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

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Quarterly Report for 1 June to 30 September 1997

Preface

An article describing recent initiatives in the area of food safety leads this issue of the *Animal Health Surveillance Quarterly*. There is an article on a newly discovered paramyxovirus affecting pigs, as well as highlights of disease surveillance activities, and items of interest from the States and Territories.

This issue also summarises the findings of disease surveillance and monitoring activities reported to the National Animal Health Information System (NAHIS) for the period from 1 July to 30 September 1997. 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 commend this report as a reference document and am sure that you will find it useful.

GARDNER MURRAY
Australian Chief Veterinary Officer

Food Safety

Food safety is arguably the most important issue facing the livestock industries at the present time. We know from recent experiences in Australia and overseas that food safety incidents can have both a high human and economic cost.

Australia has a good reputation as a supplier of safe food, but does not have a uniform national approach to food safety. Governments at all levels are involved in food safety regulation, which is administered differently from State to State.

Organisational arrangements

At the Commonwealth level, the Office of Food Safety is promoting the development of closer links between all sectors of the food industries — from primary producers to processors, exporters and importers — to increase understanding of food safety issues and to encourage the adoption of practices to maintain and increase food safety. The Australia New Zealand Food Authority (ANZFA) is a Commonwealth statutory body with responsibilities for the development of national food standards and other activities related to food safety, trade, information and education. Under the *Export Control Act*, the Australian Quarantine and Inspection Service (AQIS) inspects a number of food exports to ensure they meet importing countries' hygiene standards. AQIS also inspects imported foods.

Australia is an active member of the World Health Organization (WHO), the Food and Agriculture Organization (FAO), the Codex Alimentarius Commission, (CAC), and the Office International des Epizooties (OIE). These bodies elaborate guidelines and standards that have a direct relevance to the international trade in food for human consumption.

Contents

At the industry level, some sectors are being proactive in developing and implementing food safety plans. Through an improved 'paddock to plate' approach to food safety quality systems, a partnership with industry is evolving.

In early 1997, the Standing Committee of Agriculture and Resource Management (SCARM), established a new group — the Animal Industries Public Health Committee. The purpose of the committee is to monitor, assess and advise on all serious issues that pose a threat to human health arising from the animal industries.

Public awareness

Public awareness of foodborne disease is on the increase. We now live in a global village, where media or internet reports of even minor events can receive widespread coverage as they are happening. New and emerging pathogens are being identified, including some that can be infectious at very low doses. Table 1 lists some of the key foodborne pathogenic microorganisms and natural toxins.

A number of factors may explain the apparent increase in foodborne disease. These include an increasing reliance on convenience food, often involving complex chains of supply and distribution; an increasing preference for 'fresh' or lightly cooked food; an ageing population; and a decline in consumer knowledge of safe food handling and preparation practices.

Food-borne disease cases in one part of an industry sector can have ramifications for the whole industry and events in the domestic market can affect an international export reputation. For example a single episode involving smallgoods manufacture in one State led to a fall of 90% in sales across the whole smallgoods sector in the immediate period following the incident. Similarly the transient contamination of oysters in one State cost the shellfish industry millions of dollars in lost business with an 80% reduction in sales of all types of seafood on the weekend following the media's outbreak headlines.

Monitoring

Food product integrity and safety are managed in part through monitoring activities. A national residue survey is conducted by the Bureau of Resource Sciences within DPIE to monitor impartially for chemical residues in raw commodities produced by Australian agricultural and fisheries industries. The 1996 survey revealed that of 46 482 analyses conducted on 25 503 samples, only 140 residues were detected above Australian standards.

Since mid-1993, all food imports into Australia have been liable to point-of-entry monitoring. The intensity of inspection applied is determined by the assessed risk of the particular food in question. The National Food Authority conducts the risk assessments with all costs borne by the importers.

A systems approach

Food safety is the single most critical component of the food production chain, so that a quality assurance system that identifies food safety has become the appropriate focus of the Australian paddock to plate approach. The Hazard Analysis Critical Control Point (HACCP) system provides a set of steps that underpin a systematic, preventive, risk-based approach to delivering safe food.

Table 1: Key foodborne pathogenic microorganisms and natural toxins

Pathogenic bacteria	**Viruses**	**Natural toxins**
Salmonella spp.	hepatitis A and E	aflatoxins
Clostridium perfringens	rotavirus	ciguatera poisoning
Clostridium botulinum	gastroenteritis viruses (parvovirus,	corynetoxin (ryegrass)
Campylobacter jejuni	caliciviruses, adenoviruses and astroviruses)	ergot
Yersinia spp.		pyrrolizodine alkaloids
Listeria monocytogenes	**Parasitic protozoa**	shellfish toxins
Streptococcus spp.	*Entamoeba histolytica*	
Escherichia coli (enterovirulent group)	*Giardia* spp	

Cattle and sheep

The sheep and cattle industries have developed on-farm quality systems that are based on HACCP and focus primarily on avoiding residues. Additional attention is given to hide and fleece preparation to ensure the absence of faeces. Branding and de-horning, and cleanliness of transport facilities are included.

The beef industry program known as CATTLECARE commenced in 1995. This program comprises 15 elements contained in an operational code of practice. All procedures identified in the code must be documented on-farm and in a style that can be verified through independent external audit. There are currently 212 accredited CATTLECARE properties, representing all States and Territories and covering more than 560 000 cattle. Indications are that within the next six months further accreditations will more than double this number to cover some 1.2 million cattle.

In 1996, the beef industry commenced a trial of a national vendor declaration system. This declaration or 'passport' carries information outlining operations undertaken previously on-farm. It is now very widely used to underpin the residue-free status of beef cattle.

Earlier, the Australian Lot Feeders Association, driven by animal welfare and environmental concerns, established a quality assurance system through an accreditation program that now involves 97% of the lot-feeding industry.

The FLOCKCARE program, launched this year by the Sheepmeat Council of Australia, establishes a minimum quality standard for Sheepmeat production covering food safety, chemicals and residues, animal health, husbandry and welfare, preparation, presentation and transport.

Pigs

The Pig Research and Development Corporation (PRDC) launched the Australian Pork Industry Quality Assurance Program in September 1997. The program is based on an exhaustive research process conducted under the PRDC's pigmeat hygiene program which identified and quantified all risks associated with pigmeat production. The resulting document — Empirical Risk Assessment of Australian Pigmeat — shows pig industry members where to focus their effort to ensure the safety and quality of their product. The quality assurance program sets 33 standards for pig producers, covering food safety, quality and antimicrobial residues. Producers who sign up as members of the program must meet these standards, and will be able to advance to the second stage, when they will use these standards to develop a HACCP food safety and quality program for their pig production operation.

Abattoirs

Meat processing establishments are perceived as the most critical point for food safety in the overall livestock to meat process. All Australian export-registered meat processing plants have now adopted a HACCP-based quality assurance system. As a part of the joint government-industry strategy to maximise food safety in the meat industry, Australia is currently testing a HACCP-based quality assurance system at five export abattoirs The trial, known as Project 2, involves the evaluation of a more scientific approach to meat inspection and processing control, and includes company employed meat inspectors in addition to full-time government-veterinary supervision and control.

Conclusions

In an increasingly sensitive food market, there is a need to ensure that emergency management arrangements across the whole food supply chain are sufficient to ensure these high standards and protect Australia's access to overseas markets. As one of its first activities, the Animal Industries Public Health Committee has examined recent incidents and reviewed the gaps in arrangements or knowledge. The Committee will encourage all relevant organisations to be more supportive of a truly national approach to food safety in the future, for the benefit of our livestock industries.

Contributed by Chris Bunn and Jenny Ritchie, Commonwealth Department of Primary Industries and Energy

Correction: *Brucella suis* testing in domestic pigs

The previous issue of *Animal Health Surveillance Quarterly* reported on the testing for *Br. suis* in domestic pigs, and mentioned 15 seropositive samples in Queensland commercial pigs taken between 1991 and 1996. In further investigations, 14 of these 15 samples were retested with either the SAT or the SAT in the presence of mercaptoethanol. All 14 gave a negative result. The remaining sample had been collected at an abattoir and was positive to a screening test but was not subject to confirmatory testing. Table 2 shows the corrected figures.

The Queensland *Br. suis* accreditation scheme is currently being reviewed and these data support the view that infection has not been present in commercial pig production systems in Queensland since 1991.

Table 2: Summary of results of *Br. suis* testing in domestic pigs 1991–96

	1991		1992		1993		1994		1995		1996		Total
	+ve	total	+ve	total	+ve	total	+ve	total	+ve	total	+ve	total	tested
NSW	0	0	0	0	0	6	0	70	0	155	0	0	231
NT	0	0	0	0	0	0	0	0	0	1	0	0	1
QLD	1	2281	0	3424	0	2289	0	5805	0	1702	0	1978	17479
SA	0	0	0	0	0	0	0	0	0	0	0	0	0
TAS	0	17	0	105	0	0	0	0	0	1	0	0	123
VIC	0	0	0	0	0	0	0	0	0	4	0	25	29
WA	0	8	0	28	0	166	0	530	0	1361	0	0	2093
AUST	1	2306	0	3557	0	2461	0	6405	0	3224	0	2003	19956

RCD Update

There have now been over 700 rabbit calicivirus disease (RCD) releases in Australia. Based on information collected by State and Territory vertebrate pest control agencies, RCD activity was obvious on 363 (51%) release sites, not obvious on 185 (26%) and the impact not known for 161 (23%).

The effects of RCD on rabbit numbers have been recorded in detail at 61 sites across Australia. At 84 % of sites in areas with less than 300 mm annual rainfall the disease has led to declines in rabbit numbers of at least 65%. A similar decline has only been recorded at 41% of sites in areas with higher rainfall.

At least twelve months after the arrival of RCD, rabbit numbers remain low at seven of eight sites where RCD impacts are being intensively monitored. This is despite the fact that rabbits have been breeding at all the sites over the last four months.

RCD has been detected on a range of fly species including blowflies (*Calliphora albifrontalis, C. dubia, C. varifrons, Chrysomyia rufifacies, Ch. varipes, Hydrotea rostrata* and *Lucilia cuprina*) and the bushfly *Musca vetustissima*.

Some regeneration and recruitment of native plant species has been observed in the Flinders Ranges in South Australia associated with the RCD induced decline in rabbit numbers.

Source: Mary Bomford, National RCD Monitoring and Surveillance Program, Bureau of Resource Sciences

New Virus Isolated from Pigs

An apparently new virus in the family Paramyxoviridae has been isolated from a large piggery in New South Wales (NSW). The virus was isolated during investigation of an outbreak of reproductive failure in the piggery, characterised by an increased number of stillborn and mummified piglets, and a decreased farrowing rate.

History and clinical signs

Over a four-month period from mid-April 1997, the affected piggery experienced a dramatic reduction in farrowing rate, associated with birth of mummified piglets and stillborn piglets with deformities. The disease spread sequentially from one unit to other units in the piggery, affecting up to one-third of litters. Sows and gilts of all parities were affected. No other clinical disease was detected in pigs of any age.

Gross pathology and histopathology

Affected stillborn piglets frequently had arthrogryposis and some had craniofacial abnormalities such as undershot jaws. There was often marked degeneration of the brain and spinal cord.

Histological examination of the brain and spinal cord revealed evidence of a non-suppurative encephalitis and degeneration, with intranuclear and possibly intracytoplasmic inclusion bodies. Some cases also had a non-suppurative myocarditis and hepatitis.

Virology and serology

Early investigations excluded a wide range of endemic and exotic agents as the possible cause of the syndrome. Agents specifically excluded included classical swine fever, porcine reproductive and respiratory syndrome (PRRS), Aujeszky's disease, encephalomyocarditis virus, porcine parvovirus, leptospirosis, Akabane virus and bat paramyxovirus (EMV).

A virus isolated from affected piglets at the Elizabeth Macarthur Agricultural Institute (EMAI), Camden, was shown to be a member of the family Paramyxoviridae. Studies are under way at the Australian Animal Health Laboratory (AAHL), Geelong, to characterise this virus and to attempt to reproduce the disease. Testing to date has been unable to identify the virus as any known member of the family Paramyxoviridae.

A virus neutralisation test has been developed at both EMAI and AAHL, and is being used to test serum samples from pigs, as well as other species, for evidence of exposure to the virus.

Investigations to date

Testing at the affected piggery, including archival sera, has shown no evidence of the virus up to April 1997. Virtually all pigs tested since May 1997 had high levels of neutralising antibodies to this virus. It appears that the virus was introduced to a naive population, probably in early March 1997, and spread rapidly through the piggery.

Testing at a number of contact premises showed evidence of active infection at only two contract grower piggeries that would have received young pigs from the parent piggery while the virus was actively spreading. Extensive testing of pigs from piggeries elsewhere in NSW and in other States, of archival sera from the PRRS survey (see *AHSQ* Vol. 1, No. 3) and a more recent survey for toxoplasmosis conducted in early 1997 has found no evidence of infection with this virus in any other piggeries.

Extensive testing of a wide range of species in contact with the piggery has been undertaken, including cats, sheep, cattle, rodents, birds and fruit bats. Twenty-three of 56 archival sera from fruit bats were positive for the virus, with titres ranging from 16 to 256. Samples from all other species tested were negative. A large colony of fruit bats roosts in close proximity to the piggery from about October to April each year, and provides a potential source of infection. Investigations on the local bat colony will commence when it returns to investigate it as a possible source of infection.

Sera from two humans from the affected piggery and of one from a grower piggery were positive to the virus, with titres of 128 and 512. Both these workers had experienced an unexplained febrile incident following potential exposure to virus circulating within the piggeries. Testing of other piggery and abattoir workers, and others potentially exposed to the virus, has identified no other seropositive humans.

Summary

The virus appears to be a previously unrecognised member of the family Paramyxoviridae. It is highly infectious for pigs, but appears to be non-pathogenic for all ages of pigs other than the foetus. Investigations are continuing to identify the natural host for the virus, although preliminary evidence suggests that it may be another virus of fruit bats. There is also some evidence, although not conclusive, that the virus may be zoonotic, possibly causing a febrile illness in humans.

Spread of the virus appears to have been limited to the affected piggery and the two contract grower facilities, with no evidence of spread to any other piggeries. There is also good serological evidence that the virus is not widespread in the Australian pig population.

The key investigators have submitted a more detailed report for publication in *Emerging Infectious Diseases* which is on the Internet at http://www.cdc.gov/ncidod/EID/eid.htm.

Contributed by Evan Sergeant, NSW Agriculture

Exotic disease news

Key Command Centre Personnel Train on Bribie Island

Queensland has an established system of 'reserve' roles for exotic animal disease purposes. Key positions within the AUSVETPLAN command centre model (Local Disease Control Centre and State Disease Control Headquarters) are permanently assigned to staff who are expected to maintain their skills in that area. These people form the basis of a structured response.

The concept has been tested successfully under real conditions in recent years with incidents such as the equine morbillivirus response and the eradication of avian influenza at Lowood.

A two-day workshop was held in October at the Queensland Department of Primary Industries' Bribie Island Conference Centre, to maintain and improve these command centre management skills.

Topics covered included:

- integration with other emergency services;
- stress effects on victims and operational staff;
- strategic versus. tactical management; and
- the changes associated with the second edition of AUSVETPLAN.

Two fictitious scenarios were addressed and future training sessions mapped out. Queensland intends to conduct similar training annually.

Source: Ian Douglas, Manager, Emergency Response Capability, Queensland Department of Primary Industries

National Feral Animal Control Program

The National Feral Animal Control Program (NFACP) has been established under the Commonwealth Government's Natural Heritage Trust to develop and implement, in cooperation with State, Territory and Local Governments, a program to reduce the damage to agriculture and the environment caused by pest animals. NFACP is jointly administered by the Bureau of Resource Sciences (BRS) and Environment Australia, with a combined budget of $16 million over five years from 1996–97.

NFACP aims to develop integrated, strategic approaches to manage the impacts of nationally significant pest animals. As an example, Environment Australia will develop and implement threat abatement plans for managing pest animal species that pose the greatest threat to the survival of endangered and threatened native species while BRS will produce a series of management guidelines for the major pests of agricultural

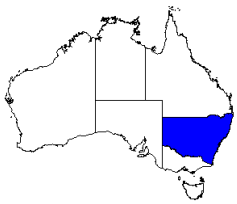
The National rabbit calicivirus disease monitoring and surveillance program is being coordinated by BRS under the NFACP.

Feral animals can become reservoirs for animal disease, and control of feral animals can have a considerable bearing on the control of animal disease.

Source: Quentin Hart, 02 6272 3801, Agricultural Production and Natural Resources Branch, Bureau of Resource Sciences

State and Territory Reports

New South Wales



Contributed by:
Evan Sergeant
NSW Agriculture

Acorn calves

Several reports of 'acorn calves' have been received in recent weeks, with affected calves having typical shortened limb bones and enlarged joints. Widespread outbreaks of acorn calves have occurred periodically in the past, for no apparent reason. Despite intensive investigations, the cause of this condition has still not been determined.

Tick fever

A single case of tick fever, caused by *Babesia bigemina*, was diagnosed in a dairy herd at Kyogle. The property adjoins a holding previously known to be infected, and a small number of ticks were found on inspection. A dipping program has commenced to eradicate the infestation and blood sampling is being carried out to identify any other carrier animals.

Australian Cattle Johne's Disease Market Assurance Program

At 30 September 1997, there were 337 herds enrolled in the Cattle Market Assurance Program in NSW, comprising 40 285 cattle. There have been 127 reactors in 96 herds (0.3% of cattle), with only one infected herd identified to date. Seventeen herds have had their second test, and progressed to the status Tested Negative 2. There are 278 herds with status Monitored Negative 1 or Tested Negative 1. Of the herds enrolled, 70% are beef and 30% are primarily dairy enterprises. About 66% of herds enrolled are studs.

Ovine Johne's disease surveillance

At 30 September 1997, there have been a total of 210 properties on which ovine Johne's disease (OJD) has been confirmed. Of these, 175 are still classified as infected, with the remaining 35 having either depopulated or not reported a case for more than five years. There have been 29 new cases recorded during the quarter.

Contact: Laurie Denholm, 02 6391 3863.

Australian Sheep Johne's Disease Market Assurance

The Sheep MAP is now well established, with six training courses for veterinarians run so far, with two more planned in Orange in late October and late November. So far, 146 veterinarians have been approved for the program. By the end of September seven flocks had achieved the status Monitored Negative 1, with quite a few more expected to undertake testing during October.

Contact: Stephen Ottaway, 026391 3854.

Transmissable Spongiform Encephalopathy (TSE) surveillance

During the quarter, a total of 18 brains were examined histologically for TSE exclusion. Of these, TSEs were excluded for eight cattle and nine sheep brains. The remaining deer brain could not be examined due to the degree of post mortem tissue degeneration.

Avian tuberculosis

One case of avian tuberculosis was diagnosed in an aviary bird in the Moss Vale Rural Lands Protection District.

Anthrax

No cases of anthrax were diagnosed during the current quarter, leaving the total number of anthrax cases so far in 1997 at five.

Anthrax was excluded as the cause of death in seven other laboratory investigations during the quarter, making a total of 47 anthrax exclusions since 1 January 1997.

Bat viruses

There were 10 exclusions of bat lyssavirus during the quarter, and no cases confirmed. Most of the investigations were on bats from the north coast area, with a few from the Sydney area and other parts of the State. The majority of the bats tested either were ill or injured bats brought in by bat carers, or were bats with a history of biting or scratching people. This brings the total to 114 bats tested, of which nine have been confirmed as having been infected.

Three fruit bats and two horses were tested for bat paramyxovirus during the quarter, all with negative results.

Bee diseases

During the quarter, testing for American foulbrood had 167 tests negative and 152 positive, 109 of which were new cases, while the remaining 43 were repeat tests on previously confirmed cases.

Two reports of chalkbrood were received during the quarter.

Goat deaths

Thirty of 36 milking goats in a goat dairy near Sydney began dying 1–2 days after oral drenching with an ivermectin drench. The six surviving goats were the only ones not to have been drenched. The only significant finding was severe acute peri-acinar necrosis in all livers examined. Ivermectin is not registered for use in goats, and is not known to cause hepatotoxicity. The cause of the deaths remains unknown.

EHV1 abortions in horses

Four cases of equine herpesvirus type 1 abortion were diagnosed, on two separate properties during September.

Johne's disease in alpaca

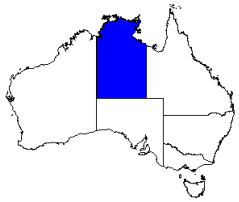
Mycobacterium paratuberculosis was isolated from an alpaca from the Braidwood area. The animal was originally detected as positive to a routine screening by faecal culture, and the disease was confirmed by follow-up culture at post mortem. The infected animal was clinically normal, and no lesions of JD could be detected on either gross or histopathologic examination. Investigations are continuing in the herd of origin and another associated herd.

NAHIS web site

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

This newsletter is available on the NAHIS website which is being developed to provide information and statistics about animal health matters in Australia.

Northern Territory



Contributed by:
Diana Pinch
NT DPIF

Bovine tuberculosis

The third bovine tuberculosis (TB) case for the year was detected in July. The lesion was found in a young cow at slaughter, from a property in the Katherine region. Destocking and TB testing have subsequently occurred. So far, there have been no further TB cases detected.

At the end of September, a fourth bovine tuberculosis case was detected. in a seven-year old cow at slaughter. The cow came from a different property in the Katherine region. Planning for destocking and TB testing is in process.

Bovine brucellosis

Brucella abortus was excluded as a cause of abortion in cattle after investigation into poor calving rates and two stillbirths in a cattle herd in the Katherine region resulted in one cow reacting positively to a bovine brucellosis complement fixation test. Subsequent testing, when the herd was re-bled, allowed bovine brucellosis to be excluded as the cause of the problem.

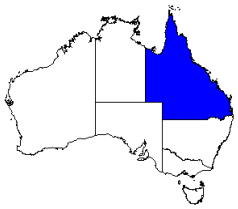
Meat inspection

NT DPIF resumed responsibility, from the Commonwealth, for providing meat inspection services to NT domestic abattoirs on 1 July. Training in meat inspection will be provided to 14 DPIF officers and six other students, so that a greater number of qualified meat inspectors are available for these duties next year.

Strangles in horses

Strangles (*Streptococcus equi* isolated) was diagnosed in a horse in the Darwin area in July. There was no spread of disease from the affected horse due to preventive vaccination of in-contact horses and health monitoring by the private veterinarian involved

Queensland



Contributed by:
Peter Black
Queensland DPI

Bovine tuberculosis

Two cases of tuberculosis were detected at abattoirs in Queensland this quarter. Both herds of origin are under quarantine and investigation programs have commenced.

Tick fevers

Babesiosis was diagnosed in more than 20 beef and dairy herds and anaplasmosis was confirmed in 10 herds this quarter. Most cases were reported in the south-east region of the State.

Respiratory disease

Infectious bovine rhinotracheitis (IBR) virus was isolated at Toowoomba Veterinary Laboratory following the post mortem examination of cattle in a 6000-head Darling Downs feedlot in July 1997. Affected cattle were off their feed and showing signs of respiratory disease. There were eight deaths and 70 sick in the affected group of 300 British-breed cattle.

Bovine ephemeral fever

No ephemeral fever was reported this quarter.

Clostridial diseases

Reports of blackleg were received for herds in the Banana shire and surrounding shires with losses of up to 20%. In one herd in the Monto shire, 100 weaners up to yearling age died and in another herd 60 weaners and yearlings died. All losses were in unvaccinated cattle.

Botulism was suspected as the cause of death in five beef herds in central and western Queensland shires with losses ranging from 10 to 40 head. On one Mt Isa area property, 20 brahman heifers died in a group of 200 mixed steers and heifers aged less than two years. Investigation showed only heifers died as the steers had apparently been vaccinated. In some cases, good rainfall earlier in the year produced a large bulk of grass which had dried off and was low in protein and phosphorus. Such conditions predispose cattle to pica (bone chewing) and an increased risk of botulism.

Laboratory confirmation of botulism is very difficult, and it is noteworthy that botulism was confirmed at the Oonoonba Veterinary Laboratory in one case from samples submitted of a piece of carrion found in the rumen.

Glasser's disease

An outbreak of Glasser's disease occurred in a 12,000-head Darling Downs piggery in July 1997. There were 70 deaths and 250 sick pigs in an at-risk group of 8000 pigs that included weaners, growers and finishers. *Haemophilus parasuis* was isolated at Toowoomba Veterinary Laboratory from brain, lung and trachea of affected pigs. Pigs were diagnosed with meningitis, pneumonia, myocarditis and pleurisy.

Sorghum ergot

Four piggeries and two dairies in the Burnett district reported clinical signs of feed refusal and severe reduction of milk production — when grain contaminated with more than 1–2% sclerotes was included in the ration. The problem appears to be related to late planted sorghum carrying unusually high levels of ergot. A number of new-born piglets were reported to have died on the affected piggeries due to agalactia in farrowing gilts and sows.

Salmonellosis

Four Texcel cross sheep out of a group of 200 in a sheep feedlot on the Darling Downs died acutely after six days on feed. *Salmonella typhimurium* was isolated from the caecum and gall bladder of affected sheep at the Toowoomba Veterinary Laboratory.

Eperythrozoon ovis

A problem of non-thriving, anaemic sheep in a flock in the Cunnamulla area of western Queensland was investigated. Two animals died and 15 were sick in the affected group of about 400 eleven-month old sheep. High numbers of *Eperythrozoon ovis* were seen in red cells in blood smears from at least one animal sampled.

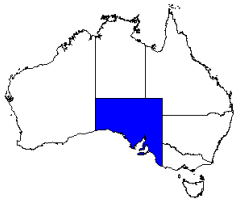
Aquaculture

Mortalities were reported in pearl oysters (*Pinctada maxima*) following an operation for three-quarter pearls. Some 4–5 months after an operation to implant nuclei for half and three-

quarter pearl production, deaths were recorded in 20% of several thousand pearl oysters. These were cultured on a farm located off the coast of far northern Queensland. Five pairs of shell valves were submitted to the laboratory from recently dead oysters. It was also reported that, in many of the remaining oysters, many of the three-quarter nuclei had penetrated the mantle tissue to form large holes in this tissue. Each of the shell valves had one or two tear-shaped half nuclei and two or three spherical shell nuclei approximately 10mm in diameter for three-quarter pearl production. Many of the nuclei had large quantities of conchiolin-like material deposited on their surfaces.

These 10 mm nuclei had exerted an excess pressure on the mantle so that holes were produced in this thin tissue. Furthermore, the water in which the oysters were held carried a heavy burden of suspended material, including mud and bacteria. The oysters were also suspended in wire cages with eight oysters parallel to each other in a close formation. This system of culture is suspected to restrict food access for filter feeding. It would appear that the mortalities were caused by a combination of tissue trauma, reduced food intake and probably bacterial infection.

South Australia



Contributed by:
Kim Critchley
Primary Industries SA

Akabane

In the second and third quarter, sera were taken from a number of properties in the far north to confirm a suspect incursion of ephemeral fever. The opportunity was taken to also test the sera for Aino, Akabane and bluetongue. One animal gave a positive test to Akabane virus,but on subsequent traceback, the animal was found to have been imported from the Northern Territory.

Annual rye grass toxicity

A small herd of beef cattle was fed hay cut from a self-sown barley crop that had a percentage of annual rye grass in it. Three animals died after a short clinical episode of ataxia and convulsions. Examination of the hay for galls revealed nematode gall counts of 4200–6400 and bacterial galls 645–1425 per 10 g of seed. Such findings are consistent with toxicity in eight out of 10 paddocks with this level of infection.

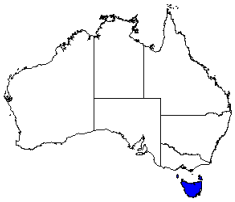
Paramyxovirus of pigs

As a result of the paramyxovirus infection of pigs found in NSW, boars from a large pig enterprise that had sent semen to the NSW property were tested for presence of antibody to the agent, with negative results.

Bat lyssavirus and bat paramyxovirus

Thirty five fructivorous bats held in captive colonies were tested for presence of antibody to these agents. They were all negative to bat lyssavirus, but two were positive to bat paramyxovirus. These two animals came from Brisbane about 18 months earlier and had been in isolation for all of this period.

Tasmania



Contributed by:
Lis Lloyd-Webb
DPIF, Tasmania

Hydatids

Multiple viable hydatid cysts were detected in the liver and lungs of a wether from a property in Longford. The sample was detected as part of abattoir surveillance in a line of 436 wethers aged 3–5 years and all were said to be born and bred on the property. Only one sheep in the line was detected as infected. Neighbouring properties are being investigated to determine if the infection may have originated elsewhere.

Chalkbrood

Chalkbrood is a recent introduction to Tasmania, having been previously diagnosed in the north and north-west of the State. The disease has now been diagnosed in the south of the State.

Anthrax exclusion

Anthrax was excluded as a cause of sudden deaths in cattle. Metabolic diseases such as hypo-magnesaemia were considered the most likely cause of death.

Aquacultural program

There were several submissions of wild and farmed Pacific Oysters from populations believed to be at risk of infestation by the mudworm *Boccardia knoxi*. To date, no *B. knoxi* has been found in this sub-program of the health surveillance program.

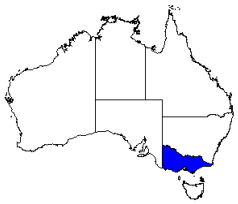
Listeriosis utbreak

A large outbreak of listeriosis in sheep in northern Tasmania was associated with silage feeding, with more than 75 animals lost.

Ovine Johne's disease

Another property on Flinders Island has been diagnosed with OJD. No cases have yet been diagnosed on the mainland of Tasmania. During the quarter, 105 blood samples from at least 14 properties were tested for export or differential diagnosis, all with negative results.

Victoria



Contributed by:
John Galvin
Agriculture Victoria

Ovine Brucellosis Control Area

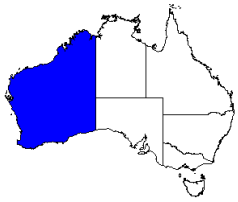
The Victorian Mallee (north-western Victoria) was declared a control area for ovine brucellosis in August 1997. Testing conducted over a number of years showed a relatively high level of ovine brucellosis in the Mallee compared to other areas of Victoria, due largely to poor fences allowing rams to stray in this extensive wheat–sheep area of the State. Establishment of the Control Area was sought by the local sheep industry with operation of the program to be overseen by an industry–government Committee of Management. Declaration of the area under Victoria's *Livestock Disease Control Act 1994* gives legislative backing to ensure that all rams are presented for testing and reactors are disposed of to slaughter.

The testing program during 1997 extended west from Ouyen to the South Australian border. There were 184 flocks tested, of which 25 (14%) were infected. Of the 2221 rams tested, 140 (6.3%) were positive at the first round of testing. Ovine brucellosis infection was more prevalent in British-breed flocks (14.8%) compared to merino flocks (2%). These results compare to testing undertaken in a smaller area west of Ouyen during 1991, when 57% of flocks and 21% of rams were positive.

Anthrax

Ten cattle died of anthrax in central Victoria in the three months to 30 September 1997. All occurred on properties where there had been deaths due to anthrax during the unusual outbreak in January–March 1997 (see *AHSQ* Vol. 2 No. 1). A preventive vaccination strategy has been developed under which, for properties where anthrax occurred during the outbreak and properties within 1 km of an infected farm, annual herd vaccination is required before the end of October. Immediate vaccination of introductions is also required

Western Australia



Contributed by:
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Agriculture WA

Sheep

There were cases of allergic enteritis caused by excessive uptake of helminth larvae from pastures. Other cases of uncomplicated helminthosis suggest this has been a bad year for internal parasitism in young sheep. Eperythrozoonosis was also seen in hoggets.

Pastoral sheep were again condemned at the abattoir because of grey–black pigmentation of tissues — laboratory studies indicate this is probably induced by consuming native vegetation.

An unusual case of proliferative glomer-ulonephritis, of unknown cause, was seen in 3 out of 30 five-year-old Suffolk ewes. Another instance of renal disease occured in a group of 200 weaners in which 16 died and a further 30 were ill with haemoglobinuric nephrosis and subacute bronchopneumonia. The cause was not determined.

An outbreak of polyarthritis, choriomeningitis and pyelonephritis caused the death of 10 of a group of 90 recently vaccinated hoggets at Narrogin. The cause was shown to be *Histophilus ovis*.

Cobalt drench-gun injuries caused the deaths of 70 out of 1200 weaners due to secondary bacteraemia.

Cattle

An outbreak of severe gastroenteritis was due to salmonella infection. Myocardial necrosis in a two-week-old calf was thought to be caused by protozoa, probably sarcocystis. Campylobacteriosis was thought to be the cause of an abortion. Traumatic reticuloperitonitis was seen in feedlot cattle.

Pigs

Five-day-old pigs with interstitial pneumonia were examined for porcine reproductive and respiratory syndrome, with negative results, although the cause was not established. A case of mulberry heart disease/hepatosis dietetica was seen in eight-week-old pigs in the wheat belt. Several cases of enteritis were seen, one involving haemorrhagic lesions due to enterohaemorrhagic *Escherichia coli*.

Poultry

Marek's disease was seen in broilers and young layers. Intestinal coccidiosis caused heavy mortalities in five-day-old turkeys, and chronic respiratory disease was seen in three-week-old turkeys. *Renicola* flukes were seen in ducks from the Kimberley. Some farmed emus chicks died with yolk sac infections.

Other species

Delayed white muscle disease was seen in alpaca cria. *Flexibacter columnaris* caused gill infection and deaths in fish at Kununurra. Other fish deaths were caused by endosulphan toxicity.

Quarterly Disease Statistics

Laboratory testing

The results of serological testing from routine laboratory submissions for the quarter are shown in Table 3. Data from Victoria is unavailable this quarter.

Table 3: 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
Jul - Sep 96	519	97	10000	90	1155	335	7454	51	324	2	173	6
Oct - Dec 96	1042	210	10287	100	1535	481	3130	39	494	0	240	8
Jan - Mar 97	729	197	5064	281	851	203	3256	147	416	0	287	4
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
NSW	13	4	1074	11	52	9	102	0	132	0	198	1
NT	306	63	338	65	318	69	2351	28	20	0	0	0
QLD	398	211	5201	103	111	20	736	0	134	0	30	0
SA	16	0	143	0	175	66	0	0	12	0	4	0
TAS	21	0	35	0	21	0	40	0	0	0	0	0
VIC	0	0	0	0	0	0	0	0	0	0	0	0
WA	257	7	1006	3	267	7	2	0	50	0	47	0

Suspect Exotic Disease Investigations

There were 14 exotic disease investigations reported during the quarter, as shown in Table 4.

Table 4: Suspect exotic disease investigations

Disease	Species	State	Reponse (key below)	Finding
Transmissible spongiform encephalophathy	feline	NSW	3	Possible congential metabolic condition
Tularaemia	fauna	NSW	1	Snuffles
Vesicular stomatitis	porcine	NSW	6	Paramyxoviridus
Rabies	feline	NSW	3	Negative
Canine ehrlichiosis	canine	NT	3	Negative results to tests for *Ehrlichia canis*
Canine ehrlichiosis	canine	NT	3	Negative results to tests for *Ehrlichia canis*
Bat lyssavirus	feline	QLD	2	Phaeohyphomycosis
Avian influenza	avina	QLD	2	Marek's disease and mycoplasmosis
Bovine spongiform encephalopathy	bovine	VIC	1	Cerebellar tumour
Rift Valley fever	ovine	WA	3	negative
Porcine reproductive and respiratory syndrome	porcine	WA	3	negative
Rinderpest	bovine	WA	2	negative
Transmissible spongiform encephalophathy	canine	WA	3	negative
Duck virus enteritis	avian	WA	3	negative

KEY to highest level 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)

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 Diseases/Incidents, DPIE.

Control activities

Enzotic 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 all undertaking a program of bulk milk testing of all dairy herds.

Table 5: Dairy herds tested free of EBL at 30 September 1997

	NSW	NT	QLD	SA	TAS	VIC	WA	AUST
Free	1432	0	1735	778	719	5291	455	10 410
Herds	1787	0	2026	808	810	8453	467	14 351

Ovine brucellosis

Accreditation programs for ovine brucellosis freedom are operating in most States. Table 6 shows the number of accredited flocks at the end of the quarter.

Table 6: Ovine brucellosis accredited free flocks at 30 September 1997

NSW	NT	QLD	SA	TAS	VIC	WA	AUST
1832	0	71	544	161	777	86	3471

Johne's disease

JD is seen primarily in dairy cattle. It occurs occasionally in beef cattle, sheep and dairy goats, and has been diagnosed in a small number of alpacas. JD occurs in NSW, Victoria, and South Australia. Surveillance programs in Queensland, Western Australia and the Northern Territory beef herd support the view that they are free of JD, and active measures are taken to stamp-out any incursions.

At the end of September 285 herds that had reached the status of Tested Negative 1 or Monitored Negative 1 in the Cattle Market Assurance Program. A further 17 herds had reached the status Tested Negative 2. A list of assessed herds is available by Infofax on 1902 940 579.

Table 7: Herds/flocks with JD at 30 June 1997

	Cattle	Sheep	Goats	Alpacas	Total
NSW	160	187	7	2	356
NT	0	0	0	0	free
QLD	0	0	0	0	free
SA	27	1	0	1	29
TAS	34	8	8	0	50
VIC	1641	17	8	11	1677
WA	0	0	0	0	free
AUST	1862	213	23	14	2112

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. *Brucella abortus* has been excluded as the cause of the reactor found in the Northern Territory this quarter (see State reports).

A total of 196 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 8.

Table 8: Surveillance for bovine brucellosis

	Abortion Investigations		Test for other reasons	
	Tests	+ve	Tests	+ve
Jul - Sep 96	247	0	4227	1
Oct - Dec 96	163	0	4365	0
Jan - Mar 97	122	0	2288	0
Apr - Jun 97	142	0	4336	0
Jul - Sep 97	196	0	3956	0
NSW	48	0	162	0
NT	30	0	2346	0
QLD	82	0	1381	0
SA	0	0	35	0
TAS	9	0	30	0
VIC	0	0	0	0
WA	27	0	2	0

Tuberculosis

Table 9 summarises the results of the national Granuloma Submission Program. The stock inspected come from some domestic abattoirs as well as export abattoirs. As mentioned in the State reports there have been three breakdowns of herds reported in this quarter.

Table 9: Results of the National Granuloma Submission Program

	Granulomas Submitted	TB +ve
Jul - Sep 96	1205	0
Oct - Dec 96	1144	2
Jan - Mar 97	1041	0
Apr - Jun 97	923	1
Jul - Sep 97	1338	3
NSW	247	0
NT	99	2
QLD	576	1
SA	53	0
TAS	47	0
VIC	121	0
WA	195	0

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. Table 10 gives information on isolates of salmonellae submitted from animals to NSSS from participating laboratories around Australia during the previous quarter. Quarterly newsletters and annual reports of both human and non-human isolates are published, and detailed data searches are provided on request to NSSS.

Contributed by National Salmonella Surveillance Scheme, Microbiological Diagnostic Unit, University of Melbourne.

Table 10: Salmonella notifications, 1 July to 30 September 1996

Serovars	avian	bovine	canine	equine	feline	ovine	porcine	other	Total
S. bovismorbificans	0	10	0	0	0	0	5	1	16
S. dublin	0	29	0	0	0	0	0	0	29
S. infantis	0	0	1	0	0	0	3	0	4
S. typhimurium	7	63	1	4	0	13	5	7	100
Other	21	14	6	4	2	1	33	15	96
Total	28	116	8	8	2	14	46	23	245

Zoonoses

The National Notifiable Diseases Surveillance System of the Communicable Diseases Network Australia New Zealand collects statistics about many human diseases. Its information is accessible at http://www.health.gov.au/hfs/pubs/cdi/. Table 11 summarises some of the data for zoonoses.

Contributed by Communicable Diseases Intelligence, Department of Family Services and Health

Table 11: Notifications of zoonotic diseases in humans

Disease	Q3-96	Q4-96	Q1-97	Q2-97	Q3-97	Current quarter							
	Australia				AUST	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Brucellosis	8	13	12	4	13	0	0	12	0	0	0	1	0
Hydatidosis	9	17	6	13	22	2	0	4	0	0	13	3	3
Leptospiros	44	55	31	40	20	6	0	11	1	0	1	1	3
Listeriosis	23	19	23	22	14	7	0	3	1	0	2	1	12
Ornithosis	12	24	22	12	5	0	0	0	1	0	4	0	0
Q fever	140	142	139	166	136	64	0	61	2	0	4	5	4

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 an offshore and an onshore component.

Serologically positive migratory birds that show no symptoms of avian influenza are occasionally found during NAQS surveys. Nevertheless, Australian domestic poultry flocks remain entirely free of this disease.

Contact: David Banks, AQIS

Table 12: Summary of NAQS animal surveillance and monitoring data collected in Australia from 1 July to 30 September 1997.

Disease	Number of tests/inspections	Results
Japanese encephalitis	11 sentinel cattle, 48 survey animals (cattle, pigs, horses, banteng, buffalo)	All tested negative.
Screw-worm fly	150 clearances of swormlure traps	No Chrysomya bezziana detected.
Surra	10 sentinel cattle, 57 survey animals (banteng, buffalo, pigs, goats)	All negative by Card Agglutination Trypanosome Test
Taenia solium	No tests in this quarter.	
Porcine reproductive and respiratory syndrome, Aujeszky's disease, classical swine fever, swine influenza, transmissible gastroenteritis	14 feral pigs	All tested negative
Avian influenza, Newcastle disease and infectious bursal disease	48 Migrating birds	Wandering whistle ducks trapped in Cape York Penisula: 3 tested positive for avian influenza; 1 tested positive for infectious bursal disease.
Asian honey bee	Surveillance conducted on islands in the Torres Strait Protected and Special Quarantine Zones	No detection except where previously present namely Saibai, Dauan, Boigu Islands in the northern Torres Strait.
Varroa and *Tropilaelaps* mites	Examination of sentinel hives and feral colonies of A.mellifera.	No detection
Canine ehrlichiosis	79 dogs tested.	77 tested negative, 2 results pending

National Residue Survey

Table 13 summarises the results for the quarter. Copies of recent publications:

- NRS Annual report 1996–97
- Report on the 1996 NRS Results
- Report on the 1995 NRS Results
- Report on the 1993–94 NRS Results

are available on request from

Dr Rusty Branford
NRS, PO Box E11, Kingston, ACT 2604
Phone 02 6272 5096
Fax 02 6272 4023
E-mail Rusty.Branford@brs.gov.au

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

- NRS Business Plan 1997–98
- NRS 1996 Randomised Sampling Results
- Recent Publications
- Frequently Asked Questions
- Information for Laboratories
- Associated Web Sites

Contributed by National Residue Survey, Bureau of Resource Sciences

Table 13: National Residue Survey, 1 July to 30 September 1997

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		AUST	
Antimicrobials																
Cattle	0	124	0	6	0	174	0	19	0	13	0	137	0	15	0	488
Pigs	3	127	0	0	1	83	2	39	0	1	2	98	0	51	8	399
Poultry	0	23	0	0	0	4	0	16	0	0	0	9	0	24	0	76
Sheep	0	50	0	0	0	7	0	15	0	2	0	23	0	26	0	123
Other	0	19	0	1	0	38	0	16	0	0	0	17	0	2	0	93
Total	3	343	0	7	1	306	2	105	0	16	2	284	0	118	8	1179
Anthelmithics																
Cattle	0	93	0	4	0	132	1	13	0	9	0	49	0	12	1	312
Pigs	0	29	0	0	0	14	0	8	0	0	0	14	0	12	0	77
Sheep	1	89	0	0	0	16	0	20	0	5	0	56	0	53	1	239
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	1	211	0	4	0	162	1	41	0	14	0	119	0	78	2	629
Growth promotants																
Cattle	0	126	0	10	0	185	0	30	0	21	0	101	0	32	0	505
Pigs	0	9	0	0	0	3	0	1	0	1	0	10	0	3	0	27
Poultry	0	0	0	0	0	1	0	1	0	0	0	2	0	2	0	6
Sheep	0	87	0	0	0	15	0	30	0	7	0	56	0	37	0	232
Other	0	8	0	1	0	22	0	12	0	0	0	11	0	3	0	57
Total	0	230	0	11	0	226	0	74	0	29	0	180	0	77	0	827
Insecticides																
Cattle	0	320	0	16	0	489	0	67	0	23	1	217	0	57	1	1189
Feral	0	15	0	10	0	14	0	0	0	0	0	0	0	0	0	39
Pigs	0	74	0	0	0	40	0	18	0	2	0	43	0	16	0	193
Poultry	0	2	0	0	0	2	0	4	0	0	0	7	0	6	0	21
Sheep	0	164	0	0	0	32	0	52	0	6	0	128	0	65	0	447
Other	0	52	0	2	0	37	0	20	0	9	0	9	0	5	0	134
Total	0	627	0	28	0	614	0	161	0	40	1	404	0	149	1	2023
Metals																
Cattle	1	19	0	1	4	35	0	5	0	0	1	16	0	4	6	80
Pigs	2	14	0	0	1	14	0	1	0	0	0	10	0	2	3	41
Poultry	3	22	0	0	0	6	0	4	1	2	1	8	1	16	6	58
Sheep	0	2	0	0	0	1	0	2	0	0	0	1	0	3	0	9
Other	0	1	0	3	0	0	1	2	0	0	0	0	0	0	1	6
Total	6	58	0	4	5	56	1	14	1	2	2	35	1	25	16	194

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