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

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Preface

A summary of a review into animal health surveillance provides the lead article for this quarter's newsletter. In addition, there are highlights of disease surveillance activities and items of interest from States and Territories.

This newsletter summarises the findings of disease surveillance and monitoring activities reported to the National Animal Health Information System (NAHIS) for the period from 1 April to 30 June 1998. 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.

I am sure that you will find this report to be useful.

GARDNER MURRAY
Australian Chief Veterinary Officer

Review of animal health surveillance in Australia

In April 1997, the Australian Animal Health Council Ltd (AAHC) commissioned a task group to review and make recommendations on the development of a national strategy for animal health surveillance to meet the current and future needs of Australia's livestock industries. This task group was led by Dr Helen Scott-Orr from NSW Agriculture and reported in October 1997 with a total of 29 recommendations to improve animal health surveillance in Australia. The AAHC Board considered the report at its November 1997 meeting and it was then distributed to Company Members with a synopsis highlighting the broad issues and the Board's response to key recommendations. The task group report gives the details and the full range of issues addressed.

The surveillance task group identified a range of needs for animal health surveillance. These included:

- assurance of freedom from specified diseases affecting on trade;
- provision of information on Australia's endemic disease status;
- support for international and interstate trade certification;
- detection of threats, incursions and emerging diseases;
- support for Australia's zoning, control and eradication of specified diseases;
- assurance of food safety — microbial and chemical.

There is a wide range of diseases, many of which are at present exotic to Australia, for which there may be a need for increased surveillance information in the future. Diseases identified by the task group for which some action may be required in the short to medium term are summarised in Table 1. Diseases of aquatic animals were not included in the review, as these are being considered separately by the Fish Health

Contents

Table 1: Diseases that might require some short to medium term action

Species	Diseases
cattle and buffalo	bovine spongiform encephalopathy, surra, haemorrhagic septicaemia
sheep and goats	sheep and goat pox, *Brucella melitensis*, contagious caprine pleuropneumonia, enzootic abortion of ewes, contagious agalactia, *Salmonella abortus-ovis*
pigs	Aujeszky's disease, transmissible gastroenteritis, *Taenia solium*
poultry	None identified
horses	equine influenza, contagious equine metritis, surra
bees	American foulbrood

Management Committee. The task group also felt that there is a need to consider wildlife in any comprehensive surveillance program.

The task group proposed a goal for animal health surveillance in Australia :

- *The goal is to provide accurate and timely information to support trade, livestock productivity and health.*

The group also proposed objectives for animal health surveillance to collect, collate and report reliable animal health data to:

- assure freedom from specified exotic agents and animal diseases;
- detect and report rapidly any exotic or new/ emerging diseases and permit retrospective analysis of their source;
- support zoning in the event of an incursion of exotic disease or for endemic diseases and assess progress of disease accreditation/control/ eradication programs;
- enable accurate certification of livestock and livestock products for export and interstate trade purposes;
- assess distribution, prevalence and/or incidence of endemic diseases for control programs and provide background knowledge for recognition of new diseases; and
- help assure public health and food safety by demonstrating the incidence and prevalence in pre-slaughter and slaughter animals of biological, chemical and physical agents endangering human health.

The AAHC Board accepted this goal (with the exclusion of livestock productivity) and these objectives for animal health surveillance in Australia.

The task group identified five priority projects:

1 Industry setting priority for surveillance needs.

2 Assessment of information from sentinel and accredited veterinary practices.

3 Development of national information standards for field, saleyards and abattoir data.

4 Improved identification and tracing system for imported animals.

5 Implementation of a surveillance system for transmissible spongiform encephalopathies (TSEs).

Several of these priorities have now either been addressed or plans are being developed. An equine sentinel practice system is being developed on a pilot basis in Victoria and national TSE surveillance consistent with the International Animal Health Code of the Office International des Epizooties is in place (see *AHSQ Vol. 2, No. 4*). Different animal industries are reviewing their surveillance needs. An accreditation scheme for private veterinary practices to be accredited for some aspects of surveillance and disease control activities is being developed. A system of unique individual animal identification is being developed for cattle.

Many of the task group's recommendations were relevant to Australia's NAHIS and the report was discussed at the October 1997 NAHIS Coordinators' meeting with the view to developing efficient strategies for implementation. One key result has been the development of a plan to introduce specific disease exclusion (enhanced passive surveillance) on a pilot basis in 1999 throughout Australia.

Further information is available from:

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Contributed by Chris Baldock, AusVet Animal Health Services

Update on Northern Australia Quarantine Strategy

Information from surveillance activities of the Northern Australia Quarantine Strategy (NAQS) is regularly featured in *AHSQ*. In light of the recent findings of Japanese encephalitis in Queensland, and Asian honey bee in the Northern Territory described in this issue, it was felt appropriate to review recent activities and future priorities of the program.

The NAQS scientific sub-program (NAQS-Scientific) undertakes surveillance and monitoring to provide early warning of exotic pest and disease risks. This is in accordance with recommendations of a review commissioned by the Australian Quarantine and Inspection Service (AQIS) in 1995. A prominent feature of the program is the intensive surveillance and monitoring activity undertaken in the highest risk region — the Torres Strait. Among the perceived highest animal health risks in this area are screw-worm fly, Asian honeybee, Japanese encephalitis, surra and classical swine fever. Surveys of coastal areas between Broome and Cairns are undertaken by NAQS scientists at frequencies in accordance with the assessed risk level. The Queensland Department of Primary Industries (QDPI) and AQIS have allocated additional resources to reinforcing the roadblock at Coen in Cape York Peninsula (to exclude fruit fly host materials) and increasing surveillance and monitoring in Cape York Peninsula.

During the past 12 months, NAQS scientists have been involved in incursions of Japanese encephalitis and Asian honey bee. Japanese encephalitis was detected in the Mitchell River region of Cape York Peninsula in February. This was the first detection on the Australian mainland. The virus was first detected in humans and subsequently found in pigs in the region. In June, the NAQS entomologist in Darwin identified Asian honey bee from a hive in Darwin. The nest was destroyed and intensive surveillance has not revealed any other infestations. Asian honey bee harbours parasitic mites that could infest introduced European honey bee (*Apis mellifera*) populations in Australia with serious consequences.

During 1998–99, NAQS-Scientific will reorganise its sentinel pig and cattle monitoring program. This will include direct ownership of the animals by AQIS and expansion of the program in Western Australia and the Northern Territory.

AQIS has Memoranda of Understanding and contractual agreements with the governments of Indonesia and Papua New Guinea (PNG) for collaborative activities to assess the pest and disease status in these countries. The Memorandum of Understanding with Indonesia was renewed for a further five years from February 1998. In addition to the management of activities by agencies in these countries, NAQS scientists have undertaken plant and animal surveys of coastal and border regions of PNG, Irian Jaya and Timor, to assess pest and disease risks in these areas and to interact with local communities.

In future, NAQS-Scientific plans to contract Australian research agencies, such as the Australian Animal Health Laboratory (AAHL), to manage research activities in Indonesia and PNG rather than entering into contractual arrangements with agencies in these countries directly.

NAQS-Scientific has also contracted out research projects on a number of issues to improve the effectiveness of specific surveillance and monitoring programs. Projects include the development of improved screw-worm fly traps, development of Asian honeybee traps and application of pheromones, and improved diagnostic tests for surra and Japanese encephalitis.

Contributed by Paul Pheloung,
Australian Quarantine and Inspection Service

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.

Japanese Encephalitis

Following the diagnosis of Japanese encephalitis (JE) in a fatal outbreak of encephalitis in humans on Badu Island in 1995, sero-epidemiological surveys of domestic pigs were conducted by the Northern Australian Quarantine Strategy (NAQS), with support from the Queensland Department of Primary Industries (QDPI) and the Queensland Department of Health (QHealth). These surveys included all the islands of the Torres Strait and the northern peninsula area (NPA) of Cape York Peninsula. Seropositive pigs were detected on nine of the most northerly Torres Strait islands. Some horses and dogs were also found to have seroconverted.

As a result, NAQS, QDPI and QHealth set up a network of sentinel herds in the Torres Strait and the NPA, the aim being to detect any incursion from the Western Province of Papua New Guinea (PNG) where the disease was believed to have recently established. Sentinel pigs were established on Badu, Saibai and Darnley Islands in 1996. The sentinel program was supplemented by survey visits by NAQS staff to the other islands where pigs, horses and poultry were also tested. In March 1996, 12/13 sentinel pigs on Saibai Island had seroconverted. No other sentinel pigs or animals bled during surveys in 1996 seroconverted. As the majority of human inhabitants of the northern Torres Strait had been vaccinated by QHealth in 1995 in response to the outbreak, only the seroconversion of sentinel animals could provide indications of JE activity in the area.

Following a review of the animal program in late 1996, a sentinel cattle herd was established at Bamaga, although the sensitivity of cattle as sentinels for JE has not yet been established. The sentinel animal herd operations were complemented by a series of surveys covering the Torres Strait, NPA and Cape York Peninsula. Samples of sera from wild migratory waterbirds, collected by cannon netting, were also tested for JE and other avian diseases.

QHealth collaborated by providing serological testing of samples obtained from the sentinel herds and surveys. Duplicate samples were tested for other exotic animal pathogens by the Australian Animal Health Laboratory (AAHL). Results were distributed to all participating and interested agencies, and feedback provided to the local inhabitants.

Results from the 1996–97 NAQS program indicated seroconversion of sentinel pigs on Saibai Island only. These pigs seroconverted in March 1997, showing that infection of the top western islands was a repetitive event probably linked to the seasonal changes at this time of year.

A NAQS general animal survey of the PNG–Irian Jaya border region was conducted in mid-1997. Serological results indicated widespread exposure of domestic and feral pigs to JE, particularly in the Western Province of PNG. QHealth and the University of Queensland conducted human serosurveys, mosquito trapping and viral isolation studies in the area. Their results also indicated that an epidemic of JE was occurring in southern PNG.

Following consultation with all participating agencies, and in view of the potential reservoir of JE present in PNG, the NAQS surveillance effort was increased in 1997–98 to provide early warning of any incursion of JE into Torres Strait and northern Australia. It is generally acknowledged that the virus tends to cycle in naive pigs before spilling over into the human population. However, due to the lag in development of protective antibodies in pigs and the processing times for the samples, diagnostic results may not give much advanced warning before to development of clinical disease in unprotected humans. Nevertheless, results from sentinel pigs are invaluable for confirming an incursion and delineating its distribution. This information is essential for planning response actions by both human and animal health authorities.

For 1997–98, NAQS expanded sentinel pig herds to include Saibai, Boigu, Badu, Moa (St. Pauls community) Mabuiag and Yam Islands. Other islands would be covered by six-monthly surveys. However, since the 1995 outbreak on Badu Island, island communities have been steadily reducing numbers of domestic pigs. This caused some problems, with low numbers of pigs of a suitable age being available for sentinel herds or for bleeding as part of surveys. Yam Island had to be dropped from the sentinel herd program as there were no suitable pigs present, and islands such as Boigu had

a total of only four pigs, two of which would soon be too old to sample. In spite of these difficulties, sufficient numbers of pigs were tested in December 1997 and January 1998 to show no indication of JE activity at that time.

JE incursion

The first indication of an incursion of JE into Torres Strait in 1998 was the nearly simultaneous seroconversion of sentinel pigs on Badu and Moa Islands and the diagnosis of a clinical case in a eleven-year-old unvaccinated boy resident on Badu Island. This was followed by seroconversions of sentinel pigs on Saibai, Mabuiag Islands and at Seisia on the Australian mainland.

The consensus of opinion in the participating agencies is that this incursion was probably due to windblown infected mosquitoes from PNG. Contributing factors include the drought in PNG, which allowed very large numbers of mosquitoes to breed in the resulting stagnant water, and strong north-westerly winds capable of transporting these mosquitoes to the Torres Strait and Cape York Peninsula. The evidence from the NAQS sentinel herds suggested that a major incursion was occurring. NAQS personnel immediately initiated a response to determine the extent and rate of spread. Surveys were conducted and all pigs in island and regional mainland communities not containing sentinel animals sampled. Pigs seroconverted on all Torres Strait islands where they were present, except for Warraber and Kodall Islands. Pigs on Hammond Island had also seroconverted as well as those on nearby Thursday Island.

As only residents on the northern islands had previously been vaccinated, the results from the NAQS surveillance resulted in prompt action from QHealth to extend its human serosurveillance and response actions beyond Badu Island to other communities.

JE on the Australian mainland

Within weeks of the initial human clinical case and seroconversion of pigs in Torres Strait, a second human case was diagnosed on 23 March in a fisherman in the Mitchell River region of western Cape York Peninsula. This was the first recorded incursion of JE onto the Australian mainland.

Following discussions with QHealth and QDPI, NAQS surveyed areas in the west coast of Cape York Peninsula and the Gulf of Carpentaria. This response centred on the rapid collection of sera from domestic and feral pigs in the Pormpuraaw and Kowanyama area to confirm the presence of JE and to discover the extent of its spread. Concurrently, QHealth conducted a serosurvey of human residents of this area. Other NAQS staff conducted cannon netting operations in the Karumba region to sample waterbirds.

In a joint NAQS and QDPI helicopter and ground-based survey of the Mitchell River area, sera were obtained from 114 feral pigs and 20 domesticated pigs. This was sent to QHealth's laboratory in Brisbane and to AAHL. Results from the adult feral pigs were complicated by concurrent exposure to endemic flaviviruses, but 6 of 20 domestic pigs showed serological evidence of exposure to JE only. This result, coupled with the recovery of JE virus and PCR (polymerase chain reaction) product from sentinel pigs on Mabuiag Island and at Seisia, confirmed the extent of the incursion.

Human serological testing failed to detect any further unequivocal human cases. However, the potential seriousness of the situation prompted QHealth and the Commonwealth Department of Health and Family Services to hold a conference at Cairns on 8–9 July with all major stakeholders to discuss courses of action.

Future directions

The conference recognised the pivotal role played by the NAQS sentinel animal herds and recommended that these be extended to provide coverage of the whole of Cape York Peninsula, Gulf of Carpentaria, and the northern areas of the Northern Territory and Western Australia. These recommendations were accepted by AQIS and planning has commenced to extend sentinel activities. Survey activities have also been expanded in the 1998–99 NAQS operational plans.

Contributed by Jonathan Lee, Northern Australia Quarantine Strategy, AQIS

NATIONAL ARBOVIRUS MONITORING PROGRAM: 1997–1998

As is normally the case in most years, there was limited localised arboviral activity in northern Australia in the latter part of 1997, followed by an increase in activity in north and eastern Australia in the first half of 1998.

Monitoring established the continuing freedom of southern Australia from bluetongue, Akabane and bovine ephemeral fever (BEF) viruses and the proven vectors of bluetongue virus, *C. actoni, C. brevitarsis, C. fulvus and C. wadai*.

Bluetongue

Sentinel cattle seroconverted to bluetongue virus in the third quarter of 1997 at Kununurra in Western Australia (WA) and Victoria River in the Northern Territory (NT), while in the last quarter of the year there was a single seroconversion to bluetongue at Kununurra and the virus was active at Dalby in Queensland in the second half of 1997.

In the first quarter of 1998, sentinels at Kununurra seroconverted to bluetongue, no activity was detected in NT, and the virus was detected only at Maryborough in Qld, and in two herds on the far north coast of New South Wales (NSW), at Lismore and Casino.

In the second quarter of 1998, there was no bluetongue virus activity detected in WA, sentinels in the north of the seroconverted as did sentinel cattle in Queensland at Beaudesert, Biloela, Kingaroy and Maryborough and in NSW at all coastal herds as far south as Taree. BLU 1 was isolated in the NT and BLU 21 was active in NSW.

Akabane virus

In the third quarter of 1997, the only Akabane viral activity detected in Australia was in sentinel cattle at Kununurra and Kalumburu in Western Australia. In the last quarter of 1997, sentinel cattle at three sites in the Top End of the NT and at Maryborough in Queensland were infected with the virus.

In the first quarter of 1998, Akabane virus infected sentinels at Kalumburu and Kununurra, in the north of the NT, at Maryborough, Chinchilla, Dalby and Kingaroy in Queensland and in NSW on the north coast, the Hunter Valley and Camden.

In the second quarter of 1998, there was no Akabane virals activity detected in WA, the virus was widespread in NT with seroconversions in all northern sentinel herds. Sentinel animals were infected at Beaudesert, Maryborough and Rockhampton in Queensland, and the virus was widespread in NSW with sentinels seroconverting on the coast as far south as Nowra, the Hunter Valley and the New England tableland.

Bovine ephemeral fever

Sentinel cattle seroconversions to BEF in the third quarter of 1997 were a single animal at Kalumburu, and at Victoria River in NT. BEF virus was detected in a single sentinel herd in the last quarter at Coastal Plains Research Station in NT. Sentinel herds at St George and Dalby in Queensland seroconverted in the second half of 1997.

In the first quarter of 1998, BEF virus infected sentinels at Kununurra, WA, in the north of NT and at Dalby in Queensland. In the second quarter of 1998, no BEF viral activity was detected in WA or NSW, and there was limited activity in the north of NT and at Maryborough in Queensland.

Vectors

In the third quarter of 1997, in WA, the four proven bluetongue vectors, *C. actoni, C. brevitarsis, C. fulvus and C. wadai*, were trapped at Kalumburu but only *C. brevitarsis* was collected at Kununurra. In NT, all four species were collected at Coastal Plains Research Station and *C. brevitarsis* was collected at all sites sampled in the Top End. In Queensland, vectors were trapped at only one monitoring site, at Weipa.

In the last quarter of the year, unusually large numbers of *C. peregrinus*, suspected to be an occasional bluetongue viral vector, was trapped at Kununurra. Vector numbers were low at all sites in NT during the fourth quarter, with *C. brevitarsis* being trapped at all sites in the north of NT. In Queensland in the fourth quarter of 1997, vectors were identified from traps at Dalby, Maryborough and Normanton. *C. brevitarsis* was trapped in NSW at Coffs Harbour, Paterson and Tenterfield.

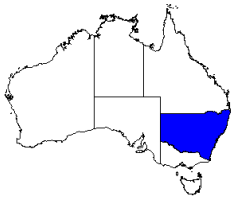
In the first quarter of 1998, bluetongue vectors were trapped at Kalumburu and Kununurra, in the Top End of NT, in Queensland at Cooktown, Maryborough, Dalby and, unusually, at Oonoonba. In NSW, *C. brevitarsis* was trapped on the north coast, the Hunter Valley, at Tenterfield and at Nowra.

In the second quarter of 1998, the only bluetongue vector identified from trap collections in WA was *C. brevitarsis* at Kalumburu and Kununurra. Trap identifications were not undertraken in NT because of the Asian honey bee control program. In Queensland bluetongue vectors were identified from trap collections at Cooktown, Maryborough, Wiepa and the unusual recoveries from Oonoonba continued. In NSW, *C. brevitarsis* was more widespread that usual, being collected at coastal sites as far south as Nowra, in the Hunter Valley and the New England. *C. wadai* was collected on the far north coast, the first time this species has been detected in NSW since 1985.

Contributed by Geoff Gard,
Bureau of Resource Sciences

State and Territory Reports

New South Wales



Contributed by:
Evan Sergeant
NSW Agriculture

Avian influenza outbreak, 1997

The Tamworth virulent avian influenza outbreak was officially declared over on 12 June, following the completion of all surveillance and the elapse of six months since the last case.

Anthrax

There were eight anthrax investigations carried out during the quarter, all with negative results. The total number of incidents for the 1997–98 season remains at 13: 7 in cattle, 5 in sheep and 1 in pigs.

Footrot

Despite difficulties with drought for most of the year, the survey of ovine footrot in the Northern Tablelands has been completed. Preliminary laboratory results indicate a much lower prevalence of disease than that detected in the areas surveyed last year. The survey planned for the Monaro was not carried out because of the drought conditions.

Cattle Tick Control Program

The cattle tick examination program is almost complete. By late May, 73 infested properties had been detected. Of these, 23 were associated with last year's infestations — 17 as neighbours and six as the result of reappearances of ticks on properties where mustering problems had prevented eradication. Of the 50 new infestations detected, 36 were related into ten groups due to straying, common use of yards or stock movements.

Ten infestations have been detected by saleyard monitoring and five have been reported by stock-owners — a significant increase in detections by means other than on-property inspection.

Salmonella

Salmonella enteritidis

The NSW *Salmonella enteritidis* Accreditation Scheme, the first scheme of its kind in Australia now covers 60 commercial egg farms in NSW (consisting of 135 flocks). The farms range in size from a one-shed farm to a 15-shed farm. Each farm is monitored under the scheme at monthly intervals for *S. enteritidis* by environmental sampling. Since the inception of the scheme 12 months ago, no *S. enteritidis* or *S. pullorum* have been detected in any of the monitored flocks.

Salmonella pullorum

All major poultry breeding flocks in NSW are participants in the NSW *Salmonella pullorum* Accreditation Scheme. The scheme requires each breeding flock at the nucleus, great grandparent and grandparent level to be subjected to either a sample serological testing or early microbiological monitoring once every 12 months. Most of the flocks in the Scheme are also being monitored for *S. enteritidis* every 1–3 months depending on the ration. No *S. pullorum* or *S. enteritidis* have been found in any of the participating flocks.

Bat viruses

During the quarter, 16 fruit bats and 2 micro-bats were examined for evidence of lyssaviral infection. Infection was confirmed in one fruit bat, with the remaining animals all negative. A total of 166 fruit bats and 39 micro-bats have now been examined in NSW, with 10 fruit bats being infected.

Two horses were examined for evidence of bat paramyxovirus infection during the quarter, with negative results. Thirteen horses have now been examined for evidence of paramyxovirus infection in NSW, all with negative results.

Bee diseases

There have been 819 tests for American foulbrood done since July 1997. Of the 390 positive reports, 264 were new cases and the remaining 126 were repeat tests on previously confirmed cases. Eighty-one of the 264 'new cases' had also had positive reports during the 1996–97 financial year.

Five reports of chalkbrood were received during the quarter.

Suspect rabies in a cat

A cat with deranged behaviour caused a significant exotic disease alert when a Sydney veterinary practitioner reported suspected rabies on the Disease Watch Hotline. Coupled with a suspicious history (the cat was imported from a rabies-endemic country through proper quarantine channels last year), legal action was initiated to secure the animal. The owner consented to euthanasia following advice from a specialist veterinary neurologist. The Elizabeth MacArthur Agricultural Institute arranged prompt collection and testing of the animal and, in collaboration with AAHL, was able to exclude both rabies and lyssavirus within 27 hours of the alert commencing.

Subsequent testing showed, within three days, that the cat suffered from a progressive and incurable brain disease called ceroid lipofuschinosis. The responses of staff to this alert demonstrated that our animal disease emergency communication and response systems work well. The professional actions by the practitioner are also commendable.

Rabies exclusion testing was also carried out on the brains of four other cats during the quarter.

Ovine Johne's disease surveillance

Current Situation

On 11 July 1998, there were 278 flocks with a history of infection with ovine Johne's disease (OJD), of which 249 are still classified as infected. The great majority of these flocks are located within the central and southern tablelands area, with some infected flocks in the south-west slopes area, and isolated cases elsewhere. A further 294 flocks have been identified as suspect as a result of tracing from known infected flocks and are being further.

Source of infection

Where investigation of known infected flocks has been completed there have been two distinct patterns of infection:

- In the Central Tablelands, Goulburn and Yass districts, most infections relate to local spread of disease or disease of unknown origin.
- In all other districts, most infected flocks have been due to introduction from other districts (primarily Central Tablelands, Goulburn or Yass) or from limited local spread within the district. Identification of the source of infection has occurred for most flocks in these districts.

Interim Surveillance and Research Program

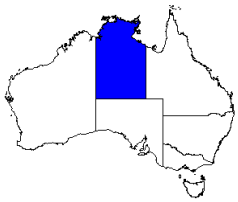
In NSW, the National investigated under the Interim Surveillance and Research Program (ISP) for OJD started on 1 April 1998. This program has concentrated on investigation of flocks identified by tracing from known infected flocks, subsidised testing for OJD for entry of flocks into the Market Assurance Program (MAP), and testing of identified 'at risk' flocks in potential protected and control zones.

By 11 July 1998, 537 investigations had been done in 428 flocks (52 000 blood samples), with OJD confirmed in 36 of these flocks. A further 47 flocks had serological positive animals that are still being followed up to confirm their status. Most of the newly detected infected flocks are in areas with previously identified infected flocks, rather than representing new foci of infection.

Serological Testing

Since 1994, more than 111 000 blood samples have been serologically tested for OJD in NSW. Although many of these tests haves been associated with investigation of infected and suspect flocks in the infected areas, there has been considerable surveillance in other areas.

Northern Territory



Contributed by:
Diana Pinch
NT DPIF

Services

The move of the veterinary laboratories to the purpose-built A.L Rose Veterinary Laboratory was completed in April, just before the official opening. A number of Australian animal health committee meetings, as well as a Regional Animal Health Seminar, were organised to use the gathering together of the scientific and technical expertise.

Cattle

In April, deaths in cattle on an Alice Springs property, and abnormal physical signs in other stock, were investigated. Results of blood tests showed six out of 10 stock sampled had been exposed to botulism (five to type C and one to type D). All stock tested were station-bred and no previous botulism vaccination had occurred. A vaccination program has commenced, and the efficacy is being evaluated.

A survey to define accurately the bluetongue areas in NT to facilitate live cattle exports to new markets is underway. Almost 4000 blood samples from more than 80 properties will be collected and tested by the end of 1998.

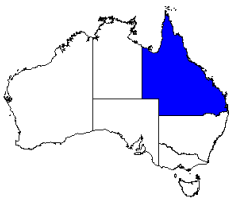
Asian honey bees

In mid-June a hive of Asian honey bees (*Apis cerana*) was detected in a Darwin suburb. This was the first time they had been found on mainland Australia and an eradication program was put in to action. These bees are considered a threat because they compete with European honey bees and with native bees for food and habitat, and are not suitable for commercial honey production. They may also carry exotic mites, which could decimate hives of European honey bees. Fortunately, no mites were detected on the Asian honey bees examined from the hive detected in June.

No further Asian honey bees have been detected. Various techniques have been used to check both feral bees and bees from managed hives for mites. Examination of adult bees and of capped brood, and sticky sheets to trap any mites in a hive, are used to check for *Varroa jacobsoni* and *Tropilaelaps clarae*. Examination of the tracheas from adult bees is carried out to check for *Acarapis woodi*. No mites have been found.

The eradication program is continuing, and surveillance will be intensified closer to the wet season when bee activity is expected to increase.

Queensland



Contributed by:
Gavin Ramsay
Queensland DPI

Propionibacterium lymphophilum

The bacterium, *Propionibacterium lymphophilum* was isolated from abscesses identified at slaughter in cattle from three rangeland grazing beef enterprises in north, central, and west Queensland. The lesions varied from pea-size to cricket-ball-size and were located in the tongue, lungs, rib cage, diaphragm, liver, spleen, kidney and mesenteric lymph nodes. The number and location of abscesses varied considerably between animals, with the most common site being the visceral wall of the rumen and reticulum. Further investigations are being carried out on properties and at abattoirs to determine the epidemiology and confirm distribution of the infection. *P. lymphophilum* forms part of the normal flora of human skin and is rarely pathogenic to people.

Sorghum ergot

Significant drops in milk production have been reported by dairy producers who have fed their cows on stands of forage sorghum and other sorghum species affected by sorghum ergot (*Claviceps africana*). Feeding trials conducted by the QDPI with cattle and pigs have confirmed significant production losses associated with feeding sorghum grain, affected by sorghum ergot to cattle and pigs.

Neurological diseases

As a result of the TSE surveillance program, the distribution of a number of other known neurological diseases is being more effectively defined — in particular Pompe's disease and osteo-chondrosis (OCD) in cattle. Although OCD is usually associated with intensive feeding regimes, in

central Queensland cases of OCD have been diagnosed in Brahman cattle grazing native pastures. In addition, some unusual sporadic conditions have been diagnosed. For example one dairy cow examined had an adenocarcinoma of its pituitary gland.

Respiratory disease

Atypical interstitial pneumonia (AIP) caused deaths on a central Queensland property. Most of a mob of 30 cattle were affected, with three young stud bulls dying. The remaining sick cattle recovered. The cattle were grazing a newly established stand of leucaena with a heavy growth of pigweed (*Portulaca oleracea*). Tests showed levels of the protein L-tryptophane in the leucaena sufficient to cause AIP. Other toxins that can be present in pigweed can cause AIP, and samples of pigweed are currently being tested. If these tests prove negative, this will be the first reported case of AIP caused by L-tryptophane in Queensland.

Ticks and tick fever

There were reports of tick fever in cattle due to *Babesia bovis*, *Babesia bigemina* and *Anaplasma marginale* from central, south and south-east Queensland after good late autumn rains and associated tick infestations. Most outbreaks were small, with low morbidity and mortality.

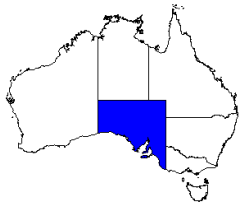
There were two separate incursions of cattle tick (*Boophilus microplus*) into the tick-free west region. Both cases involved movement of horses into the region that avoided correct treatment at a clearing dip. Following detection, both incidents were controlled promptly by local QDPI stock inspectors.

Sheep and goats

The good rainfall this autumn in west Queensland has produced a number of problems in sheep in the south of the region. There has been a high incidence of blowfly strike, particularly in weaner sheep, gastrointestinal parasites and mycotic dermatitis (lumpy wool).

Internal parasites were recorded in goats on numerous properties surrounding Townsville. *Haemonchus contortus* was a major parasitological finding and clinical signs of anaemia were seen. In one case, four severely affected does died from a flock of 30 animals.

South Australia



Contributed by:
Kim Critchley
Primary Industries SA

Ovine Johne's disease

The OJD MAP received a financial incentive from the State Government through a subsidy to offset some of the laboratory costs of testing. Approximately 50 producers have attained MN1 status and 30 000 sheep have been tested in the past six months.

In late June, a producer on Kangaroo Island reported a history of wasting with some deaths in older sheep. The presence of OJD was confirmed by histopathology and serology. Intensive traceforward and traceback has now begun in an attempt to establish the origin and possible spread of the disease. The owner considers the problem may have been present for about five years.

Infectious laryngotracheitis

A broiler poultry farm consisting of five sheds each containing about 25 000 birds reported a severe respiratory condition in one shed. It began at one end of the shed and moved through the shed over about three days. The birds had swelling around the eyes, conjunctivitis and began coughing blood. Mortality peaked at 200/day and total mortality was about 5%. Infectious laryngotracheitis (ILT) was confirmed by histopathology and the farm was depopulated.

The company involved began a vaccine program, using A20 strain, of all at risk birds on other farms. About eight days after vaccination, one shed on a three-shed farm developed a mild respiratory condition. This was also confirmed histologically as being ILT and investigation of that shed suggested possible inadequate vaccine technique allowed passage of the vaccine virus. Total mortality did not exceed 1.5% and other sheds on the farm vaccinated by another operator were not affected.

Thromboembolic encephalitis

A six-month-old calf was found recumbent after a period of incoordination. Its body condition was good. The initial diagnosis was encephalomalacia. The brain was submitted fixed in formalin and

hence no culture was possible but stained sections indicated a possible diagnosis of sporadic bovine encephalomyelitis (SBE, not to be confused with BSE — bovine spongiform enceph-alopathy). However, special staining revealed emboli of bacteria in vessels more suggestive of an infection with *Haemophilus somnii*. Both SBE and *H. somnii* disease occur sporadically in South Australia.

Barramundi nodavirus

A barramundi rearing enterprise had a sudden increase in mortality in 21-day-old hatchlings received at two days after hatch from Queensland. The histopathological changes were suggestive of nodavirus infection and this was confirmed by electron microscopy at AAHL and in specimens sent to Japan.

Lyssavirus, morbillivirus and fruit bats

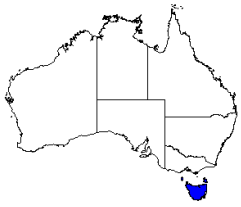
As part of the bat surveillance program for lyssa- and morbilliviruses, it has now been discovered that there are some small colonies of grey-headed fruit bats in the south-east of SA. This species is recognised as a potential carrier of both viruses.

Exotic animal disease training

Exotic disease training for veterinary practitioners in June attracted more than 40 participants. Interstate and local speakers presented the material. At the end, those who wished could undertake an open book examination that, if passed, would enable them to be employed on investigation work in the event of an incursion of an exotic disease.

Tasmania

Contributed by:
Rod Andrewartha
DPIF, Tasmania



Sudden deaths in cattle

Sudden deaths in cows and sheep within a few days of being placed in the paddock during autumn were associated with the recovery of large colonies of the blue–green alga *Microcystis flosaquae* in water samples from a dam in a paddock. Deaths stopped as soon as remaining animals were removed from the paddock. Histopathological examination of the liver from one sheep revealed extensive acute hepatic necrosis with a possible periacinar orientation. This species of alga is not usually associated with toxicity in other Australian States. However, the Tasmanian sample was found to have some morphological differences and is possibly a subspecies. It has been suggested that this algal species may elaborate toxins in regions with cooler climates. A further interesting finding was the presence of a low number of spores of the fungus *Pithomyces chartarum* in a pasture sample collected from the problem paddock. This fungus is known to be the cause of facial eczema. However, the pattern of liver damage associated with this toxicity is different and photosensitisation has not been observed in the remaining animals.

Sudden deaths were also seen in dairy cattle in a paddock used as a winter apiary site. The cattle presented with signs of lactic acidosis with three dead and 10 others recovering after treatment. The apiarist was feeding the bees with a sugar syrup and the cattle were inadvertently allowed to gain access to two drums of the syrup.

Exotic disease investigations

Two bats presented to the laboratory as separate submissions, one a possible cat victim. Samples from the first, a lesser long-eared bat (*Nyctophilus geoffreyi*), were sent to AAHL for serology. In the second, lyssavirus was excluded on histopathology.

In May, *Brucella canis* was excluded from material from three Shetland sheepdog bitches with late abortion and foetal mummification.

Ovine Johne's disease

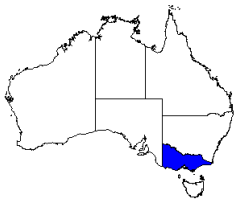
Under the OJD ISP, a further four infected properties have been detected in the State to the end of June, bringing the total to 12 infected properties. All these infected properties are located on Flinders Island. Two of the infected properties have been destocked of susceptible species. Follow up of tracings has not detected any infection on mainland Tasmania.

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 matters in Australia.

Victoria



Contributed by:
John Galvin
Agriculture Victoria

Floods in East Gippsland

After two years of severe dry conditions, East Gippsland suffered major flooding in late June. An assessment of livestock losses following this flooding has indicated that about 26 000 sheep and 5200 cattle died. The main causes of death were drowning and hypothermia (because stock were in light body condition). In addition, there have been significant losses of internal and boundary fencing, buildings, plant and machinery, and environmental problems including erosion, silting, accumulation of flood debris and pasture degradation.

Suspected onion grass toxicity

There have been reports of nervous disease and reduced fertility in sheep flocks in western and northern Victoria. Although onion grass (*Romulea rosea*) is the suspected cause, the toxic agent is as yet unidentified. Affected flocks have reported more than 10% of sheep showing the nervous syndrome, including knuckling of the forelimbs and hindlimbs (due to peripheral nerve damage), which progresses until sheep eventually become recumbent. There have been reports of sheep recovering following 7–12 weeks nursing, but many die in the meantime. Infertility problems have been reported, with one flock reporting lamb marking as low as 10%.

Ovine Johne's disease

In February 1998, government and industry agreed to establish an interim OJD research and surveillance program (see *AHSQ Vol. 3, No. 1*). The core components of this program in Victoria included investigation of flocks associated with known infected flocks, the establishment of a pilot abattoir surveillance program for OJD and subsidies for flocks to enter the OJD MAP. Between April and June 1998, 215 flocks and 17 068 sheep were tested for OJD. Seven new infected flocks were detected, all of which were neighbours of known infected flocks or were associated via the movement of sheep from known infected flocks. A pilot abattoir surveillance program has been established in two abattoirs in western Victoria. This program will be evaluated on its completion in August–September 1998.

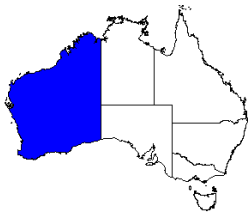
Surveillance for *Trichinella spiralis*

Overseas, *Trichinella spiralis* is a parasite that can cause human health problems. It infests the muscles of a number of mammalian species including pigs, dogs, walrus and humans. This parasite does not occur in Australia. As part of the conditions for export of pig meat to Russia, it is a requirement that pigs are tested for this parasite at slaughter. This involves testing diaphragm muscle in accordance with European Union standard protocols to detect the presence of the parasite. During 1997–98, some 23 805 pigs were tested, with all results negative.

Nitrate poisoning of cattle

A dairy herd in southern Victoria had 54 cattle die from nitrate poisoning and a further four abort their calves. The cattle were grazed on a paddock that had been sown to turnips the previous summer and resown to grass in the autumn. The deaths occurred within hours of grazing the new grass. Treatment with methylene blue saved a number of affected animals.

Western Australia



Contributed by:
Richard Norris
Agriculture WA

Cattle

Severe rumenitis caused 10 deaths in a group of 400 feedlot cattle being fed wheat with added virginiamycin. *Pasteurella* pneumonia caused eight deaths in 100 young feedlot steers at Esperance. Cases of scours were common in neonatal calves, some caused by *Escherichia coli*. Annual ryegrass toxicity caused by contaminated hay resulted in heavy mortalities on a property at Waroona. Cattle at Albany were seen with epileptiform signs but no cause was established. Neonatal calves at Esperance were found dead with brain lesions of hypoxia but a specific aetiology was not established. Calves, three weeks old, died from coliform septicaemia at Albany. Mouldy hay was thought to be the cause of death in 15 out of 48 adult cows at Northam, with

the primary lesion being renal tubular necrosis. Because of the highly characteristic liver changes, pyrrolizidine alkaloids were implicated in the deaths of 2.5% of silage-fed cattle at Moora — the cattle had previously grazed Paterson's curse. A line of 20 feedlot steers from Wanneroo that had grown poorly were all found to have an interstitial pneumonia of unknown aetiology, and five of these animals also had liver abscesses.

Sheep

Nutritional myopathy, mostly caused by vitamin E deficiency, was frequently diagnosed in young sheep. Rumenitis was seen in one-quarter of 1200 sheep eating "second grade" wheat at Moora and 50 died. Oxalate nephrosis was seen in wheatbelt sheep grazing iceplant. There were several outbreaks of enterotoxaemia in unvaccinated animals, some with heavy mortalities. In one case, stinkwort ingestion was a contributing factor, the myriad tiny spines on this plant causing gut atony. Drenchgun injuries to the larynx/pharynx were again seen, with mortality up to 30%. Salmonellosis was seen in late autumn in animals of all ages.

TSE was excluded in ewes with listerial encephalitis.

Pigs

Piglets at Northampton were diagnosed with mulberry heart disease. On two farms, interstitial pneumonia was associated with illthrift in weaners. Porcine reproductive and respiratory syndrome was excluded and the cause was probably mycoplasmosis. In separate outbreaks, young pigs died with meningitis caused by *Streptococcus suis*, and from enteritis caused by *Clostridium* sp. and *E. coli*. Fibrinous arthritis was detected in heavyweight baconers at an abattoir. *Lawsonia* enteritis was also encountered.

Poultry

A number of diseases were seen in commercial poultry, including avian pox, Marek's disease, ILT, coccidiosis and proventriculitis. Ionophore toxicity was seen in broilers. Chronic sinusitis in turkeys was associated with a *Mycoplasma* sp. A 'flip-over' syndrome in 23-week-old layers was associated with renal tubular necrosis and a toxin is suspected.

Other species

Other conditions encountered were avian pox in a number of feral birds, granulomatous gastritis in a death adder, erythroblastosis in budgerigars, eosinophilic granuloma in a tiger, aspergillosis in rosellas, purulent meningitis in a Kimberley horse, avian tuberculosis in a Rose Crown dove, salmonellosis in ostrich chicks, suspect iron storage disease in a Metallic Starling, *Tetrameres* infestation in swans, and pyrrolizidine alkaloid toxicosis in Kimberley horses.

Quarterly Disease Statistics

Control activities

Enzootic bovine leucosis

Enzootic bovine leucosis (EBL) accreditation programs have been operating in the dairy industries in Queensland and NSW for several years. Victoria, SA, WA and Tasmania are undertaking a program of bulk milk testing of all dairy herds. Table 2 shows the number of dairy herds tested free of EBL at the end of the quarter.

Table 2: Dairy herds tested free of enzootic bovine leucosis at 30 June 1998

	NSW	NT	QLD	SA	TAS	VIC	WA	AUST
Free	1497	0	1735	731	719	6481	455	11 618
Herds	1791	0	2026	749	810	8453	455	14 284

Ovine brucellosis

Accreditation programs for ovine brucellosis freedom are operating in most States. Table 3 shows the number of accredited flocks at the end of the quarter.

Table 3: Number of ovine brucellosis accredited free flocks at 30 Jun 1998

NSW	NT	QLD	SA	TAS	VIC	WA	AUST
1280	0	71	544	148	762	86	2891

Tuberculosis

Australia was declared a Free Area for bovine tuberculosis on 31 December 1997. The National Granuloma Submission Program is the major surveillance method under the Tuberculosis (TB) Freedom Assurance Program. Table 4 summarises results from the Program. There were no cases of TB detected in the current quarter in the 612 granulomas that were submitted.

Table 4: Results of the National Granuloma Submission Program

	Granulomas Submitted	TB +ve
Apr – Jun 97	943	1
Jul – Sep 97	1466	4
Oct – Dec 97	854	0
Jan – Mar 98	550	0
Apr – Jun 98	612	0
NSW	87	0
NT	19	0
QLD	295	0
SA	41	0
TAS	50	0
VIC	7	0
WA	113	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 5.

Table 5: Surveillance for bovine brucellosis

	Abortion Investigations		Test for other reasons	
	Tests	+ve	Tests	+ve
Apr – Jun 97	142	0	4336	0
Jul – Sep 97	196	0	3956	0
Oct – Dec 97	169	0	2847	0
Jan – Mar 98	79	0	1285	0
Apr – Jun 98	86	0	524	0
NSW	12	0	146	0
NT	0	0	0	0
QLD	15	0	15	0
SA	3	0	15	0
TAS	2	0	65	0
VIC	0	0	268	0
WA	54	0	15	0

Johne's disease

JD is seen primarily in dairy cattle but occurs occasionally in beef cattle, sheep and dairy goats, and has been diagnosed in a small number of alpacas. JD occurs in NSW, Victoria, Tasmania and SA. Surveillance programs support the view that cattle in Queensland, WA and NT are free of JD, and active measures are taken to stamp-out any incursions. A number of market assurance programs (MAP) are in operation for different species. Table 6 shows the number of herds and flocks known or suspected to be infected.

Table 6: Herds/flocks with JD at 30 June 1998

	Cattle	Sheep	Goats	Camelid	Total
NSW	142	228	12	2	384
NT	0	0	0	0	0
QLD	0	0	0	0	0
SA	20	1	0	0	21
TAS	36	10	9	0	55
VIC	1766	16	8	12	1802
WA	0	0	0	0	0
AUST	1964	255	29	14	2262

CattleMAP

At the end of June 1998, there were 448 assessed cattle herds — one-third dairy, two-thirds beef.; 94% (421) are in NSW with 14 herds in Victoria, 13 in SA and one in Tasmania. Table 7 shows the increase in the number of herds in the MAP over the last two years

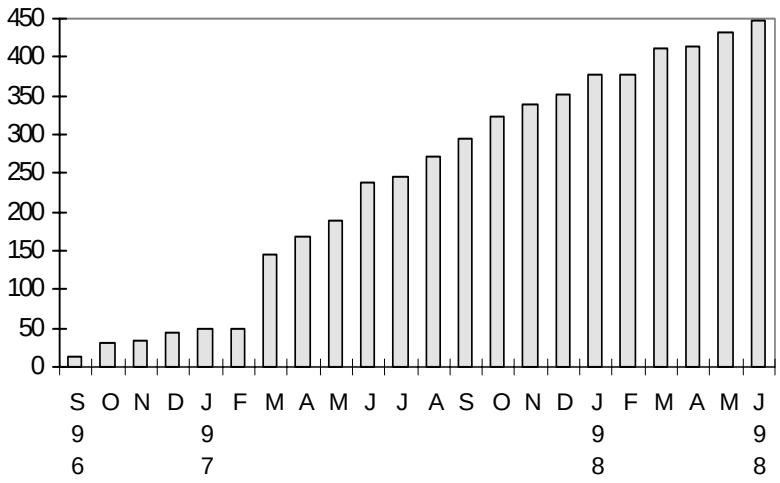
SheepMAP

There were 84 sheep flocks assessed as MN1: NSW 48, SA 27, Victoria 11. As some flocks included more than one breed, there were 116 separate breed-flocks assessed. Subsidies available under the Interim Surveillance and Research Program has accelerated the uptake of the SheepMAP and a large increase in the number of assessed flocks is expected in the next quarter.

AlpacaMAP

The MAP for alpaca was endorsed by the Australian Alpaca Association and Veterinary Committee and published by AAHC. The first veterinarians will be trained for the program in August.

Table 7: Number of Herds in CattleMAP, 1996–98



Information about the various JD Market Assurance programs can be obtained from David Kennedy 02 6365 6016 or Bruce Allworth 02 6036 9233. Lists of assessed beef and dairy herds and sheep flocks are available on a fax-back service on 1902 940 579.

Laboratory testing

The results of serological testing from routine laboratory submissions for the quarter are shown in Table 8.

Table 8: Serological testing from routine submissions to State/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 97	796	144	6925	463	1426	528	5860	140	398	3	240	0
Jul – Sep 97	1011	285	7797	182	944	171	3231	28	348	0	279	1
Oct – Dec 97	2229	356	7442	322	1464	180	5228	2	710	1	462	26
Jan – Mar 98	1683	408	8005	224	2072	611	907	16	657	0	708	9
Mar – Jun 98	2951	568	9196	380	2692	316	1142	6	449	0	230	1
NSW	160	40	264	42	303	6	410	0	104	0	66	0
NT	244	92	983	218	433	199	294	0	0	0	0	0
QLD	1284	436	5697	118	962	107	371	6	124	0	5	0
SA	2	0	289	0	2	0	0	0	10	0	0	0
TAS	3	0	3	0	0	0	66	0	1	0	0	0
VIC	212	0	207	0	84	0	0	0	119	0	47	1
WA	1046	0	1753	2	908	4	1	0	91	0	112	0

Surveillance activities

Zoonoses

The National Notifiable Diseases Surveillance System of the Communicable Diseases Network Australia New Zealand collects statistics about many human diseases. The Communicable Diseases Intelligence (CDI) is accessible at http://www.health.gov.au/hfs/pubs/cdi/. Table 9 summarises some of the information for zoonoses.

Contact: Communicable Diseases Intelligence, Department of Health and Family Services

Table 9: Notifications of zoonotic diseases in humans

Disease	Q2-97	Q3-97	Q4-97	Q1-98	Q2-98	Current quarter							
	Australia				AUST	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Brucellosis	4	13	13	13	50	0	3	0	43	0	0	3	1
Hydatidosis	13	22	19	9	71	0	5	0	12	4	3	39	8
Leptospirosis	40	20	33	40	175	0	38	3	96	3	1	24	10
Listeriosis	22	14	9	18	63	0	27	0	7	6	1	9	13
Ornithosis	12	5	7	5	43	0	0	0	0	3	2	35	3
Q fever	166	136	124	114	685	0	280	0	343	16	0	26	20

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 10 summarises *Salmonella* isolations from animals, notified to NSSS for the quarter.

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

Table 10: Salmonella notifications, 1 April to 30 June 1998

Serovars	avian	bovine	canine	equine	feline	ovine	porcine	other	Total
S. bovismorbificans	0	3	1	0	0	0	0	0	4
S. dublin	0	15	0	0	0	0	0	0	15
S. infantis	5	0	0	0	1	0	0	8	14
S. typhimurium	10	57	4	1	15	3	4	0	94
Other	15	5	6	4	29	0	0	11	70
Total	30	80	11	5	45	3	4	19	197

Rabbit calicivirus

The latest quarterly report from the Rabbit Calicivirus Disease (RCD) Monitoring and Surveillance Program has just been released. Patterns of activity are emerging at the RCD monitoring sites throughout Australia.

- In South Australia, rabbit calicivirus (RCV) has spread in spring each year, with additional activity in autumn. This is probably representative of areas where the disease persists well.
- Data from other sites provide a similar picture, although there may be a difference in the timing of RCD epidemics due to seasonal conditions. For example, at Muncoonie Lakes and Dingaroo in Queensland where rabbits bred throughout 1997, low level epidemics were recorded in all seasons except autumn.

Each outbreak of RCD followed a build up of seronegative young rabbits in the population despite low rabbit numbers (less than two rabbits per spotlight kilometre).

- At Lake Burrendong in NSW, the main RCV activity occurs in spring. The virus has persisted at the site for 18 months and this is one of the wetter sites where RCD has been effective.
- At Hattah in Victoria, there has been a pattern of peaks of RCV activity in spring and lower level activity in autumn, but the data also suggest that since the initial epidemic the disease has become patchy.
- At South Stirling Range in WA, the virus does not appear to have persisted beyond the initial epidemic. However, it has persisted in other parts of WA.

This pattern of epidemiology is not unexpected given that the persistence of the virus probably depends at least partly on the density of susceptible rabbits.

Work on potential insect vectors of RCD is continuing. Possible mechanisms for the transfer of RCV by blowflies have been determined and the potential for European rabbit fleas to transmit virus in the field has been demonstrated.

For information, contact Mr Mike Hillier, Executive Officer, RCD Program, 02 6272 3425

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 11 summaries NAQS activity over the past five quarters.

Table 11: Summary of recent NAQS activity

	Mar–Jun 97		Jul–Sep 97		Oct–Dec 97		Jan–Mar 98		Apr–Jun 98		Notes
	Tested	+ve	Tested	+ve	Tested	+ve	Tested	+ve	Tested	+ve	
Avian influenza	48	4	0	0	0	0	0	0	148	0	a
Aujeszky's disease	25	0	14	0	0	0	0	0	58	0	
Classical swine fever	50	0	64	0	50	0	14	0	58	0	
Infectious bursal disease	45	2	0	0	0	0	7	0	140	0	a
Japanese encephalitis	320	2	128	2	209	0	523	27	495	16	b
Newcastle disease	48	0	0	0	0	0	9	0	165	0	
PRRS	26	0	14	0	0	0	0	0	58	0	
Old world screw-worm	2	0	1	0	2	0	0	0	0	0	
Swine influenza	25	0	14	0	0	0	0	0	58	0	
Surra	105	0	103	0	194	0	129	0	70	0	
Canine ehrlichiosis	29	0	30	0	40	0	33	0	63	0	
Transmissible gastroenteritis	25	0	14	0	0	0	0	0	58	0	
Trichinellosis	6	0	0	0	0	0	7	0	22	0	

a Serologically positive migratory birds that show no signs of these diseases are occasionally found during NAQS surveys (for example, wandering whistle ducks trapped on Cape York Peninsula). Nevertheless, Australian domestic poultry flocks are free of these diseases.

b In previous years, animals at sentinel sites on islands in the Torres Strait, but not on the Australian mainland, have seroconverted during the latter part of the wet season (January–April). In March this year, 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, as outlined on page 4.

Contact: David Banks, AQIS

National Residue Survey

Of 4643 samples tested during the quarter for agricultural and veterinary chemicals, only 11 (0.2%) had residues above the maximum residue limit. There was a single violation in cattle for each of neomycin and albendazole. In pigs there were four violations involving chlortetracycline, and one each of dihydrostreptomycin sulphadimidine. Chlorpyrifos-methyl was found in two game pigs. The only violation for sheep involved cyromazine. Table 12 gives more details.

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:

- NRS 1997 Results
- NRS Recent Publications and Papers
- Extension Materials for Residues in Meat
- Frequently Asked Questions
- Information for Laboratories
- Associated Web Sites

Recent publications by the NRS include:

- NRS Annual report 1996–97
- Report on the 1997 NRS Results

Copies available on request from Dr Rusty Branford, PO Box E11, Kingston, ACT 2604
Phone: 02 6272 5096; Fax 02 6272 4023
E-mail: Rusty.Branford@brs.gov.au

Table 12: National Residue Survey, 1 April to 30 June 1998

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

	NSW		NT		QLD		SA		TAS		VIC		WA		AUST	
Antimicrobials																
Cattle	0	137	0	10	0	144	0	17	0	4	0	57	1	9	1	378
Pigs	2	153	0	1	2	85	0	29	0	1	2	65	0	37	6	371
Poultry	0	0	0	0	0	0	0	48	0	0	0	0	0	0	0	48
Sheep	0	58	0	0	0	9	0	26	0	2	0	38	0	16	0	149
Other	0	20	0	0	0	21	0	10	0	0	0	9	0	5	0	65
Total	2	368	0	11	2	259	0	130	0	7	2	169	1	67	7	1011
Anthelmintics																
Cattle	0	81	0	6	0	114	0	17	0	15	1	52	0	11	1	296
Pigs	0	25	0	0	0	20	0	10	0	0	0	14	0	5	0	74
Sheep	0	103	0	0	0	16	0	34	0	5	0	52	0	50	0	260
Other	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Total	0	209	0	6	0	150	0	61	0	20	1	120	0	66	1	632
Growth promotants																
Cattle	0	149	0	15	0	189	0	24	0	20	0	83	0	20	0	500
Pigs	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
Poultry	0	13	0	0	0	6	0	0	0	0	0	4	0	2	0	25
Sheep	0	102	0	0	0	21	0	54	0	2	0	69	0	59	0	307
Other	0	9	0	0	0	23	0	9	0	0	0	11	0	1	0	53
Total	0	273	0	15	0	239	0	91	0	22	0	167	0	82	0	889
Insecticides																
Cattle	0	393	0	19	0	427	0	47	0	42	0	209	0	37	0	1174
Feral	2	28	0	0	0	11	0	0	0	0	0	0	0	0	2	39
Pigs	0	81	0	0	0	45	0	12	0	1	0	34	0	19	0	192
Poultry	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	12
Sheep	0	239	0	0	0	43	0	86	0	13	1	124	0	96	1	601
Other	0	25	0	2	0	21	0	25	0	0	0	6	0	14	0	93
Total	2	766	0	21	0	547	0	182	0	56	1	373	0	166	3	2111
Metals																
Cattle	1	19	0	1	1	27	0	4	0	3	1	16	1	2	4	72
(corrected) Poultry	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5
(corrected) Pigs	0	15	0	0	2	7	0	3	0	1	1	8	0	4	3	38
Sheep	3	31	0	0	0	3	2	11	0	1	4	17	2	11	11	74
Other	0	0	2	2	0	0	0	0	0	0	1	1	0	0	3	3
Total	4	65	2	3	3	37	2	23	0	5	7	42	3	17	21	192

Suspect Exotic Disease Investigations

There were 27 exotic disease investigations reported during the quarter, as shown in Table 13.

Table 13: Suspect exotic disease investigations

Disease	Species	State	Reponse see key	Finding
Aujeszky's disease	porcine	TAS	3	Negative
Brucella canis	canine	TAS	3	Negative
Bat lyssavirus	fauna	TAS	2	Negative
Bat lyssavirus	fauna	TAS	3	Negative
Avian influenza	avian	NSW	2	Negative
Rabies	feline	NSW	6	Negative
Avian influenza	avian	NSW	3	Negative
Avian influenza	ovine	QLD	2	Zygomycosis
Asian bees	apian	NT	5	Asian bees. No bee mites detected
Asian bees	apian	QLD	1	*Apis mellifera*
Bat lyssavirus	fauna	QLD	2	Negative
Avian influenza	fauna	QLD	3	Negative
Asian bees	apian	QLD	1	Carpenter bee (native)
Bat lyssavirus	fauna	QLD	2	Negative
Bovine spongiform encephalopathy	bovine	QLD	2	Neuroaxonal dystrophy
Avian influenza	avian	QLD	2	Negaitive
New world screw-worm	bovine	SA	2	*Lucilia cuprina*
Vesicular stomatitis	bovine	VIC	1	Bovine malignant catarrh
African horse sickness	equine	WA	3	Negative
Equine infectious anaemia	equine	WA	2	Negative
Chalkbrood	apian	WA	2	Negative
PRRS	porcine	WA	3	Negative
Vesicular stomatitis	equine	WA	3	Negative
African horse sickness	equine	WA	3	Negative
Aujeszky's disease	feline	WA	3	Negative
Newcastle disease	avian	WA	2	Negative
Japanese encephalitis	bovine	WA	3	Negative

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

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