoh area where infection was occuring in pigs. Significantly, a high proportion of seropositive animals was found in Malaysian fruit bats.

Molecular analysis of the Nipah virus at CDC confirmed it was different from Hendra virus, although closely related. Transmission experiments at AAHL produced disease in pigs and cats similar to that described on Malaysian pig farms. The experiments also showed that the infection was highly contagious among pigs, and that infected pigs could excrete virus without showing any signs of disease.

CDC and AAHL helped Malaysian laboratories establish serological tests for both medical and veterinary use. Tests were initially based on Hendra antigen, but the veterinary test was later converted to Nipah antigen for a national surveillance program of pig farms. Serological profiling of previously infected properties before culling showed that most animals on affected farms had been infected, and that sows were the appropriate animal to test in an on-farm surveillance program.

The Malaysian Department of Veterinary Services conducted a national pig surveillance program on the 900 farms remaining after the culling of infected pig herds. Each herd was tested twice within a 90-day period and 50 more properties culled. There is some confidence that no more pig farms have active Nipah infections. The future challenge is to develop a surveillance program to ensure no new outbreaks of the disease are occurring in pigs, and to give confidence to domestic and export customers that Malaysian pig meat poses no threat to public health.

Contributed by Peter Daniels,
CSIRO Australian Animal Health Laboratory

Exotic bees successfully eradicated

In mid-June 1998, bees from a feral nest collected in a Darwin suburb were identified as Asian honeybees, *Apis cerana*, (see *AHSQ* Vol. 3 No. 2). These bees are exotic to the Australian mainland, and are less suitable for honey production than *Apis mellifera*, the species of bee that is the basis of the Australian honeybee industry. Australia is also free of three major mite pests of bees — *Varroa jacobsoni*, *Tropilaelaps clarae* and *Acarapis woodi*. One of the major concerns following detection of Asian honeybee is the possible introduction of these species of mites. The continuing presence of *Apis cerana* in Australia may have jeopardised our mite-free status.

It is not known how the Asian honeybees reached Darwin. Pallets of pavers had been moved from an area close to the port facility to the location where the bees were detected, but it was not possible to confirm this as the source of introduction of the bee nest. The origins and destinations of these pavers were examined, but no further evidence of Asian honeybee or comb was found. DNA testing at the University of Kansas detected mitochondrial DNA Java 1. This has been found in *Apis cerana* originating from Java, Bali, Timor, Flores and Sulawesi.

The nest of *Apis cerana* was thought to be aabout two months old, and contained 570 worker and 170

drone cells. Local apiarists concluded that the nest had not yet swarmed, but the high number of drone cells suggested that the colony was preparing to swarm.

The Northern Territory honeybee industry is based on honey production and pollination of crops. To protect the industry and ensure that Asian honeybees had not established and that exotic bee mites had not been introduced, an eradication program was put into action, using the 1996 Bee Diseases AUSVETPLAN as a guide. Disease control legislation was in place four days after the identification. The Northern Territory *Stock Diseases Act* was used to regulate movement of bees and related items. Areas were declared to restrict the movement of high risk items to reduce the chance of spread of exotic bee mites or bees while the eradication program was running. Four areas were declared in the Northern Territory — eradication, restricted, control and protected.

A public awareness program was run during the eradication program. This included television commercials, newspaper advertisements, radio talk shows and a display at the two major shopping centres in Darwin. A hotline number was also established to receive reports from the public.

For the first two months, three or four field teams (each of two people) searched for signs of bee activity in the immediate area of the detection. This was achieved by examining flowering plants and water sources, door knocking, and placing extracted frames soaked in honey at strategic sites in the eradication area. Two staff were employed after this initial stage to respond to public inquiries, issue permits, continue monitoring by mite-testing of hives and nests, and searching for signs of bee activity in the eradication area. The public response included reports of bee activity and swarms, submission of insect samples for examination and general information enquiries.

No bee mites were detected in brood or bees from the feral nest of *Apis cerana*. There were feral *Apis mellifera* living in tree hollows and buildings in the Darwin area, although they were at relatively low density and hard to detect. All feral nests and swarms within the eradication area were sampled and destroyed — 15 feral *Apis mellifera* nests and five swarms were detected during the year-long eradication campaign. Bees and comb from managed hives were also sampled and examined.

During the eradication program

- 7699 bee tracheas were examined for tracheal mite (*Acarapis woodi*);
- 8471 worker bee pupae and larvae were examined for the *Varroa jacobsoni* and *Tropilaelaps clarae* mites;
- 10 131 worker bees were washed in alcohol and the washings examined for the *Varroa jacobsoni* and *Tropilaelaps clarae* mites; and
- 150 managed hives had 'sticky boards' inserted to trap any mites.

Testing of feral nests and managed *Apis mellifera* hives in the Darwin region during the course of the eradication program has not detected any exotic bee mites.

In the 12 months since the initial incursion, no further discoveries of Asian honeybee were made. There has been no evidence of the presence of exotic bee mites despite extensive testing of both managed hives and feral nests within a 50km radius of Darwin. The eradication program was successfully concluded on 30 June 1999. DPIF will continue surveillance for Asian honeybees. Monitoring for exotic bee mites will be carried out under a program sponsored by the Australian Quarantine and Inspection Service.

Contributed by:
Andrew Moss, NAQS NT Coordinator

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 any potential exotic disease situation. Anyone suspecting an exotic disease outbreak should use this number to get immediate advice and assistance.

Contact: Chris Bunn, Animal Health Science and Emergency Management Branch, National Offices of Animal and Plant Health and Food Safety, AFFA.

National Arbovirus Monitoring Program

The National Arbovirus Monitoring Program (NAMP) is a scheme, based on sentinel cattle herds and insect trapping, that tracks the activity of major arboviruses, including bluetongue, Akabane and bovine ephemeral fever (BEF). NAMP is funded by the Commonwealth Government and State and Territory governments, and industry, and managed by the Australian Animal Health Council Limited. This article summarises viral and vector monitoring in the first and second quarters of this year.

Bluetongue

Although bluetongue virus occurs in Australia, there is no evidence of clinical disease in the field. During the period, viral activity was subdued in Western Australia. Only one sentinel animal, at Kununurra, seroconverted in the first quarter, followed by single sentinel seroconversions in the second quarter in the Kununurra and Kalumburu herds, with some infections being detected in the sentinel herd at Moola Bulla Station.

Following the record wet season, viral activity was intense in the Top End of the Northern Territory, as shown by a very high viral isolation rate from the Coastal Plains herd, with the serotype BLU 1 being mostly recovered in the first quarter and BLU 20 in the second. Seroconversions occurred in all four Top End sentinel herds in both quarters, and at Victoria River in April.

Bluetongue viral activity was widespread in Queensland. There was normal seasonal activity in northern and central districts. Late summer rains and a delayed onset of cooler autumn temperatures allowed an extension of viral transmission in the south from coastal areas west to and across the Great Dividing Range.

In New South Wales, viral activity was limited to three sentinel herds on the far north coast.

Akabane

Akabane viral activity was fairly limited in Western Australia and the Northern Territory during the first half of 1999, but was more widespread in Queensland and New South Wales. Seroconversions were detected in the three northern sentinel herds in Western Australia and in three herds in the Northern Territory. Eight sentinel herds in Queensland, widely distributed, were infected. Though there was early viral activity on the far north coast of New South Wales, only a low incidence of seroconversion and slow rate of transmission, south to Sydney and west to the mountains, followed.

Bovine ephemeral fever

BEF viral activity was limited in the north of Western Australia, in contrast to the Northern Territory, which experienced widespread clinical and serological evidence of the virus, extending south to the Alice Springs district. Viral activity was also widespread in Queensland, but limited in New South Wales to the north coast and the Hunter Valley.

Southern free areas

Monitoring confirmed the continued freedom of southern Australia from bluetongue, Akabane and BEF viruses.

Entomology

Insect trapping confirmed the continuing absence of *Culicoides* vectors of bluetongue and Akabane viruses from southern Australia.

Vectors were collected in the northern half of the country within known boundaries of distribution, with the exception of *C. wadai*. This vector was collected on the north coast of New South Wales for the first time in 10 years, and approximately 100 km south of its most southerly known previous distribution.

Contributed by:
Geoff Gard, Commonwealth NAMP Coordinator

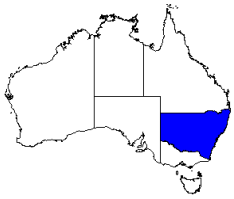
NAHIS web site

http://www.brs.gov.au/aphb/aha

This newsletter is available on the NAHIS website, which provides information and statistics about animal health in Australia.

State and Territory Reports

New South Wales



Contributed by:
Evan Sergeant
NSW Agriculture

Anthrax

Anthrax was excluded as the cause of death of three cattle and one sheep during the quarter. There have been no confirmed cases of anthrax in NSW so far this year.

Ross River virus in horses

During the quarter, six horses seroconverted to Ross River Virus, as detected using the Ross River virus neutralisation test (VNT).

In April, a paretic 16 year old Anglo-Arab gelding and a stiff arthralgic stockhorse mare on separate properties at Dorrigo both had strong sero-conversions to Ross River virus. Cases of Ross River fever were diagnosed in people near Dorrigo at about the same time.

During May a thoroughbred horse at Peak Hill had a titre of 1:5,120, a horse from Parkes had a titre of 1:10,240 and a horse from Warren had a titre greater than 1:20,480. Ross River fever was also suspected in June when a 3 year old thoroughbred from Wyong yielded a titre of 1:10,240 in the Ross River VNT.

Enzootic Bovine Leucosis

After almost six years of the voluntary EBL Eradication Program, the number of EBL-infected dairies in the State had been reduced from more than 600 in 1993 to 83 in June 1999. Only 23 actively infected herds were detected at the March 1999 round of testing. This is very timely, as from 1 July 1999 any EBL infected dairy herd will be placed under quarantine and any dairy supplying milk contaminated with EBL virus will be subjected to a penalty price of 4 cents per litre.

In addition, a new, more sensitive bulk milk test (BMT) will be introduced on 1 July 1999. The test is able to detect one infected animal in a group of 250 milkers compared with one in 50 milkers using the current BMT. The new BMT will allow detection of any remaining dairy herds that may harbour a very low prevalence EBL infection.

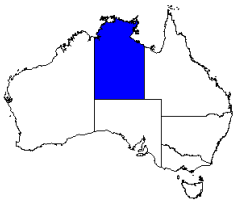
Bee diseases

During the quarter there were 311 tests for American foulbrood (AFB) with 109 positives. In the full financial year, 289 of the 751 tests were positive. Of these positive results, 132 have been monitoring reports and 157 have been individual notifications by beekeepers. Two-thirds of the individual notifications had positive results during the 1997–98 financial year.

Hendra virus

Testing for the exclusion of Hendra virus was conducted on samples submitted from a thoroughbred at Cassilis. Histologically, there was severe pulmonary congestion and oedema, numerous intravascular fibrin thrombi and acute necrotising vasculitis. The samples ware negative for Hendra virus on the basis of immunoperoxidase examinations and viral isolation. Hendra virus was also excluded as the cause of death of two other

Northern Territory



Contributed by:
Diana Pinch
NT DPIF

Cattle

A property in the northern Tennant Creek district reported low branding rates, which have been ongoing for a number of years. Dry cow pregnancy rates were down to 55%. Animal health and nutritional causes of reproductive failure were assessed. Vibriosis (due to *Campylobacter foetus sub. venerealis*) is a major contributory factor, as are nutritional challenges experienced in extensive production. A new antibody ELISA for vibriosis was used for the first time in the Northern Territory.

Sudden mortalities (15 out of 80) in dry cows at an intensively managed property in the Katherine region were determined as likely to be due to urea contamination of trough water.

Crocodiles

Increased mortalities in hatchlings were reported and investigated from two crocodile farms. The diagnosis from one was confirmed as *Providencia rettgeri* septicaemia. After antibiotic sensitivities were determined, the appropriate antibiotic effectively controlled the outbreak. The other farm was probably losing hatchlings due to hypocalcaemia — based on clinical signs — and no laboratory evidence of a septicaemia. Farm management and dietary supplementation were satisfactory and the most likely explanation was the introduction of a fatty batch of meat. This would greatly decrease the digestibilty of the diet and hence result in insufficient absorption of the dietary supplements, including calcium.

Dogs

An 11-month-old Labrador showed muscular and nervous tissue lesions consistent with *Neospora caninum* infection. Tissues and serum were sent to the DPIWE laboratory in Launceston, Tasmania. The samples were positive on immunohisto-chemistry and serology. This is the first case of *Neospora caninum* infection recorded at Berrimah Veterinary Laboratories.

Exotic disease investigations

An Alice Springs property was visited to examine a sheep with lesions at the commissure of the lips, reported by the owner as suspect for a vesicular disease. On examination, the lesions appeared consistent with trauma and secondary infection. Once scabs were removed, a gouge type wound was evident, and there was a similar wound present in the gum of the lower jaw. Dingo bite was suspected as the cause. Samples were taken and the sheep was treated symptomatically.

Fish

Fish with large, deep, ulcerative skin lesions, diagnosed at Berrimah Veterinary Laboratories as 'redspot', have been found in recent months in several creeks around Darwin, and at Borroloola. Redspot, also known as ulcerative mycosis or epizootic ulcerative syndrome, is a syndrome characterised by focal to multifocal erosion and ulceration of the integument, followed by necrosis of the underlying musculature leading to death. The condition is caused by invasion of the integument and skeletal musculature by a fungus, *Aphanomyces invaderis*, with subsequent ulceration and granulomatous myositis. Many species of fish are susceptible.

Horses

Three horses died and three further horses suffered severe weight loss on a property in the Tennant Creek district. The history and clinical signs observed were consistent with Kimberley walkabout disease (due to consumption of pyrrolizidine alkaloids in crotalaria plants). Liver profiles showed severe liver damage, and *Crotalaria montana* was found alongside a watercourse running through the small horse paddock.

Poultry

In April, postmortem examination of broilers from a commercial farm showed a general picture of empty crop, large pale liver (with cholangiohepatitis histologically), flabby bursa (lymphoid depletion) and prominent proventricular wall (glandular hyperplasia). Some of the birds had extensive peritonitis (*E. coli* isolated) and there were lesions in the lungs of some birds consistent with *Aspergillus.* (One bird had granulomas throughout the peritoneal cavity from which *Aspergillus* was isolated.)

In June, chickens of varying ages from 5 to 39 days from a commercial poultry farm had a range of postmortem changes. In general, the younger birds had peritonitis associated with *E. coli* infection; the older birds had subcutaneous and joint infections with *E. coli*; and the 'middle-aged' birds had enlarged livers and jaundice, with no bacterial infection. Infectious bursal disease (IBD) and inclusion body hepatitis were suspected histologically. Material was sent to the Australian Animal Health Laboratory (AAHL), where the diagnosis of IBD was confirmed immunohisto-chemically and serologically. Further testing is underway to confirm the isolate as an endemic strain.

Resistant ticks

Poor kill of cattle tick (*Boophilus microplus*) with a flumethrin product was investigated on a property in the Darwin region. The ticks were confirmed to be Parkhurst strain, with total synthetic pyrethroid resistance, and were also detected on another property in the same area. It is suspected that these

acaricide-resistant ticks may have been introduced by agistment stock from Queensland in 1996.

Further acaricide resistance testing is being carried out on all trace-forward properties and on other export depot properties that are considered to be a high risk. No further resistant ticks have been found at this stage. Movement controls are in place to prevent the spread of resistant ticks to other properties. Appropriate selection of chemicals and timing of treatment on affected properties should enable cattle to meet live export requirements.

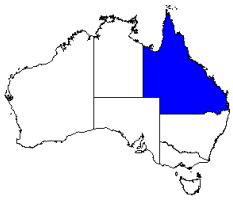
DPIF staff and pastoralists from the affected area and DPIF staff met in late July to discuss options for dealing with this resistant tick problem. Financial and practical implications of eradicating ticks from the affected area will be examined with each property over the next few months. A final decision on whether to proceed with tick eradication from the area or whether to retain movement controls from the affected properties over the long term will be made late in the year.

Veterinary laboratory

The refurbished virology laboratory and the postmortem room at Berrimah Veterinary Laboratories (BVL) were inspected for their PC 3 (physical containment level 3) status. Like other diagnostic laboratories, BVL normally run under PC 2 conditions. The enhanced status will allow work with agents such as Japanese encephalitis virus.

Queensland

Contributed by:
Janet Berry
Queensland DPI



Arsenic poisoning of cattle

Arsenic poisoning was diagnosed as the cause of deaths of 43 Brahman heifers out of a mob of 200 near Beaudesert. The heifers had been rail transported from Proserpine and held overnight in stockyards containing an old disused cattle dip. They consumed plywood panels on the side of the dip and soil at the side of the dip. In another incident, arsenic poisoning resulted from access to an old plunge dip site causing the deaths of 14 head at Proston.

Surveillance for Nipah virus

To verify freedom from Nipah virus in the Queensland domestic pig population, the Animal and Plant Health Service carried out a surveillance program during May and June. Abattoir blood samples were collected from 500 pigs, representing 100 of approximately 600 piggeries in the State. Serum neutralisation tests for Nipah virus and Hendra virus were all negative.

Suspect Hendra virus

A two-year-old horse died at Gympie with clinical signs of diarrhoea. There had been a similar case on the property two months previously. Histological examination of lung tissue revealed an acute interstitial pneumonia, but an indirect immuno-peroxidase test for Hendra virus was negative.

Lyssavirus

In ongoing surveillance across Queensland, one of five flying foxes examined for Australian bat lyssavirus in the south-east of the State gave a positive result. One bat from twelve was positive for the virus in central region. A bat submitted from north region had inflammation of the spinal cord, myelitis, bone degeneration and rickets, but tested negative for lyssavirus.

Johne's disease

Suspect Johne's disease was diagnosed on histological grounds in an aged red deer hind running on a property at Murgon. It had been introduced to Queensland from New South Wales in 1990. The deer had a history of chronic wasting for three months and developed chronic diarrhoea. It was also anaemic and heavily infested with cattle ticks. Fresh material is being cultured to confirm the diagnosis.

Cattle that entered Queensland illegally from New South Wales were traced to two sites in west region. All cattle over 12 months of age in both mobs were blood-tested for Johne's disease. One cow persistently reacted on ELISA and was slaughtered for autopsy. Johne's disease was eliminated on histopathology.

Four bulls that were moved from Victoria to properties in Queensland were sampled and reacted negatively for Johne's disease on blood test. Faecal samples are currently being cultured. The testing

was undertaken because a cohort bull from the property of origin had tested positive for the disease.

Lantana poisoning

Three weaners died and a further 10 cattle in the mob of 220 showed photosensitisation, jaundice and severe erosive lesions on the tip of the tongue that the owner reported as 'blisters'. Laboratory testing ruled out exotic animal diseases and supported the diagnosis of *Lantana* poisoning.

Lantana poisoning was also implicated when two-year-old Brahman cattle died on the wet tropical north coast. Ten from a mob of 1000 were affected and six had died over a four-week period.

In a separate incident, cattle were investigated with frothing at the mouth and photosensitisation around the eyes and vulva. The animals were dehydrated and two died. They had been fed on pangola hay only and it was suggested that the photosensitisation was due to *Lantana* in the hay.

Plant poisoning

Six dry cows from a dairy herd at Gympie died suddenly. Anthrax was considered a possible cause. However, laboratory examination revealed liver necrosis consistent with poisoning by one of several toxins of plant origin, particularly those in the green cestrum, poison peach and noogoora burr group.

A dairy herd near Nambour had 14 cows die from severe acute toxic liver necrosis. Clinical signs observed included depression, recumbency, and decreased body temperature. Some animals showed petechial haemorrhages, jaundice and bleeding from the nostrils and anus. Stock had been introduced into a paddock where the owner had been spot-spraying the many weeds present, although the actual reason for the deaths was not determined.

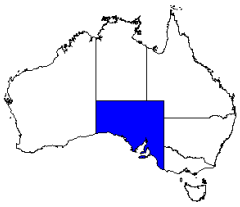
Strangles in horses

Strangles (*Streptococcus equi*) was diagnosed in young horses on four Darling Downs properties.

Internal parasites

Clinical parasitism in cattle and goats was reported from the coastal regions with high faecal egg counts recorded. *Haemonchus contortus* was the major parasite involved although *Cooperia, Trichostongylus and Oesophagostomum* were also found.

South Australia



Contributed by:
Kim Critchley
Primary Industries SA

Animal Health Review

The review of animal health services in the State has now been released. An implementation team has been established and a program to implement the recommendations presented to staff. It is planned to spread the increased cost and staffing implications over three years.

Streptococci in barramundi

A sudden rise in mortality was seen in reared barramundi. The fish were about 20 cm. In the initial phase, deaths were the only thing seen but then fish began to show skin petechiation. The syndrome was considered associated with stress originating with water quality.

Infectious laryngotracheitis in poultry

After many years of freedom, there have been a number of apparently unrelated occurrences of infectious laryngotracheitis (ILT). The first case was in an isolated broiler flock. The next was in a vaccinated but recently moved and moulted layer flock. The disease also occurred in subsequent batches of vaccinated pullets placed on this farm, although immediate vaccination with SA2 strain resulted in rapid amelioration of the outbreak.

Then an aged flock in one shed on a 10-shed farm suffered a severe outbreak, losing almost 10% of the birds before vaccination again stopped the spread. No other flocks on the farm were affected. In all the laying birds, the vaccine regime had been A20 followed by SA2 strain.

Ovine Johne's disease

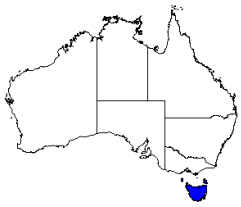
Following the detection of ovine Johne's disease on Kangaroo Island, tracing and survey work on the mainland had not revealed any infected properties. It was somewhat surprising then when a single positive animal was detected in a flock in the dry mid-north of the State during the annual Market Assurance check test. The whole flock has now been tested with no further positives. The organism has been sent to Western Australia for typing.

The flock history was closely investigated and indicated it was practically a closed flock for a number of years. Testing was undertaken on the property from which some rams had been introduced, and this also proved negative. Testing of neighbouring flocks have also been negative.

American foulbrood

South Australia's honey packers will begin an AFB testing program on honey supplied to them from commercial and amateur apiarists. As well, industry has agreed to a registration levy to assist with the funding of the Departmental AFB control program.

Tasmania



Contributed by:
John Elliott
DPIWE, Tasmania

Photosensitisation

In early April, the owner of a 160-cow Jersey herd reported a number of cows showing signs of agitation, such as switching of their tails, kicking at their flanks, lying down and standing up and seeking shade. Three cows were seen on the first day and within four days 30 cows were affected. As the condition progressed, cows stopped milking and would only graze early in the morning or when the weather was overcast. The problem was only seen to affect cows in the milking herd. Dry stock on the same property did not show any signs of disease.

On the day before the first affected cows were seen, the herd had been put into a sheltered, flood-prone paddock. The feed in this paddock was long and had a large quantity of senescent material in the base of the sward. In addition, some of the rye grass and cocksfoot was showing evidence of rust on the leaves.

Blood samples from a range of affected cattle showed evidence of liver damage. Spore counts were carried out on some grass samples and this revealed spores numbers of more than 3 million per gram of grass for some species. However, the counts for *Pithomyces chartarum* (the cause of facial eczema) were only 5000/gram; the danger level is thought to be about 30 000/gram.

The diagnosis nonetheless was photosensitisation of fungal origin. The animals were treated symptomatically and slowly recovered over the next 5 to 10 days.

The season in Northern Tasmania this year was wetter in January and February than usual. This resulted in a build up of feed which was not eaten, as a result there was an increase in the amount of dead material in the sward in some places. This and the warm conditions favoured the growth of fungi, especially in sheltered areas.

Notifiable diseases

Listeria monocytogenes was isolated from three cases: a cow with neurological problems; multiple mortalities in quail; and a sheep with neurological signs.

Salmonella group B was isolated from six cows of two owners who shared common facilities.

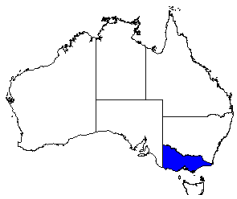
Hydatid cysts were diagnosed in three cases (one in cattle and two in sheep).

Chlamydia was diagnosed from liver and spleen samples of finches from an aviary in Hobart.

Transmissable spongiform encephalopathy

An adult bull was examined for evidence of transmissable spongiform encephalopathy (TSE) in association with weight loss and posterior weakness. No evidence of a TSE was detected. The bull had severe bilateral degenerative arthritis of the stifle joints.

Victoria



Contributed by:
John Galvin
Agriculture Victoria

Exotic disease surveillance

Three fruit bats and three other bat species submitted for autopsy were negative for lyssavirus. Sera from 135 fruit bats from the botanic gardens and a wildlife sanctuary were also negative for lyssavirus.

Sickness and death in 100 of 200 fancy pigeons that occurred in the owner's three-week absence were investigated retrospectively. Sera in survivors were negative for Newcastle disease and avian influenza.

Surviving pigeons responded rapidly to treatment of drinking water with tetracyclines upon the owner's return. Psittacosis precipitated by cold and nutritional stress was the probable cause.

Tissue digests performed on diaphragm muscle from 2500 feral pigs from NSW and Queensland were negative for *Trichinella spiralis*. The tests were performed as a requirement for export of pig meat to Russia.

TSE surveillance

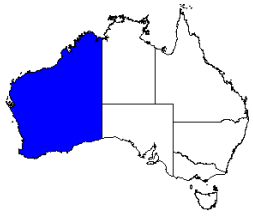
Specimens from 40 cattle and 55 sheep have been received for the TSE surveillance project by the end of June. Victoria has targets of 85 cattle and 105 sheep TSE submissions. All submissions to date have been negative for TSE. Listeriosis, pregnancy toxaemia and onion grass toxicity in sheep, and polioencephalomalacia, pregnancy toxaemia and lead poisoning in cattle are some of the more common nervous diseases so far diagnosed.

Other reports

The period from mid-March to early May saw one of the worst outbreaks of facial eczema on record in Gippsland. Although the outbreak was predicted by rising spore counts, the disease still affected hundreds of dairy herds. It is estimated that 50% of dairy herds in East Gippsland were affected, with up to 50% of cows in some herds showing signs of photosensitisation and a severe drop in milk production. Some herds suffered significant mortalities. Zinc treatment of water and feed appeared to work well in preventing the disease or reducing severity where it was administered early and in the correct dosage. The last serious outbreak occurred in 1981. A mild outbreak occurred in 1994.

Polioencephalomalcia has been seen sporadically in feedlot steers. Ionophore toxicity was suspected in feedlot cattle where an outbreak of scouring with nervous signs occurred. Coccidiosis contributed to the deaths of 100 calves on one property. Enterotoxaemia and pregnancy toxaemia were diagnosed in sheep in the north-west and south-west regions. Dystocia caused large numbers of lamb and ewe deaths in a crossbreeding program involving British breed sires and small-framed maiden merino ewes. Widespread grain feeding of sheep and cattle saw many reports of grain poisoning.

Western Australia



Contributed by:
Richard Norris
Agriculture WA

Cattle

Deaths of several cattle in a Narrogin feedlot were caused by thrombo-embolic meningoencephalitis (*Haemophilus somnus*). Sporadic bovine leucosis was again seen in a single animal at Margaret River. At Busselton and Moora, salmonella enteritis (*S. typhimurium*) was responsible for deaths and scouring in calves. Rumenitis associated with grain overload occurred in feedlot cattle at Gnowangerup.

Sheep

An unusual combination of nutritional myopathy and pleuritis that caused 20% mortality in a mob of ewes at Esperance, was thought to be associated with vitamin E deficiency. Urolithiasis occurred in 100 sheep on one farm at Narembeen during April and May. An unusual syndrome causing deaths in wethers at Three Springs was associated with myocardial necrosis and pulmonary haemorrhage — fluoracetate toxicity was suspected but not confirmed. A severe outbreak of pinkeye in 300 sheep at Esperance was associated with corneal oedema and pure cultures of *Moraxella ovis*. Meningitis occurred as a sequel to scabby mouth vaccination at Kulin.

Pigs

Granulomatous pneumonia, thought to be caused by inhaled plant material, was detected in several Boyup Brook pigs during abattoir inspection. High mortality was seen in suckling and growing pigs at Pinjarra, caused by pleuropneumonia (*Actino-bacillus pleuropneumonia*).

Other species

Epizootic ulcerative syndrome, caused by the deeply invasive fungus, *Aphanomyces invaderis*, was seen in mullet found dead in the Greenough River. Other conditions included nutritional myopathy in goats at Manjimup and myocardial necrosis in ostrich at Mount Barker. Marek's disease was the cause of weakness and deaths in 13–16-week-old poultry on several properties.

Quarterly Disease Statistics

Control activities

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 2 summarises results from the Program. No cases of TB were detected in the quarter in the 795 granulomas that were submitted.

Table 2: Results of the National Granuloma Submission Program

	Granulomas submitted	TB +ve
Apr – Jun 98	2118	3
Jul – Sep 98	1389	4
Oct – Dec 98	1616	0
Jan – Mar 99	743	0
Apr – Jun 99	795	0
NSW	62	0
NT	29	0
QLD	441	0
SA	20	0
TAS	6	0
VIC	9	0
WA	228	0

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 86 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 3.

Table 3: Surveillance for bovine brucellosis

	Abortion Investigations		Test for other reasons	
	Tests	+ve	Tests	+ve
Apr – Jun 98	86	0	524	0
Jul – Sep 98	218	0	2459	0
Oct – Dec 98	127	0	3278	0
Jan – Mar 99	178	0	3582	0
Apr – Jun 99	86	0	835	0
NSW	15	0	215	0
NT	0	0	15	0
QLD	45	0	420	0
SA	0	0	26	0
TAS	12	0	12	0
VIC	0	0	117	0
WA	14	0	30	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 EBL at 30 June 1999

	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
Free	1547	0	1735	728	679	7983	455	13 127
Herds	1743	0	2026	728	741	8453	455	14 146

Ovine brucellosis

Accreditation programs for ovine brucellosis freedom are operating in most 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 1999

NSW	NT	QLD	SA	TAS	VIC	WA	AUS
1250	0	71	519	150	725	86	2801

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 or suspected to be infected. A six-year National Ovine Johne's Disease Control and Evaluation Program is under way. Market Assurance Programs (MAPs) are in operation for cattle, sheep, and alpaca.

Table 6: Herds/flocks with JD at 30 June 1999

STATE	Cattle	Sheep	Goats	Alpacas	Total
NSW	165	422	11	1	599
NT	0	0	0	0	0
QLD	0	0	0	0	0
SA	31	22	0	0	53
TAS	36	19	9	0	64
VIC	1765	28	8	11	1812
WA	0	0	0	0	0
AUS	1997	491	28	12	2528

Market Assurance Program

At the end of the quarter, 690 herds had assessed status in the Cattle Market Assurance Program (CattleMAP), 622 flocks in the SheepMAP and 16 herds in the AlpacaMAP. After three years of development, the GoatMAP has been approved by Veterinary Committee. The implementation of zoning (see page 3) is expected to affect MAP uptake, with a probably increased interest in Control and Residual Zones, but possibly less interest in Protected Zones where some herd owners may decide that an assessed status is not necessary for access to their markets.

Further 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 web at http://www.brs.gov.au/aphb/aha/jdmap.

Laboratory testing

The results of serological testing for a range of viral diseases from routine laboratory submissions for the quarter are shown in Table 7.

Table 7: Serological testing from routine submissions to State 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 98	2951	568	9196	380	2692	316	1142	6	449	0	230	1
Jul – Sep 98	1988	572	11438	1389	1622	261	525	4	594	0	576	4
Oct – Dec 98	1559	305	4976	397	957	163	3023	4	709	8	354	6
Jan – Mar 99	818	319	5061	250	1542	377	241	1	505	1	299	7
Apr – Jun 99	2410	443	6764	500	2092	348	1071	5	1252	3	564	13
NSW	81	2	589	30	525	76	377	0	981	3	433	12
NT	719	267	658	241	615	149	437	5	2	0	0	0
QLD	942	143	3511	208	300	89	141	0	107	0	0	0
SA	0	0	679	0	0	0	0	0	8	0	16	0
TAS	0	0	4	0	0	0	2	0	0	0	0	0
VIC	52	0	69	0	49	0	56	0	106	0	55	1
WA	616	31	1254	21	603	34	58	0	48	0	60	0

Surveillance activities

National Residue Survey

Of 3439 samples tested during the quarter for agricultural and veterinary chemicals, 14 (0.4%) had residues above the maximum residue limit (MRL). Of the 11 pig samples with antimicrobial residues above MRL, 10 were for oxytetracycline and chlortetracycline — all below the NRA-recommended MRLs of 0.60 mg/kg in kidney. On 8 July, Amendment No. 44 of the ANZFA Food Standards Code established new MRLs for chlortetracycline (0.60 mg/kg for cattle and pig offal). The remaining pig antimicrobial non-conformance was

Table 8: National Residue Survey, 1 April to 30 June 1999
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	73	0	6	0	77	0	12	0	3	0	46	0	7	0	224
pigs	0	24	0	0	0	15	0	6	0	1	0	24	0	6	0	76
sheep	0	76	0	0	0	17	0	24	0	9	0	35	0	32	0	193
other	0	2	0	0	0	6	0	1	0	1	0	6	0	0	0	16
Total	0	175	0	6	0	115	0	43	0	14	0	111	0	45	0	509
Antimicrobials																
cattle	0	112	0	9	0	139	0	18	0	11	0	71	0	5	0	365
pigs	2	96	1	2	3	70	1	32	0	4	4	118	0	44	11	366
poultry	0	0	0	0	0	47	0	21	0	0	0	28	0	0	0	96
sheep	0	39	0	0	0	3	0	15	0	9	0	31	0	30	0	127
other	0	7	0	0	0	29	0	15	0	1	0	15	0	0	0	67
Total	2	254	1	11	3	288	1	101	0	25	4	263	0	79	11	1021
Growth promotants																
cattle	0	138	0	19	0	166	0	19	0	10	0	78	0	22	0	452
pigs	0	11	0	0	0	9	0	6	0	0	0	14	0	2	0	42
poultry	0	0	0	0	0	4	0	2	0	0	0	3	0	0	0	9
sheep	0	59	0	0	0	14	0	16	0	3	0	45	0	27	0	164
other	0	10	0	0	0	30	0	11	0	0	0	8	0	2	0	61
Total	0	218	0	19	0	223	0	54	0	13	0	148	0	53	0	728
Insecticides																
cattle	1	112	0	6	1	151	0	10	0	7	0	77	0	12	2	375
feral	0	3	0	0	0	21	0	0	0	0	0	0	0	0	0	24
pigs	0	23	0	0	0	19	0	6	0	0	0	29	0	11	0	88
poultry	0	0	0	0	0	9	0	4	0	0	0	9	0	0	0	22
sheep	0	114	0	0	0	27	0	28	0	12	0	61	0	66	0	308
other	0	32	0	2	1	63	0	32	0	1	0	17	0	4	1	151
Total	1	284	0	8	2	290	0	80	0	20	0	193	0	93	3	968
Metals																
cattle	0	28	0	0	1	27	0	2	0	1	1	12	0	2	2	72
pigs	0	13	0	0	1	4	0	3	0	0	0	9	0	6	1	35
poultry	0	0	0	0	0	9	0	5	0	0	0	8	0	0	0	22
sheep	0	29	0	0	0	4	0	6	0	3	1	12	1	11	2	65
other	0	0	1	2	0	0	2	7	0	0	1	5	0	0	4	14
Total	0	70	1	2	2	44	2	23	0	4	3	46	1	19	9	208
Miscellaneous																
cattle	0	44	0	7	0	57	0	6	0	4	0	21	0	4	0	143
feral	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
sheep	0	24	0	0	0	2	0	7	0	2	0	13	0	11	0	59
other	0	2	0	0	0	4	0	3	0	0	0	0	0	0	0	9
Total	0	71	0	7	0	64	0	16	0	6	0	34	0	15	0	213

for sulphadimidine (0.41 mg/kg). Other residues above MRL were cypermethrin (0.07 mg/kg) in a horse and two instances of flumethrin (0.08 and 0.24 mg/kg) in cattle samples. One of the latter two is a technical non-conformance, as the level is below the NRA-recommended MRL of 0.20 mg/kg, which has yet to be adopted into the Food Standards Code. Table 8 summarises the results for the quarter.

Further information about the National Residue Survey (NRS) can be found on the worldwide web at http://www.brs.gov.au/residues/residues.html where there are sections on:

- About the National Residue Survey;
- NRS staff contacts;
- NRS 1997–98 Annual Report (Summary);
- NRS 1998 Results (Summary);
- Recent NRS publications and papers;
- Extension materials for residues in meat;
- Frequently asked questions;
- Information for laboratories; and
- Associated web sites .

Full versions of Annual and Results Reports are available on request from:

Dr Rusty Branford,
NRS, National Offices of Animal and Plant Health and Food Safety,
GPO Box 858, Canberra, ACT 2601
Phone (02) 6272 5096
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E-mail rusty.branford@affa.gov.au

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.

Table 9: Summary of recent NAQS activity

	Apr – Jun 98		Jul – Sep 98		Oct – Dec 98		Jan – Mar 99		Apr – Jun 99		Note
	Tested	+ve	Tested	+ve	Tested	+ve	Tested	+v	Tested	+ve	
Aujeszky's disease	58	0	59	0	97	0	25	0	0	0	
Avian influenza	157	0	35	0	303	0	13	0	5	0	
Classical swine fever	70	0	57	0	97	0	25	0	0	0	
Infectious bursal disease	148	2	40	0	21	0	9	0	0	0	a
Japanese encephalitis	724	21	97	0	287	0	285	0	141	0	b
Newcastle disease	167	0	35	5	22	0	13	0	3	1	c
Old world screw-worm	0	0	0	0	1	0	0	0	0	0	d
Porcine reproductive and respiratory syndrome	58	0	57	0	37	0	25	0	0	0	
Surra	196	0	89	0	204	0	134	0	12	0	
Swine influenza	58	0	58	0	97	0	25	0	0	0	
Transmissible gastroenteritis	58	0	58	0	97	0	25	0	0	0	
Trichinellosis	22	0	0	0	42	0	6	0	0	0	

Notes

a Although mild infectious bursal disease (IBD) is endemic in poultry flocks and is occasionally found in wild birds, Australia is free of hypervirulent IBD virus.

b In 1995, 1996 and 1997, 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. No seroconversion occurred in either Torres Strait or mainland sentinel herds during the 1999 wet season.

c These are serological positives that were detected in wild birds as part of regular wildlife monitoring in the Northern Territory. The antibody titres indicate that the birds were exposed at some time to non-pathogenic strains of Newcastle disease virus. There was no evidence of clinical disease in the birds and no evidence of mortalities in wild birds or poultry in the area at the time.

d These figures are for *ad hoc* examinations of animals with lesions consistent with screw-worm fly infestation. In addition, three screw-worm fly traps are located at each of 24 sites in coastal areas across northern Australia. These traps are inspected monthly and no screw-worm flies have been found.

National transmissible spongiform encephalopathies surveillance program

The OIE International Animal Health Code requires that countries, such as Australia, claiming to be free of transmissible spongiform encephalopathies have in place a surveillance system to detect BSE and scrapie should they occur. The National Transmissible Spongiform Encephalopathy 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 those diseases should they occur.

Table 10 summarises the activity of the program over the past five quarters. Except for a small number of animals for which the specimens where unsuitable for testing, all the results were negative.

Contact: Chris Baldock, AAHC's NTSESP National Coordinator, http://www.brs.gov.au/aphb/ntsesp

Table 10: TSE surveillance

	Apr – Jun 98		Jul – Sep 98		Oct – Dec 98		Jan – Mar 99		Apr – Jun 99	
	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep
NSW	2	4	22	25	11	16	27	59	22	12
NT	11	0	6	0	8	0	4	0	3	0
QLD	15	1	64	11	56	9	35	15	43	4
SA	0	0	12	8	3	2	0	2	0	0
TAS	2	1	2	2	2	2	0	0	0	0
VIC	6	8	16	8	69	127	12	25	0	28
WA	8	0	15	15	6	17	1	20	17	19
AUS	44	14	137	69	155	173	79	121	97	63

Zoonoses

The National Notifiable Diseases Surveillance System of the Communicable Diseases Network Australia New Zealand collects statistics about many human diseases. *Communicable Diseases Intelligence* (CDI) is accessible on the internet (at http://www.health.gov.au/pubhlth/cdi/cdihtml.htm). Table 11 summarises information for important zoonoses.

Contact: Communicable Diseases Intelligence, Australian Department of Health and Aged Care

Table 11: Notifications of zoonotic diseases in humans

Disease	Q2-98	Q3-98	Q4-98	Q1-99	Q2-99	Current quarter							
	Australia				AUST	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Brucellosis	50	56	14	5	9	0	0	0	9	0	0	0	0
Hydatidosis	71	74	13	6	12	0	0	0	2	2	0	8	0
Leptospirosis	175	178	68	99	149	0	14	0	132	0	1	2	0
Listeriosis	63	41	15	14	11	0	5	0	3	1	1	0	1
Ornithosis	43	38	28	17	29	0	0	0	0	4	0	25	0
Q fever	685	680	148	128	128	0	43	0	70	1	0	13	1

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 1999

Serovars	avian	bovine	canine	equine	feline	ovine	porcine	other	Total
S. bovismorbificans	0	7	0	0	0	1	0	4	12
S. dublin	0	27	0	0	0	0	0	0	27
S. infantis	0	0	1	0	2	0	1	0	4
S. typhimurium	6	78	5	0	4	4	7	9	113
Other	4	24	10	3	6	0	22	70	139
Total	10	136	16	3	12	5	30	83	590

Suspect exotic disease investigations

There were 16 exotic disease investigations reported during the quarter, as shown in Table 13.

Table 13: Suspect exotic disease investigations from 1 April to 30 June 1999

Disease	Species	State	Response (see key)	Finding
Aujeszky's disease	porcine	WA	3	Negative
Aujeszky's disease	porcine	WA	3	Negative
Foot-and-mouth disease	bovine	QLD	2	Lantana poisoning
Foot-and-mouth disease	caprine	QLD	2	Scabby mouth
Japanese encephalitis	equine	QLD	2	Negative
Japanese encephalitis	equine	VIC	2	Negative
Japanese encephalitis	equine	VIC	2	Negative
Newcastle disease	avian	QLD	3	Negative
Newcastle disease	avian	VIC	2	Negative
Newcastle disease	avian	WA	2	Negative
Newcastle disease	avian	VIC	2	Bacterial infection
Rabies	feline	NSW	3	Trauma
Tropical canine pancytopaenia	canine	NT	3	Negative
Vesicular disease	bovine	VIC	2	Bovine viral diarrhoea
Vesicular disease	bovine	TAS	2	Warts
Vesicular disease	ovine	NT	2	Trauma

KEY: 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) is on the internet (http://www/brs/gov/au/aphb/aha). NAHIS collects summaries of animal health information from many sources. 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	ausvet@eis.net.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 Diseases, 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@pi.sa.gov.au
John **Elliott**	Tas. State Coordinator	03 6336 5334	03 6336 5374	John.Elliott@dpiwe.tas.gov.au
John **Galvin**	Vic. State Coordinator	03 5430 4517	03 5430 4505	john.galvin@nre.vic.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
David **Kennedy**	Ovine Johne's Disease Coordinator	02 6365 6016	02 6365 6088	ausvetdk@netwit.net.au
Diane **Lightfoot**	National Salmonella Surveillance Scheme	03 9344 5701	03 9344 7833	d.lightfoot@ microbiology.unimelb.edu.au
Bill **Matthews**	National Granuloma Submission Program	02 6272 5042	02 6272 3307	William.Matthews@aqis.gov.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
Peter **Thornber**	International Coordination, AFFA	02 6271 6343	02 6272 5697	Peter.Thornber@affa.gov.au

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