Volume 10 Issue 1

Animal Health Surveillance

1 January to 31 March 2005

QUARTERLY REPORT

ISSN 1445-9701

CONTENTS

AnimalHealth AUSTRALIA

Australian Animal Health Council Ltd ACN 071 890 956

Preface

This issue includes an update on the Bovine Syndromic Surveillance System (BOSSS), a pilot study investigating new ways to capture disease data from remote beef cattle production areas of Australia, and information about the Australian National Quality Assurance Program, a laboratory quality assurance program that now extends to 32 laboratories in seven countries. Additional articles include reports from the Animal Health Quadrilateral Group's (QUADS) recent meeting in Noosa and the QUADS modelling workshop held in Canberra.

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

Gardner Murray, Australian Chief Veterinary Officer

Bovine Syndromic Surveillance System (BOSSS)

A pilot study investigating new ways to capture disease data from remote beef cattle production areas of Australia has been underway for two years. The project is being undertaken as part of a PhD by Richard Shephard and is funded by MLA and the Australian Biosecurity CRC.

Initial analysis indicated that the provision of disease event data using forms was unlikely to be sustainable by busy cattle producers. These findings prompted the development of a comprehensive on-line reporting system for lay observers based around the cattle disease diagnostic computer program BOVID. The system that was developed is called BOSSS (Bovine Syndromic Surveillance System).

BOVID algorithms were obtained by licence agreement with copyright owners and the program was modified for use by lay observers. A graphical interface (with intelligent selection of possible signs) was developed to aid entry of signs, the provision of comprehensive lay terms and definitions to guide producers and the conversion of the terminal-choice only sign hierarchy into a system whereby broad grouping of signs (e.g. 'lameness') may be selected instead of specific terminal signs (e.g. 'lameness – interdigital lesion') occurred to allow users of varying ability to enter meaningful data into the system.

Enhanced data capture modules were developed in the form of a program-driven interrogation module. This system identifies likely diseases from the entered signs using a Bayesian approach. High

ranked diseases are compared and key differentiating signs identified. This information is transferred back to the user in the form of questions that hopefully further define the case. The advantage that BOSSS provides over passively collected clinical data is that this system actively obtains critical differential sign information, including negative sign data. This markedly improves the surveillance value of the data.

BOSSS reporting options were developed to provide meaningful and immediate feedback to producers. These included the development of a differential diagnostic list (with more likely diagnoses listed higher then less likely diagnoses). Information on disease causes and control are presented in easily accessed forms. Potentially zoonotic, exotic or contagious diseases were highlighted and warnings provided to the user to contact their relevant animal health officer to discuss further. The disease diagnostic component was very well received by producers at the recent launch in Queensland in November 2004.

Other information made available by the system includes a pictorial guide to field post mortem examination of a ruminant, a guide to sample collection and access to an expert system list server. The list server is a collection of veterinary and non-veterinary experts who were recruited during late 2004 who have agreed to contribute time and effort to users of this system. Users who are having difficulty with individual cases can choose to lodge the BOSSS data for the case plus a few lines of free text about the cases to the list server. This information is disseminated by email to the experts and where relevant comment on potential causes and suitable investigative approach can be provided by the expert this information is emailed back to the user and lodged on the bulletin board with the case for reference. This system concept was very well received when presented to producers in the pilot groups in November 2004. The objective is to make surveillance data a by product of the system – users are attracted to the systems for other reasons. The system has been successfully launched and is in the process of being scaled up.

Future work includes testing the system for completeness and validity of data collected and an assessment of the detection sensitivity of the system. Work will proceed to develop a hand-held computer version of the system, thereby completing the point-of-contact access to information essential to encourage ongoing use.

Contributed by: Richard Shephard, AB-CRC

Australian Biosecurity CRC Research

AVIAN INFLUENZA TECHNICAL MANUAL

The uncontrolled spread of highly pathogenic H5 avian influenza virus (HPAI-H5) in South-east Asia early in 2004 resulted in the death or culling of hundreds of millions of chickens. As at 19 May 2005, WHO records 97 laboratory-confirmed cases of human infection with avian influenza H5N1 in Cambodia, Thailand and Viet Nam, of whom 53 have died.

All documented outbreaks of highly pathogenic avian influenza in domestic poultry in Australia have been of the H7 subtype. The existing test for rapid diagnosis of avian influenza (AI) detects AI antigen in impression smears using a monoclonal antibody that reacts with the nucleoprotein of all AI viruses. Confirmation of the virus as H5 can take several days, but the time taken to do this could be reduced to several hours using real-time PCR (polymerase chain reaction).

When it was discovered that the new south-east Asian H5 virus differed significantly from the reference H5 reagents at CSIRO, the Board of the Australian Biosecurity Cooperative Research Centre for Emerging Infectious Disease (AB-CRC) approved a research project to upgrade Australia's national capability to rapidly diagnose HPAI-H5 virus. A rapid diagnostic capability for H5N1 diagnosis is crucial for swift index case diagnosis, facilitating timely implementation of control measures.

New serological and molecular reagents for detection of the south-east Asian strain of H5 have now been developed. CSIRO's Hans Heine and colleagues have developed a real-time reverse transcription (RRT)-PCR for detection of Asian H5N1 isolates that is now in use at the CSIRO Australian Animal Health Laboratory. We are examining methods to transfer reagents and technologies to human and animal health laboratories in Australia and the region.

The technical manual is now available on the internet (at http://www1.abcrc.org.au/pages/project.aspx?projectid=62). This technical manual describes two RRT-PCR tests for the detection of influenza type A and subtype H5 of the Eurasian lineage, including the predominant H5N1 isolates. The tests have been adapted and modified from published tests developed for strains of North American lineage.

For more information about the diagnostic test contact Hans Heine on 03 5227 5278 or email Hans.Heine@csiro.au

Contributed by: Corinna Lange, Communication Officer, Australian Biosecurity Cooperative Research Centre for Emerging Infectious Disease

Australian National Quality Assurance Program (ANQAP)

ANQAP is a well established international external proficiency testing program coordinated in Australia at Primary Industries Research Victoria (PIRVic) on behalf of the Sub-Committee of Animal Health Laboratory Standards (SCAHLS). ANQAP was formed to establish standardised testing procedures in Australasia and internationally. It serves as an organised and transparent mechanism to enhance the national and international credibility of testing laboratories.

In 2005 ANQAP will coordinate the testing and assessment for 32 veterinary laboratories in Australia, New Zealand, USA, China, Hong Kong, South Africa and Switzerland.

HOW THE ANQAP PROGRAM OPERATES

Freeze dried sera are distributed to each participating laboratory for 'blind' testing. Results are returned to ANQAP who perform statistical analysis of the results. Each participating laboratory receives a report that compares its performance with that of other laboratories that offer the assay using the same or similar test methods. Proficiency testing assists laboratories with monitoring their testing performance by comparison to other laboratories and within their own laboratories.

WHY HAVE EXTERNAL PROFICIENCY TESTING

Proficiency testing is not a new concept.

Increasingly, international organisations are requiring laboratories that conduct diagnostic tests for infectious animal diseases to be accredited to the international standard for management and technical competence, ISO 17025. A significant element of the technical competencies of this standard is the laboratory's participation in external proficiency testing.

External proficiency testing is one way of measuring the quality of the results generated by the laboratory. It can assist with the identification of significant systematic, analytical and test methodology differences between individual laboratories. Participation in proficiency testing programs provides laboratories with an objective means of assessing and demonstrating the reliability of data they are producing and it is an adjunct to their QA and QC programs.

POTENTIAL BENEFITS OF A PROFICIENCY TESTING PROGRAM

Participation in an external proficiency testing program such as ANQAP provides multiple benefits to each laboratory. The participation:

- Enhances confidence in the validity of laboratory's test results and services and heightens Australia's surveillance capacity, preparedness and response capabilities
- Builds capacity and provides human resource and technical infrastructure development to enable the management of animal health laboratories to satisfy international standards
- Provides confidence in animal health information for disease control programs. Improvement in the quality of animal health information will facilitate trade in animals and animal products.

Further information on the Australian National Quality Assurance Program can be found on the internet (at http://www.anqap.com).

Contributed by: Jan Beattie ,National Coordinator, Australian National Quality Assurance Program, Primary Industries Research Victoria (PIRVic)

OIE notification requirements

Changes to the World Organisation for Animal Health (OIE) Terrestrial Animal Health Code for notification and epidemiological information came into effect in January 2005. The intention of the changes is to improve the efficiency of the OIE early warning system for the benefit of the international community.

New criteria for including a disease in a single OIE list were adopted at the 72nd General Session of OIE in May 2004. The prime criterion for a disease to be listed is its potential for international spread. Factors such as zoonotic potential and morbidity and mortality within naive populations are incorporated.

A new list of diseases based on the new criteria will be considered for adoption in May 2005. Until the new list is adopted, and as from 1 January 2005, the single list of notifiable diseases has consisted of the previous Lists A and B combined. The new list is likely to be substantially the same as the current list.

The new chapter of the Code requires urgent notification (within 24 hours) to the OIE Central Bureau in the following circumstances:

- first occurrence of a listed disease and/or infection in a country or zone/compartment;
- re-occurrence of a listed disease and/or infection in a country or zone/compartment following a report declaring the outbreak ended;
- first occurrence of a new strain of a pathogen of an OIE listed disease in a country or zone/ compartment;
- a sudden and unexpected increase in the distribution, incidence, morbidity or mortality of a listed disease prevalent within a country or zone/compartment;
- an emerging disease with significant morbidity or mortality, or zoonotic potential; or
- evidence of change in the epidemiology of a listed disease (including host range, pathogenicity or strain), in particular if there is a zoonotic impact.

Weekly follow-up reports are required to provide further information on the evolution of an incident that required urgent notification. These reports are to continue until the situation has been resolved through either the disease being eradicated or it becoming endemic in which case, six-monthly reporting will then satisfy the obligation of the Member Country to the OIE.

Six-monthly reports on the absence, presence, and evolution of diseases listed by OIE and information of epidemiological significance to other countries are also required. Australia is obliged to complete an annual questionnaire.

Not all the diseases on the new OIE list are currently notifiable in Australia. There may be some situations when endemic diseases, previously on List B, will now require urgent notification to the OIE. Animal Health Committee is considering actions, such as legislative changes, that may be necessary to allow Australia to meet the new reporting obligations.

The OIE Terrestrial Animal Health Code is available on the internet (at http://www.oie.int/eng/normes/en_mcode.htm).

Contributed by: Jill Mortier, International Coordinator, OCVO, DAFF

Animal Health Quadrilateral Discussions

NOOSA, 16 – 21 FEBRUARY 2005

The Animal Health Quadrilateral Group of Countries (QUADs) (Australia, Canada, New Zealand and the United States) held their annual animal health meeting from 16 to 21 February in Noosa, Australia. The QUADs Group operates on the principle that the four countries working together can achieve better results than are possible by each country working separately. The QUADs countries cooperate to solve problems in a practical way, as well as considering strategic issues related to animal health, food safety and international trade.

Key animal health issues on the agenda of this year's meeting included:

- Emergency management
- Animal welfare
- Proposed changes to the International Terrestrial Animal Health Standards, particularly regarding BSE and avian influenza
- Aquatic animal health issues
- Supply and demand for rural veterinarians
- Performance standards.

The QUADs countries discussed possible benefits that may be derived from having a collaborative approach to strategic foresight.

Queensland industry representatives participated in a session where they presented on current issues for the meat industry. In another session, an international teleconference allowed participation of industry representatives from other QUAD countries.

The meeting concluded with a joint session with the Food Safety QUADs on 21 February to discuss issues of common concern, such as emerging and re-emerging zoonotic diseases, traceability, and transgenic and cloned animals in the food chain.

Following the animal health QUADs meeting, the QUADs Emergency Management Working Group convened a carcase disposal workshop. This allowed an open and detailed exchange of information on trials that have been undertaken or are currently underway and on participants' experiences with various disposal methods.

The QUADs Emergency Management Working Group was responsible for convening an international epidemiological modelling workshop in March. This is the subject of a separate report in this newsletter.

Contributed by: Jill Mortier, International Coordinator, OCVO, DAFF

QUADS Modelling Workshop

An international workshop was held in Canberra from 8 -10 March to address the use of disease models in development of foot and mouth disease (FMD) policy. Recent experience with disease models, particularly during the 2001 epidemic in the United Kingdom, has produced conflicting views as to their value. In response to a paper tabled by Canada at the QUADs meeting in Vancouver in 2004, the QUADs countries (Australia, Canada, New Zealand and the United States) agreed to hold a workshop on the role of modelling to support decision-making in a disease emergency. This initiative recognised that all QUADs countries were investing resources in this area. Australia offered to host the workshop.

The aim of the workshop was to discuss and demonstrate to policy-makers the models developed or under development, and to review the current status of FMD policy, in the QUADs countries. It is apparent that modellers and policy-makers should work together to develop the most efficient and effective methods for control of FMD outbreaks. The Workshop was intended to identify actions and activities to promote better understanding of the role of modelling in policy development, and opportunities for collaboration by QUADs countries. Participants at the workshop included epidemiologists, modellers, emergency managers and policy people. Invited keynote speakers were Dr John Wilesmith of DEFRA, UK and Mr Nick Taylor, University of Reading, UK.

The participants were made aware of the situation regarding modelling and its role in animal health policy development and emergency management in each of the QUADs' countries. The participants then explored lessons learned from the UK and devised strategies for the practical use of modelling and other analytical tools that can be used by epidemiologists to advise policy-makers. Key outcomes were identified and an action plan developed to promote better understanding of the role of modelling in policy development, and opportunities for collaboration by QUADs countries. A report of the Workshop will be available shortly.

Contributed by: Graeme Garner, OCVO, DAFF

Avian influenza preparedness in Australia

The epidemic of highly pathogenic avian influenza in poultry in parts of Asia is a 'crisis of global importance' and continues to demand the attention of the Australian community. The epidemic has highlighted the need for the continuing protection of the health of Australia's poultry flocks in the face of highly pathogenic avian influenza. The Australian Government and State/Territory governments as well as industry, have been undertaking a range of activities to improve Australia's preparedness.

The States have communicated with a wide range of industry stakeholders. For example, Western Australia is collaborating with industry to develop an Avian Industries Communication Plan, and Queensland has provided presentations about avian influenza to their State Poultry Health Liaison Group, a joint industry - government group.

Many States have held or are running major training activities. Victoria has improved its response and contingency plans through Exercise Gallus, and NSW tested laboratory preparedness for a large-scale emergency animal disease in Exercise Crucible. South Australia is having a major rapid response team exercise (Adventurous Goose) in late May 2005. All States are preparing for Exercise Eleusis 05 a major national exercise to evaluate the capability to manage emergency zoonotic disease outbreaks across industry and government. Avian influenza has been chosen for this exercise that will be held in late November 2005. Other major activities in the States include resource preparedness, particularly in sourcing personal protective equipment, and improving methods for destruction and disposal of poultry.

At the national level, AQIS is screening 100% of flights, passengers, baggage and mail from high risk countries, with particular attention to eggs, egg products, poultry meat, poultry vaccines, feathers and similar items. National policy is being refined through a series of government-industry workshops organised by the office of the Chief Veterinary Officer (OCVO). Major developments have been:

- changes to the cost-sharing agreement to allow inclusion of low pathogenic avian influenza (LPAI);
- development of policy on how Australia would react to the detection of LPAI;
- obtaining detailed data about sources of vaccine;
- elaborating on Australia's response to the proposed changes in the OIE Code chapter on avian influenza;
- developing an awareness and communication strategy to cover a broad spectrum of bird owners, but particularly peri-urban poultry producers and

bird fanciers;

- characterising industry biosecurity risks with respect to avian influenza and developing appropriate management strategies for them;
- approving a project on examining industry dynamics that will provide useful information for epidemiological modelling work; and
- progressing a new version of the AUSVETPLAN avian influenza strategy.

In collaboration with the Australian Wildlife Health Network, two workshops have been held to evaluate and coordinate field studies in relation to wildlife. The second, held in March, considered activities being undertaken in Victoria and NSW and started developing a framework for assessing risks of an outbreak of avian influenza in Australia.

The OCVO staff have been working closely with counterparts in the Australian Government Department of Health and Aging in the development of Australia's plan for handling a human influenza pandemic.

Contributed by: Christopher Bunn, Manager, Disease Preparedness and International, OCVO, DAFF

Aquatic animal health

AQUATIC ANIMAL DISEASE CD-ROM (FIELD GUIDE)

The Second Edition of the *Aquatic Animal Diseases Significant to Australia: Identification Field Guide* was launched on 17 January 2005. The Field Guide was produced by the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) in conjunction with industry, research institutes, States and Territories, and the Fisheries Research and Development Corporation.

The updated Field Guide reflects improvements in diagnostic capability since it was first published in 1999. It provides a quick reference summary of the diseases of aquatic animals most significant to Australia in terms of their potential effects on production and trade. The Field Guide relies heavily on photographical references to gross signs of disease and supporting descriptions in dot-point format, to assist in the early identification of disease. It has been produced on CD-ROM with PDF-printable pages of disease-specific fact sheets, for convenient dissemination by email or facsimile.

The second edition decreases the emphasis on diagnostic and technical aspects, and enhances the pictorial content, supported by updated information and descriptions of gross signs of the diseases represented. It has been revised to discourage presumptive 'diagnoses' based on the information contained and, to recommend a course of action for obtaining more information and providing timely advice to authorities of suspicion of disease.

The Field Guide is available on the internet at http://www.disease-watch.com or as a CD-ROM by contacting DAFF at aah@daff.gov.au .

LAUNCH OF ON-LINE QUARTERLY AQUATIC ANIMAL DISEASE (QAAD) STATUS REPORTING

The first reporting period for AG-DAFF's new online Quarterly Aquatic Animal Disease (QAAD) reporting system began on the 1st January, 2005. Australian states and territories began reporting on aquatic animal diseases of national significance in July 1998. Since then, each jurisdiction has provided quarterly reports on the status of the diseases on Australia's National List of Reportable Diseases of Aquatic Animals. Information is collated by the OCVO and consolidated into a national report that allows Australia to effectively participate in regional aquatic animal health surveillance and reporting programs, and to discharge Australia's reporting obligations to the World Organisation for Animal Health (OIE).

Rapporteurs from each state and territory can now access the AG-DAFF-hosted database remotely and lodge their aquatic animal disease reports online. This will reduce the number of transcription errors from hardcopy reports, auto-validation and endorsement, and allow remote printing of reports by jurisdictions.

FORMATION OF VETERINARY MEDICINES IN AQUACULTURE WORKING GROUP

All veterinary medicines used in Australia must be registered with the Australian Pesticides and Veterinary Medicines Authority (APVMA). The aquaculture industry and the Australian Government aim to ensure the safe used of veterinary medicines in Australian aquaculture and part of this involves improving the current expensive and complex registration process.

At the Aquatic Animal Health Committee teleconference in March 2005, the Veterinary Medicines in Aquaculture (VMA) Working Group was established. The members of this working group represent the aquaculture industry, the Australian and State governments, and the APVMA.

The VMA Working Group will work towards a nationally coordinated approach for veterinary medicine registration for aquaculture in Australia and aims to have a number products registered by 2010.

The first meeting of the Working Group is scheduled for June 2005. In the interim, members will be working on identifying the major veterinary medicine issues facing the aquaculture industry and examining previous attempts to register veterinary chemicals for use in aquatic animals.

AQUAVETPLAN

AQUAVETPLAN is the Australian Aquatic Animal Diseases Veterinary Emergency Plan. It is based on the AUSVETPLAN series for terrestrial animal diseases. Both plans have disease strategy manuals so that aquatic and terrestrial animal health professionals can efficiently respond to animal disease emergency situations in Australia.

In March 2005, Australia's Primary Industries Standing Committee endorsed the AQUAVETPLAN disease strategy manuals for two exotic diseases of fish (viral haemorrhagic septicaemia and whirling disease) and two exotic diseases of crustaceans (crayfish plague and white spot disease). With the exception of whirling disease, all these diseases are listed by the World Organisation for Animal Health (OIE) in the *Aquatic Animal Health Code.*

AQUAVETPLAN manuals can be downloaded free of charge from the DAFF website at http://www.daff.gov.au/aquaticanimalhealth. An updated CD-ROM containing all AQUAVETPLAN manuals published will soon be available. In addition to the disease strategies, the CD will include the Control Centres Management Manual; the four Enterprise Manuals; and the Operational Manuals for Disposal and for Destruction.

Contributed by: Nathan Rhodes OCVO, DAFF

Australian Wildlife Health Network

The Australian Wildlife Health Network (AWHN) receives reports of wildlife incidents, and definitive diagnoses of cause of death, in wildlife in Australia. The Network appreciates and acknowledges the contributions from organisations and individuals that have been received. All contributions are recorded in the AWHN database (the Wildlife Health Information System: WHIS), with details about selected incidents provided here.

In December 2004 an independent consultant was appointed by DAFF to review progress within the AWHN. The key findings were:

'The Network has made exceptional progress in a short time. It is recognised as a national source of information on wildlife health, has established communications systems to provide early alerts on emerging wildlife health issues, created official reporting arrangements for national and international organisations on the health status of Australian wildlife and provided a national network of contacts of workers on wildlife health that provides flow-on benefits to human and animal health, occupational safety and wildlife conservation.'

The key recommendations included:

1) The Network be fully integrated into the enhanced animal health surveillance system and the National Animal Health Information System that is being developed from the Frawley Report recommendations. The network should be the wildlife surveillance arm of the national animal health surveillance system.

2) Each State and Territory establish a local Network cell (or regional cells) to coordinate information collection and exchange and collaborate and coordinate investigations resulting in improved quality of wildlife health surveillance information. These cells should develop and promote procedures and protocols for reporting and exchange of information and collaboration and coordination of investigation of significant incidents.

3) The Network investigate developing and funding an active disease surveillance program for one or a small number of diseases of significance to public health, trade in animals or animal products or threatening to biodiversity.

4) The Management Committee develop a proposal for the core funding of the Network that recognises the need for secure medium to long term funding for the Coordination Unit and delivery of in kind commitments from core stakeholders.

The Network Management group is now addressing these recommendations in its new strategic, business and operational plans for 2005 – 2008.

There were numerous wildlife events reported in the past quarter. Cases that have possible significance for human or animal health, biodiversity, trade or Australia's agro-economy follow. For information on other cases contact the Network at awhn@zoo.nsw.gov.au.

FREE RANGING WILD ANIMALS

- Efforts are being made by veterinarians at the Department of Agriculture, WA to clarify the species affected, location, cause and extent of a mass mortality event involving tens of

(Continued on page 21)

State and Territory reports

New South Wales

Contributed by:
Barbara Moloney
NSW Agriculture

ANTHRAX

Three anthrax cases were reported during the quarter. All occurred in the known anthrax endemic area of the state. The first two cases occurred in late January, one in the Condobolin district involving three deaths in a mob of 500 ewes, and the other in the Murray district resulting in ten deaths in a herd of 380 beef cattle. The third case occurred in late March, with 10 deaths out of 1,950 sheep on a Narrandera district property. Carcases were burnt or buried, all in contact animals were vaccinated and properties were placed in quarantine. No stock movements had occurred off any property within the previous two months or more. All three cases were unconnected, but each had either a previous history of anthrax on the property or neighbouring property within the past 10 -15 years.

There were 13 investigations negative for anthrax during the quarter. Eleven of these involved cattle, predominantly beef, where alternate diagnoses included mucosal disease and possible rock fern toxicity. The remaining two investigations involved sheep, with enterotoxaemia as alternate diagnosis in one case and acute toxic hepatopathy in the other.

LUPINOSIS IN SHEEP

Approximately 100 sheep on a property in the Wagga Wagga district died from lupinosis in January. The sheep had been on *albus* lupin stubble for 10 days. The sheep losses were unexpected as *albus* lupins are generally regarded as safe, and there were plenty of normal-appearing lupins in the stubble. There were some fungal damaged plants, pods and seed present. Affected sheep were jaundiced and depressed. Post mortem examination revealed a generalised jaundice, a yellow orange coloured liver, enlarged gall bladder and large congested kidneys. Histopathology on liver samples confirmed lupinosis. Fungal culture of damaged seed pods, harvested grains and stubble confirmed Phomopsis (*Diaporthe toxica*). The sheep were removed from the stubble immediately the farmer noticed the problem, however deaths continued steadily for two weeks after removal, as is expected with lupinosis.

Lupinosis from *albus* lupins is not common. Large areas (more than 16000 hectares) in NSW are sown to *albus* lupins each year with very few (reported) incidents of lupinosis. *Albus* lupins usually have sufficient plant resistance to prevent the development of Phomopsis. It is thought that the conditions that predisposed to the development of Phomopsis in this case were moisture stress during grain fill, followed by above average rainfall in November and December. Hail damage may have been another predisposing factor.

LEAD POISONING IN CATTLE

A total of four cows were clinically affected by lead poisoning and died. The animals were part of a mature mixed mob of 25 beef cattle from the Condobolin district. The first two deaths occurred during a ten day period. Signs seen by the owner of the first cow to die included marked weight loss, staggering gait, nasal discharge, lateral recumbency, and arching of neck before death. The second cow died suddenly in fat body condition. The cattle had been moved to a barley stubble paddock in the previous four weeks. This paddock contains an old tip and is watered by a dam.

The range of clinical signs noted in the remaining two sick cows examined included dullness, slow response to stimuli, reluctance to walk, absence of menace response, crusty nasal discharge, non-motile rumen, regular clonic head twitch, and tongue flaccid and slow to retract. The attending veterinary practitioner was suspicious that lead poisoning may have been involved. A paddock inspection revealed lead from old batteries was readily available with evidence of cattle tracks around the area.

Blood samples were taken from the two clinically sick cows. Laboratory testing showed 4.12 and 4.89 µmol/L of blood lead (concentrations of blood lead >1.7 µmol/L are diagnostic for lead toxicity). The tissue lead in kidney submitted from the second dead cow, was conclusively high. Both clinical cases subsequently died. The remaining exposed non-clinical animals will be detained on the property for at least eight months.

SALMONELLOSIS IN SHEEP

Significant sheep mortality due to *Salmonella typhimurium* occurred on two properties in the Hume district during the quarter. On one property, 10-month-old merino weaners were yarded for 48 hours for crutching and on return to pasture approximately 40% developed fever, lethargy, stiffness (particularly of the hind limbs), diarrhoea, coughing and increased respiratory effort. Affected animals went down, and death occurred within a couple hours of recumbency.

Post mortem examination revealed inflamed, oedematous small intestines and enlarged, inflamed mesenteric lymph nodes. *S. typhimurium* was cultured from intestinal samples, mesenteric lymph nodes, lung and liver. Total losses reached 200. The mob was treated with oxytetracycline and fluid electrolyte therapy (oral Vy-trate). Treatment was very effective. An improvement was noticed within 24 hours with losses subsiding quickly.

On the second property mortalities occurred in a mob of five-month-old, recently shorn, merino weaners following a sudden cold snap in the middle of hot weather (approximately 30 °C drop in temperature). This mob had been treated with Lincospectin a week previously as part of a footrot program. Out of 250 animals 50 died and a further 50 were clinically affected. These animals were depressed, had a fever, increased respiratory effort and some had diarrhoea. Post mortem examination revealed enteritis and inflamed mesenteric lymph nodes. *Salmonella typhimurium* was cultured from the small intestine, mesenteric lymph nodes and liver. The response to treatment with oxytetracycline was good with 40 out of 50 lambs recovering.

CHLAMYDIOSIS IN POULTRY

Several cases of chlamydiosis in commercial poultry were reported in 2004. Trace back investigations on the breeder farm supplying the day-old chickens (see *AHSQ* Vol 9, No. 4) and the breeder farm that supplied the layer pullets (see *AHSQ* Vol 9, No. 3) found no obvious clinical signs in the breeders but repeated immuno-fluorescence antibody testing (IFAT) indicated the presence of *Chlamydia* in these breeder flocks. An additional breeder flock owned by the same company was reported with increased mortality, cough, slightly enlarged liver with white spots and focal liver necrosis. Liver and splenic smears from this flock were found to be *Chlamydia* positive by IFAT and further confirmation by PCR.

These findings in the absence of any obvious other epidemiological source and coupled with the temporal pattern of the disease in the pullets and meat chickens raise the possibility of vertical transmission, although vertical transmission of chlamydiosis has not been recognised as a significant method of transmission in poultry.

Northern Territory

Contributed by:
Dick Morton
DBIRD

PNEUMONIA IN PIGS

Deaths in grower pigs were investigated at an outer Darwin piggery. Six pigs had died in a pen of 40 growers. Ten of the surviving pigs showed classical clinical signs of pneumonia. They were in poor condition, slab sided, coughing and had elevated temperatures. A post mortem examination was performed and the lungs were consolidated ventrally in all lobes, exhibiting severe broncho-pneumonia. Laboratory tests revealed supporative broncho-pneumonia associated with bacterial infection. This is usually secondary to enzootic pneumonia, caused by *Mycoplasma hypopneumoniae*. The piggery owner had ceased preventive antibiotic therapy some four months previously. It was recommended that all pigs in the pen be treated therapeutically and that a preventive treatment regime be reintroduced.

EXTERNAL AND INTERNAL PARASITISM IN WEANER CATTLE

A group of 1200 brahman weaner cattle were transferred to a Douglas-Daly property. Twenty five died within two weeks of arrival. The property manager reported that the cattle arrived in good condition, but that many had rapidly lost weight. No mineral-urea supplements had been provided. Blood and faecal samples were taken from ten animals. All had heavy tick burdens. All had faecal egg counts of more than 1000 eggs per gram, most being *Haemonchus placei*. Blood samples revealed three to be anaemic. The feed on the property was plentiful, but different from where they had originated. Weaning is a particularly stressful period and young cattle take time to adapt to different pastures. This combined with the heavy parasitic burdens caused the losses and ill-thrift.

SEPTIC ARTHRITIS IN A BULL

A nine-year-old Charolais bull in a mob of agistment cattle in the Tennant area was found recumbent near a water trough and had difficulty in getting up. Both front legs were very swollen and some muscle wasting was evident in the shoulders. The bull had tail rot but was otherwise functional and alert. It was decided to euthanise the bull. Post mortem examination revealed multiple lung abscesses and degenerative arthritis of shoulder and elbow joints. *Arcanobacterium pyogenes* was cultured from the abscesses, joints and tail. It was thought that the septic arthritis and lung lesions were secondary to bacterial spread from the tail lesion.

Queensland

Contributed by:
David Pitt
QDPI&F

BOVINE EPHEMERAL FEVER

There were numerous reports of BEF in beef herds throughout Queensland during the quarter. Bovine ephemeral fever virus was detected by Polymerase Chain Reaction (PCR) test in four different locations on the Darling Downs and on 16 occasions throughout south-east Queensland during the quarter. In six of these cases, one or two affected animals died. An eight-month-old Cooktown weaner in a mob of 65 had difficulty rising and a stiff, proppy gait and was positive for the BEF virus on PCR test.

LEAD POISONING

Two one-month-old calves from Mulgowie were found dead over a period of two days. No clinical signs were noted before death. One of the recently dead calves was submitted to the Toowoomba Veterinary Laboratory for autopsy. Loose faecal material was present in the rectum and the lungs had marked darkening of the anterior-ventral areas. Histological examination revealed minor renal haemorrhages, marked congestion and patchy oedema of the lungs and occasional, focal areas of neuronal necrosis in the cerebrum. Kidney lead was measured at 146 mg/kg FW. The source of the lead was not found.

PLANT POISONINGS IN CATTLE

Nitrate-nitrite poisoning caused the deaths of nine yearling cattle out of 45 head at risk near Laidley in early February. The cattle were fed hay containing 3.80 % potassium nitrate dry matter and were found dead the next morning.

Bracken fern (*Pteridium esculentum*) was the suspected cause of death of two yearling heifers and of tarry faeces in another 11 head near Cooroy in south-east Queensland.

A nine-year-old Braford cow, at the dip yards in Richmond (before dipping) developed respiratory distress, recumbency and died suddenly. Autopsy revealed abnormal changes in the liver and dark brown (chocolate) blood. Histologically, the liver lesions appeared chronic. Myocarditis was present. Although no aqueous humour was collected for testing, chocolate blood and the presence of large amounts of pigweed (*Portulaca oleracea*) in the dipping yards indicate nitrate-nitrite poisoning.

OVINE BRUCELLOSIS

Routine accreditation screening for *Brucella ovis* identified an animal from Goondiwindi with a Complement Fixation Test (CFT) titre of 1/64. The ram was autopsied and *Brucella ovis* was subsequently cultured from fresh samples of ampulla and seminal vesicles.

EPERYTHROZOONOSIS

Two sheep from Muttaburra collapsed during mustering. One animal died and the other recovered. On autopsy the dead eight-month-old ewe was found to be severely anaemic with patchy discolouration and small haemorrahages over the lungs and a swollen liver. A range of samples was submitted to the laboratory. Haematology confirmed the presence of a severe anaemia and revealed large numbers of *Eperythrozoonosis ovis*. Histological examination revealed a mild, periacinar necrosis consistent with terminal hypoxia in the liver, pulmonary oedema and splenic congestion with moderate haemosiderosis. Serum copper was normal and faecal egg counts were not significant.

OXALATE POISONING

Eight hundred yearling sheep near Blackall were held in a yard for approximately 24 hours. They were returned to the paddock and ten were found dead the following day. Rumen content and formalised liver, kidney and heart were sent to the laboratory. Large amounts of oxalate were present within the renal tubules. The liver and heart were unremarkable. No specific plants were identified in the rumen sample.

ENZOOTIC PNEUMONIA

Enzootic pneumonia caused by *Pasteurella multocida* was diagnosed as the cause of pneumonic lesions in one pig at slaughter and as the cause of sickness in 400 out of 4000 23-week-old pigs on a property in Banana shire. Affected pigs showed respiratory signs.

Enterotoxaemic colibacillosis caused the deaths of 50 weaner pigs out of a group of 90 in a piggery in Beaudesert shire in late February. Severe diarrhoea was observed before the deaths. Another piggery in Kingaroy shire in mid-March experienced 12 sudden deaths 10 days post weaning and diarrhoea with severe dehydration in another 60 out of 370 at risk from a combination of colibacillosis and *Salmonella* Group B.

GOATS

Enterotoxaemia was found to be the cause of diarrhoea and sudden death in a goat on a property in Sarina shire. *Clostridium perfringens* epsilon toxin was detected by ELISA on gut contents from the goat, that with the clinical signs was consistent with death from enterotoxaemia.

Mycoplasmosis due to *Mycoplasma capricolum* resulted in the death of one three-month-old goat out of

12 in Nanango shire. Clinical signs included respiratory distress and purulent nasal discharge followed by pyrexia and swollen joints.

A seven-month-old Boer goat on a property near Townsville had carpal joint arthritis with lameness and lethargy. Both joint fluid cultures were positive for *Burkholderia pseudomallei*.

MELIOIDOSIS IN ALPACAS

A pregnant alpaca from Laidley shire close to parturition went down and died 12 hours later. A fawn from the same property with a large abscess on its neck was euthanised. Both animals were submitted to Toowoomba Veterinary Laboratory for autopsy. The adult animal had scattered, small (up to 0.5mm diameter) abscesses randomly distributed throughout the lung, liver, spleen and subcutis. The abscesses were seen in the greatest concentration in the anterioventral portions of the lung lobes and were associated with a serofibrinous pleural effusion. The fawn had large abscesses (up to 6cm diameter) in the left submaxillary lymph node. Multifocal to coalescing abscesses were present in the anterioventral portions of both lung lobes and were associated with a serofibrinous pleural effusion. A pure, heavy growth of *Burkholderia pseudomallei* was obtained from the lungs of both animals, the spleen of the doe and the submaxillary abscess of the fawn.

PLANT POISONING IN HORSES

Crotalaria sp. (rattlepod) is suspected to be the cause of the sudden death of two horses and ill-thrift of one horse in a mob of five near Hughenden. Biochemical evidence of liver damage supports this diagnosis.

POULTRY

Fowl poxvirus was suspected from skin lesions on the head, around the eyes and on the legs and feet of one of nine four-week-old silky chickens near Townsville. The lesions were grossly and histologically consistent with the electron microsopy finding of Poxviridae.

Fungal infection due to *Aspergillus flavus* and *Candida* sp. caused the deaths of 1800 six-week-old broilers out of 7 500 at risk on a farm in south-east Queensland in mid-January. Deaths occurred suddenly over two to three days with gasping observed before death. There were multiple pale nodules, of varying size (2-5mm diameter), principally over the serosal surfaces of the thorax and abdomen. They were present within the parenchyma of the liver, lung and in the region of the ovary. These nodules proved to be fungal granulomas.

SALMONELLA IN LAYER CHICKS

Nine hundred 12-day-old layer birds were found dead on a property holding 39000 birds of which 16000 layers were considered at risk. The submitter from near Toowoomba mentioned that 'some chilling' might have occurred the week before and that the birds had had access to sawdust when they were one-day-old. Thirteen chicks were submitted for autopsy. Ten of the birds examined had little or no crop or gizzard contents. Five birds had evidence of pericarditis or perihepatitis with occasional necrotic foci in the livers, and slight to moderate splenomegaly. Histological examination on heart, liver and spleen revealed a diffuse, subacute, fibrinous pericarditis; mild, multifocal, necrotising hepatitis and moderate multifocal, necrotising splenitis with hyalinisation of periarteriolar lymphoid sheaths. Gram-negative bacterial emboli were present throughout the sections. Culture indicated *Salmonella muenchen*.

PSITTACOSIS IN A PARROT

A dead parrot from Crows Nest shire submitted to the Toowoomba Veterinary Laboratory. Clinically, the bird was lethargic, fluffed up, had soiling around the vent, diarrhoea and slight respiratory signs. On autopsy it was found to have a moist, mucopurulent peritonitis, dark congested liver and swollen spleen. On histological examination the liver was found to have a moderately severe, multifocal hepatitis with areas of necrosis, heterophil and mononuclear cell infiltration. Lymphoid tissue in the spleen was markedly depleted and accompanied by a proliferation of sinusoidal macrophages. A small focal area of granulomatous inflammation was present in the lung. No significant changes were seen in the brain, heart, kidney or intestines. Clusters of small coccoid organisms, consistent with *Chlamydia* were seen on Giemsa stained sections of spleen and liver. An antigen ELISA for *Chlamydia* was positive on the liver and peritoneal tissue tested.

South Australia

Contributed by:
Celia Dickason
PIRSA

FMD EXCLUSION IN THE MIDNORTH

A private veterinarian contacted PIRSA to report that he was attending a beef feedlot in the mid-North of the state near Clare, where several animals had vesicles on their hard palates, consistent with a vesicular disease. The animals were six months of age. One of the animals was dead, another one was obviously sick. The dead animal was autopsied and a range of samples submitted, including vesicular epithelium. The autopsy revealed severe pneumonia. Samples were sent to the Australian Animal Health Laboratory (AAHL) to exclude the possibility of an exotic vesicular disease.

Histopathology confirmed a diffuse, sub-acute fibrinopurulent broncho- and pleuro-pneumonia suggestive of *Pasteurella*-type pneumonia. The vesicular samples were tested, using an antigen detection ELISA, for foot and mouth disease virus, swine vesicular disease and vesicular stomatitis. Viral tissue culture was performed. All tests were negative for exotic vesicular diseases.

Electron microscopy revealed the presence of large viral particles consistent with bovine papular stomatitis. This is a disease affecting young cattle (6-18 months of age) and results in papular, ulcerative lesions on the muzzle, inside the nostrils and the oral cavity. The disease often manifests when animals are crowded. Bovine papular stomatitis is not considered of economic importance; however it is significant in Australia, owing to its resemblance to exotic vesicular diseases. The broncho- and pleuro- pneumonia was the cause of death and likely cause of illness in the other affected cattle.

CONGENITAL NEUROPATHY IN ANGUS CALVES

A neurological syndrome was reported in two young Angus calves at Wanilla on the Eyre Peninsula. The first was born shivering and unable to stand, and was submitted to euthanasia at one-day-old. The second was unable to stand unless assisted and showed knuckling of the front fetlocks. This calf was able to drink if fed, and looked normal while in sternal recumbency. It was submitted to euthanasia and autopsy at five days of age. Clinical signs in both calves were present from birth. The calves were both born to heifers mated to their own sire.

There were no significant gross lesions at post mortem examination. Pestivirus serology was negative and histopathology of kidney and liver was unremarkable. The brain showed degenerative lesions in the medullary obex, cerebellar peduncle and midbrain, predominantly of the white matter tracts. Mild spongy vacuolation, axonal swelling and hypervascularisation featured. These lesions led to a diagnosis of multifocal symmetrical necrotising encephalomyopathy of Angus calves, which is a known congenital condition. Lesions in this case were mild, suggesting early stages of the disease (that is usually seen between two and six weeks of age). Other calves on this property are under observation for further neurological signs.

MELANOMAS IN BEEF CATTLE

In the previous Animal Health Surveillance Quarterly, South Australia reported two cases of melanomas in dairy cattle. This was incorrect, as the melanomas occurred in two Murray Grey cattle (one steer and one heifer). The rest of the report concerning this case was correct.

Another case of melanoma was reported in a steer consigned to slaughter at Normanville. It was a 10-month-old Hereford crossbreed and was black in colour, with a white face. There was a subcutaneous mass found on the side of the jaw that was thought to be a grass seed. Histopathology revealed a melanoma. The carcase was condemned.

SCABBY MOUTH IN SHEEP ON THE YORKE PENINSULA

A private veterinarian investigated an adult sheep flock where about 30% were showing severe crusting around their muzzles. There had been no deaths or ill-thrift. The veterinarian thought the lesions were suggestive of the exotic disease, sheep pox and contacted PIRSA. Discussion of the history and clinical signs was sufficient to remove concern that the disease may have been sheep pox.

Blood samples and scabs were collected from the sheep and submitted for laboratory diagnosis. The only abnormality detected was the presence in the scabs of parapox virus, seen using electron microscopy. Scabby mouth more commonly affects lambs than adult sheep. When introduced to a naive flock, transmission occurs very quickly. In this case, recent drenching could have contributed to the spread of disease; the drenching equipment may have acted as a fomite, passively transferring the infection and possibly causing some damage to the skin and mucous membranes, permitting the virus to enter the body.

YERSINIOSIS IN WEANER LAMBS

A property near Kapunda was experiencing deaths in six eight-month-old lambs that were running with unaffected older sheep. Approximately 35 animals had died in the preceding three weeks, before the producer seeking veterinary assistance.

The lambs were losing condition, appeared dull and developed green diarrhoea, with death occurring within 24 hours of the onset of diarrhoea. The lambs had been vaccinated with a standard 3 in 1 vaccine and with Vitamin B12 and had recently been drenched with ivomec and a selenium supplement. Previously the lambs had been on a spray topped rye grass pasture and were currently grazing wheat stubble. There were no abnormalities detected on autopsy of two affected lambs. Histopathology revealed severe necrotic enteritis consistent with a bacterial infection and concurrent hepatitis and rumenitis. The histology was suggestive of yersiniosis and this was confirmed by culture.

The veterinarian instigated appropriate antimicrobial treatment and the outbreak ceased. Yersiniosis outbreaks are uncommon and generally associated with stress or management factors such as overstocking or poor nutrition.

TURKEY LEG DEFORMITIES

A three-week-old turkey flock was examined due to a high prevalence of leg deformity. The deformities were variable, some being a 90-180 degree torsion of the tibia, others having perosis (slipped tendon), although others had a varus or valgus bowing of the legs. At autopsy, the growth plates appeared grossly normal but histology indicated irregular calcification with increased osteoclast activity. The parathyroids were considered to be hyperplastic. Vitamin D was administered via water but this seemed to make the situation worse. Feed mineral and protein analysis did not show any apparent imbalances. Growing turkeys can be prone to leg deformities when on apparently adequate rations, but the adverse reaction to Vitamin D was unexpected.

INFECTIOUS LARYNGOTRACHEITIS (ILT) IN A SHOW FLOCK

A fancy poultry breeder with approximately 600 birds reported a severe respiratory infection in his younger birds. Upon investigation, this proved to be ILT, with the first cases appearing about three weeks after the show birds had returned to the farm from the Royal Adelaide Show. The infection started in the pens immediately adjacent to the shown birds. Vaccination was recommended as a preventative but this can be difficult to undertake in self-replacing flocks where birds are constantly being hatched.

MYCOPLASMA SYNOVIAE (MS) INFECTION IN A LAYING FLOCK

An overt case of what was considered to be *Mycoplasma gallisepticum* (MG) was investigated in a 39-week-old laying flock presenting with a mild respiratory infection. The birds had been reared off farm on a commercial pullet-rearing farm (vaccinated for MG) and placed at 18 weeks of age into a barn shed. At around 38 weeks, the manager noted a soft cough and a few birds with dirt adhering around the nares. This was confirmed at the time of investigation and in many birds a mucous exudate could be extruded from the nostrils by exerting pressure on the sinuses. Egg production appeared to be unaffected. Culture from the tracheas grew MG and MS. The MG was the vaccine strain.

Tasmania

Contributed by:
John Elliott
DPIWE, Tasmania

PASTEURELLA PNEUMONIA IN CATTLE

Acute respiratory signs, elevated temperatures and nasal discharges were seen in a herd of 240 three-year-old Friesian cattle. Two died and 55 were ill. Both dead cattle showed severe broncho–pneumonia with increased pleural fluid and fibrin associated with adhesions. There was marked septal oedema and fibrinoid necrosis. Numerous small gram–negative bipolar rods were seen. *Pasteurella haemolytica* was cultured from six of nine samples taken from the dead animals.

FARMERS LUNG IN CATTLE

Two Highland cows died after a short period of acute respiratory distress. They had been fed mouldy hay for three weeks. A post mortem examination of one animal found extensive emphysema in the lungs and a hugely distended rumen. Bronchiolar constriction, acute emphysema and oedema with pneumocytes and some eosinophils in the alveolar lumen were seen on histopathology.

'Fog Fever' is a possible diagnosis. This usually occurs, however, when cattle are moved abruptly from dry paddocks to lush pastures that contain a toxic level of D,L–tryptophan. These cattle had been fed hay for three weeks and lush mid–summer pastures are not common in Tasmania. The cattle may have developed an allergic hypersensitivity to moulds in the hay, resembling 'Farmers Lung' in humans.

PASTEURELLOSIS IN SHEEP

Over two to three weeks, three sheep became ill and six died in a mob of 50. On post mortem examination, there was low grade peritonitis and pleurisy. Laboratory examination confirmed these findings.

Pasteurella pneumotropica was isolated from the liver and lungs. This is an unusual finding. It has only been reported to be an opportunistic pathogen causing enzootic pneumonia in rodents and cats.

AVIAN TUBERCULOSIS

In a group of 24 chickens, ten birds died and two became ill over a two week period. The birds showed weight loss, diarrhoea, became hunched up and 'droopy' before dying. Most of the sick and dead birds had been bought three months earlier.

The flock was allowed to free–range for a few hours each day and penned the rest of the time. Layer pellets were fed.

Three carcases were autopsied. All were emaciated. Livers and spleens were markedly enlarged. There were solid, roughly circular, yellow lesions throughout these organs and in the intestines, marrow cavities, lungs and kidneys. These lesions consisted of a central core of necrotic material surrounded by a layer of histiocytes and occasional giant cells. Large numbers of acid–fast bacteria were seen within the lesions.

PNEUMONITIS IN A DUCK

A duck died shortly after it was treated for internal parasites in a veterinary clinic. It had shown open mouth breathing and gagging for three days. There were no oronasal discharges. Its appetite had been good but it was a little thin.

Only one lesion was found on post mortem examination. A soft plug was present in one lobar bronchus. Periodic partial asphyxiation from this plug may have caused the gasping.

Histopathology showed bronchial and bronchiolar plugs, haemorrhage, lymphogranulomatous pneumonitis, patchy congestion and scattered granulomas in the lungs. These findings are consistent with a fungal pneumonitis.

LABORATORY ACCESSIONS AND NOTIFIABLE DISEASES

During the quarter, there were 82 aquaculture accessions, 374 livestock accessions, 61 companion animal accessions, 225 wildlife accessions and seven accessions from other sources. The following investigations into possible cases of notifiable diseases were undertaken during the quarter:

Disease	Investigations +ve	Investigations No.
American Foul Brood	2	3
Anthrax	0	1
Avian Psittacosis	1	3
Brucella ovis	0	14
Clinical Salmonellosis	17	52
Crayfish Plague	0	1
Enzootic Bovine Leucosis	0	2
European Foul Brood	0	3
Johne's Disease	7	58
Leptospira hardjo	0	12
Leptospira pomona	0	12
Listeria	0	1
Macrocyclic lactone anthelmintic resistance	3	8
Marine Aeromonad Disease	9	65
Negative Finfish Bacteriology*	0	65
Negative Finfish Pathology‡	0	1
Negative Shellfish Pathology†	0	1
Salmonella abortus equi	0	2
Salmonella abortus ovis	0	3
Salmonella enteritidis	0	8
Salmonella pullorum	0	6
Verotoxic *E coli*	0	46

* *salmonicida*,Goldfish Ulcer Disease, Streptococcosis of Salmonids, Enteric Redmouth, Enteric Septicaemia of Catfish, Bacterial Kidney Disease

† Bonamiasis, Iridovirosis of Shellfish, Nocardiosis of Shellfish, Perkinsosis of shellfish

‡ Epizootic Haematopoietic Necrosis, Epizootic Ulcerative Syndrome, Infectious Haematopoietic Necrosis, Infectious Pancreatic Necrosis, *Lactococcus garvieae* of salmonids, *Oncorynchus masou* virus disease, Piscirickettsiosis, Spring Viraemia of Carp, Viral Encephalopathy and Retinopathy, Viral Haemorrhagic Septicaemia

Victoria

Contributed by:
Tristan Jubb
DPI, Victoria

COPPER DEFICIENCY AND CHRONIC ARTHRITIS IN RED DEER

In January, a veterinary practitioner from the Colac district in south-west Victoria submitted two, three to four-month-old red deer to the Attwood Veterinary Laboratory for examination. The herd had 30% of the fawn drop affected by chronic arthritis and poor coat condition. The arthritis was apparent soon after birth and, despite treatment, had not resolved. Examination at autopsy revealed the carpi and tarsi to have greatly thickened joint capsules. The joints contained straw coloured fluid in one case and blood stained fluid in the second. The articular surfaces were pitted. Other joints examined did not appear to be affected. The hair coat was unkempt and faded. Bacteriology on joint samples did not reveal any bacteria including mycoplasma. Histopathology of the joint capsule revealed thick fibrous tissue and the synovial membrane showed hypertrophy and proliferation of the epithelium. A key finding was the relative lack of acute or chronic inflammatory cells to suggest that an infection had been involved. In the history it was mentioned that the normal annual copper supplementation had not been given to the herd. Liver copper analyses from the fawns showed them to be markedly deficient. Liver vitamin B12 and glutathione peroxidase levels were normal. Copper is important in the development of the matrix in which the bone is laid down and it was suggested that this joint defect occurred because of a congenital deficiency of copper. The outlook for recovery from the arthritis was considered to be poor. This case illustrates how a good history can assist in

making a diagnosis.

RECTAL PROLAPSE ASSOCIATED WITH SEVERE PAROXYSMAL COUGHING IN FEEDLOT LAMBS

On a prime lamb enterprise near Ancona in north-east Victoria, in February, 60 lambs suffering rectal prolapse and severe coughing were euthanised. The remainder of the 900 head mob, of which about 50% were similarly affected but to a lesser degree, were prematurely slaughtered. Three lambs were autopsied and grossly all had red hepatisation of the cranioventral lung lobes reflecting the underlying severe chronic active purulent broncho-interstitial pneumonia. *Mycoplasma arginini* and *Moraxella* spp were isolated from the lungs of one. Dry, dusty weather in the weeks before the outbreak combined with crowded conditions may have predisposed to the outbreak, the cost of which was estimated to be greater than $15000.

MONENSIN POISONING IN CALVES

In January, near Leitchville in northern Victoria, a dairy calf rearer lost 55 of 90 weaner bull calves with pneumonia, congestive heart failure and sudden death caused by ionophore poisoning. Two other farms were reported with similar but lesser problems - all were using commercial calf pellets from the same manufacturer. The feed additive in the calf pellets according to the label was the ionophore lasalocid sodium. Testing of the pellets confirmed that they had correct levels of lasalocid but very high levels of monensin, another ionophore. The monensin appears to have been added to the pellets in a manufacturing error. Some pellets, particularly for dairy cows, are purposely manufactured with high levels of monensin. However these are for when the pellets form only a small part of the diet and should not be fed as a total diet. Losses were estimated at $30000.

SEVERE CONGENITAL FRONT LIMB DEFORMITIES IN BEEF CALVES

In the Euroa area of north-east Victoria, in February and March 2005, 34 calves were born on five different beef properties without front limbs or with severely deformed front limbs. Otherwise the calves appeared normal both clinically and during autopsy. Simmental, Belgian Blue, Angus and Angus cross breeds were known to be affected. This type of deformity has been reported sporadically in the district in the past and one of the currently affected properties had cases in 1999. The causative agent is unknown but is thought to interfere with foetal development at approximately fifty days gestation. Investigations are continuing.

HYPOTHERMIA IN SHEEP AND ALPACAS

Unseasonal conditions in early February resulted in more than 100 mm of rainfall in 36 hours in the central highlands of Victoria and provided the wettest and coldest February day on record in the region. When coupled with high winds in mountainous and open landscapes these conditions caused hypothermia in many newly shorn sheep and alpacas. Losses on one property exceeded 600 head of sheep (400 ewes and 200 recently weaned lambs). These sheep had been shorn two weeks previously. They had been exposed to high ambient daytime and nocturnal temperatures and still conditions in the two weeks since shearing. The cost of the outbreak on this one farm was estimated to be greater than $62 000. The Victorian Central Region branch of the Australian Alpaca Association surveyed members in their region and concluded that at least 53 alpaca deaths had occurred in that region. These animals were reported to be worth $243 000. A small flock of Wiltshire Horn sheep experienced the loss of three mature ewes the same night. These sheep shed their wool in mid to late spring and would have completed their moult at least one month previously.

AVIAN TUBERCULOSIS IN SHOW POULTRY

Avian tuberculosis was diagnosed on the outskirts of Melbourne after chronic low-level mortalities were investigated in a small pedigree show flock. During the past three years birds had suffered chronic weight loss and ill-thrift followed by death, however veterinary attention was only recently sought. The veterinarian, an avian specialist, made the diagnosis at autopsy when small yellow spots on the viscera, mainly liver and spleen were found. Under microscopic examination, these spots revealed acid fast bacteria in multifocal granulomatous lesions. A multifocal transmural granulomatous enteritis was present. Under guidance and close supervision of the veterinarian, the flock was to be re-established over one year through egg sterilisation, hatching, and rearing of chicks in a new separate housing facility. Once replacement numbers have built up, the remaining flock will be culled, and their current housing thoroughly cleaned and disinfected, before restocking after a further year. *Mycobacterium avium* is ubiquitous in the environment, and spreads through faeces of infected birds. It is potentially zoonotic, and poses a high risk to immunocompromised humans. Eradication requires good planning, patience and strict hygiene.

ORGANOPHOSPHATE POISONING IN DAIRY COWS

A farmer in South Gippsland accidentally administered omethoate, an organophosphate insecticide, to his milking herd of 100 cows. He had mixed apple cider vinegar and water in an old unlabelled 5-litre container that had 2 to 3 cm of fluid in it and added the lot to a water trough. Within a few hours of access to the trough, various signs were noticed in the cows including lethargy, muscle fasciculation, ataxia,

bloating, grunting and recumbency. By the time the veterinary practitioner arrived eight were dead. Treatment consisted of the administration of atropine but the diagnosis was hampered by the fact that since the farmer hadn't used insecticides on the place for ten years he didn't remember until later that night the nature of the fluid in the container. The atropine treatment did not result in any clinical improvement. A total of 60 cows died, 27 by the first evening. Fifteen cows were recumbent for 2 to 3 days and survived. Laboratory examination detected omethoate in the fluid and in the blood of affected cows. Losses were estimated at $50,000. As a corollary, the knackery that removed the carcases had the meat tested for organophosphates - no trace was found.

MUCOSAL DISEASE IN BEEF CATTLE

Fourteen yearling cattle in a mob of 100 steers and heifers in a south-west Victorian beef herd near Hamilton died from mucosal disease between February and April. Affected cattle were depressed, dehydrated, straining and diarrhoeic and usually died or were euthanised within 1 to 2 days of signs first being noticed. Some salivated excessively but none were lame or had coronary lesions. Autopsy revealed small ulcers on the hard palate and gross fibrino-necrotic lesions of the bowel and oesophagus. Histology additionally found extensive necrosis of Peyer's patches. Samples of blood were positive for pestiviral antigen and negative for pestiviral antibody. Further blood sampling of the remaining yearling group of 87 revealed another 11 animals to be antigen positive, two of which died. The other 9 positive animals were sent for slaughter. The economic loss from deaths and premature culling was estimated to be about $20000. Interestingly, the siblings of the affected mob segregated at around weaning, grazing in nearby paddocks, have shown no signs of disease. The stock were grazing improved pasture with no undue stress and although not managed as a closed herd, there were no introductions in recent months to the herd.

Western Australia

Contributed by:
Richard Norris
Department of Agriculture – WA

SURVEILLANCE ACTIVITIES

Laboratory testing was conducted on 266 investigations of animal disease during the quarter. Of these, 27 were cost-recovery (private benefit) cases and 273 were charge-exempt (public benefit and therefore funded directly by the Government).

NOTIFIABLE DISEASES

Three category C diseases (discretionary quarantine) were reported during the quarter. There were two case of echinococcosis (hydatid disease) and one case of malignant catarrhal fever in cattle (sheep associated).

EXOTIC DISEASE ALERTS

There were two category one alerts (low index of suspicion). They involved an investigation of suspect AI/NDV in avian species. Serology excluded AI/NDV. Vitamin A deficiency and chronic layer fatigue (calcium deficiency) was confirmed in one investigation.

DISEASES OF SIGNIFICANCE

During the quarter, submissions were received from 114 ovine and 123 bovine cases that involved presenting syndromes of abortion, acute febrile disease, congenital defects, diarrhoea, genital lesions ill-thrift, infertility, jaundice, lameness, production drop, respiratory signs, nervous signs, skin lesions, sudden death and weakness.

OVINE ARTHROGRYPOSIS

A newborn lamb in a flock of seven sheep at Dardanup had arthrogryposis. Histopathology revealed multifocal cerebellar dysplasia, loss of myofibres and abnormal segments of peripheral nerves in skeletal muscles. The ewe was serologically positive to Pestivirus and negative to Akabane and Bluetongue virus. The aetiology is not clear but reports on arthrogryposis in other species suggest a genetic cause or ingestion of certain plants such as *Lupinus* sp.

POSSIBLE OESOPHAGOSTOMOSIS IN EWES

Lesions suggestive of Oesophagostomosis were observed in a line of 265 ewes at slaughter. Approx 60 livers contained scattered focal 1-4mm nodular lesions throughout the parenchyma. Nodular lesions were present in lungs and on small intestinal and omental fat. Histopathological revealed multiple lesions with thick fibrous capsules surrounding central zones of degenerating eosinophils attended by numerous multi-nucleated giant cells and lymphocytes. In some sections nematode fragments were evident in the central zone. The nematode fragments could not be identified but nodule worm (*Oesophagostomum columbianum*) could not be excluded. Nodule worm has not been identified before in WA. It is potentially highly pathogenic to sheep and an important cause of carcase downgrading elsewhere in Australia.

Follow-up investigation established that cohorts were infested with *Muellerius* sp. Severe characteristic lesions with numerous clusters of adult and larval nematodes in the alveoli and bronchioles, were demonstrated in the one ewe remaining of the adult

flock. Infestation with *Muellerius* sp might explain the lung lesions but the cause of lesions in other viscera was not identified. Lung worm infestation has not been recorded as causing lesions in other organs.

HELMINTHOSIS AND ENTERITIS IN HOGGETS

Ill-thrifty hoggets at Tenterden on lush ryegrass and balansa clover pasture only partially responded to treatment with cydectin. About half the flock improved but the rest remained in mediocre to poor condition. The sheep had suffered from diarrhoea as weaners the previous summer but responded to treatment with selenium and vitamin E. Histopathology revealed total villus atrophy and large numbers of nematodes in the duodenum of one weaner. The primary problem was the heavy *Trichostrongylus* sp. infestation - villus atrophy is a classic lesion produced by Trichostrongyle infestation.

METABOLIC DISEASE IN SHEEP

Hypomagnesaemia/hypoglycaemia was the likely cause of deaths of 18 of 367 Merino ewes from Broomehill. The sheep were purchased one day, trucked to saleyards at Kojonup, sold the next day, trucked to the destination property the following day and held in the yards for 24 hours before release to the new paddock. Eighteen of 367 died and others displayed 'muscular twitches/tremors'. Autopsy and histopathology was unremarkable. Rumen content tested negative to ARGT. Serum calcium was normal, but magnesium was low 0.78. Hypoglycaemia was the likely cause of the problem because hypomagnesaemia is considered a rare disease under WA conditions.

Six hundred Merinos of various age and sex were purchased from the Katanning sale yards. Nine sheep died that day and up to 50 sheep were dead or put down by staff on arrival at the Tammin abattoir two days later. Autopsy on one sheep revealed acute renal cortical tubular necrosis and acute but mild multifocal hepatitis. The animal was hypocalcaemic (plasma calcium concentration 0.91 mmol/L). In this case iceplant was the suspect, as it will produce hypocalcaemia severe enough to cause death. In less severe cases the animal may survive, only to develop renal tubular necrosis with or without the presence of oxalate crystals in the lesions.

MALIGNANT CATARRHAL FEVER

Malignant catarrhal fever was the likely cause of death in 17 of 30 mixed age and sex young Aberdeen Angus cattle at Esperance during a four-week period. This is not typical as MCF is usually recognised for low morbidity and sporadic losses. Initial signs included blindness progressing to death within 48 hours. The cow examined was pyrexic, blind, ataxic, had a purulent nasal discharge and corneal oedema. Histopathology revealed characteristic severe, multi-organ vasculopathy with segmental fibrinoid necrosis of arterial walls. Additional lesions included multifocal lymphocytic infiltrates in the liver and moderate to severe sub acute to chronic limbic keratitis with corneal oedema.

HAEMOLYTIC ANAEMIA IN CATTLE

Haemolytic anaemia killed three of 200, six-week-old Murray Grey calves from a property near Gingin. One of the calves had black diarrhoea, yellow mucous membranes and was salivating. Liver enzyme tests indicated that the conjugated bilirubin level was markedly elevated, with mild elevation in hepatic enzymes. Blood urea was mildly elevated and PCV was estimated to be 14%. Anaemia with elevated bilirubin levels suggested a haemolytic event. *Leptospira* titres were negative. The cause of the problem was not identified.

GASTRIC ULCERATION IN A GROWER PIG

Gastric ulceration was diagnosed in a grower pig from Medina Research Station found dead three weeks after it had completed a feeding trial. Post mortem examination revealed a typically pale anaemic carcase with excess blood stained fluid in the thoracic and abdominal cavities, dark red to black material in segments of the jejunum and a large blood clot in the stomach. Histopathology revealed severe gastric ulceration in the areas of the pars oesophagea and the adjacent glandular cardiac portion. Gastric ulceration was once and still may be a common cause of anaemia in pigs. The aetiology is thought to be multi-factorial and has been variously described as being due to low fibre diets or selenium/vitamin E deficiency. Diets low in zinc or high in iron, copper or calcium have been suggested as factors.

COLIBACILLOSIS IN PIGS

Colibacillosis caused the deaths without premonitory signs of 10% of a group of 120, eight-week-old weaners. Scours were not evident, and no other clinical signs were noted. Post mortem examination of one pig revealed dehydration with haemorrhage and congestion in the small intestine, inflamed mesenteric lymph nodes, myocardial haemorrhage and excess pericardial fluid. Recovery of haemolytic *E.coli* with K88 antigen was suggestive of enterotoxigenic colibacillosis. K88 strains are commonly responsible for neonatal infections and post weaning colibacillosis but are not usually responsible for problems in slaughter weight pigs.

PORCINE PARVOVIRUS

Foetal mummification in a Wongan Hills piggery was attributed to porcine parvovirus. Blood samples from

(Continued on page 23)

Quarterly Disease Statistics

Quarterly disease statistics — laboratory testing

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

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

	Akabane		Bluetongue		Bovine ephemeral fever		Enzootic bovine leucosis		Equine infectious anaemia		Equine viral arteritis	
	Tests	+ve	Tests	+ve	Tests	+ve	Tests	+ve	Tests	+ve	Tests	+ve
Jan–Mar 04	9689	542	7550	318	1746	289	4742	0	547	5	411	24
Apr–Jun 04	9803	827	11710	432	1865	456	8684	12	958	10	630	22
Jul–Sep 04	18309	109	26082	359	1282	252	10754	3	719	5	246	14
Oct–Dec 04	8337	540	11469	97	1872	362	6562	0	531	8	160	3
Jan–Mar 05	5251	536	5764	194	1610	278	3233	8	481	5	278	12
NSW	269	67	1751	9	579	55	364	0	205	0	132	8
NT	370	243	414	130	281	63	0	0	1	0	0	0
QLD	478	221	365	50	460	154	13	0	81	0	20	1
SA	8	0	20	0	4	0	2089	1	0	0	0	0
TAS	0	0	0	0	20	0	2	0	0	0	0	0
VIC	119	0	110	0	222	0	93	0	104	0	83	3
WA	4007	5	3104	5	44	6	672	7	90	5	43	0

Quarterly disease statistics — Control activities

JOHNE'S DISEASE

Johne's disease (JD) occurs primarily in dairy cattle and sheep in Australia, and to a lesser extent in beef cattle, goats, deer and camelids. Infection with sheep strains occurs to varying extents across the sheep producing regions of southern Australia but has not been detected in Queensland. Cattle strains are endemic in south-eastern Australia but surveillance programs have not identified endemic infection in Queensland, Western Australia and Northern Territory, and active measures are taken to stamp-out any incursions. Table 2 shows the number of herds and flocks known to be infected. New approaches to controlling JD, based on risk assessment and management, have been developed. Market Assurance Programs (MAPs) are in operation for cattle, sheep, goats and alpaca, with the number of herds or flocks that have reached a status of Monitored Negative 1 (MN1) or higher shown in Table 3.

Information about components of the National JD Control Program can be obtained from State coordinators and Animal Health Australia's JD coordinator, David Kennedy 02 6365 6016. Lists of beef, dairy and alpaca herds and sheep flocks assessed in the Market Assurance Programs are available on the internet (at www.aahc.com.au/jd).

Table 2: Herds/flocks with JD at 31 March 2005

	Cattle	Sheep	Goats	Deer	Alpaca	Total
NSW	130	1287	11	1	0	1429
NT	0	0	0	0	0	0
QLD	0	0	1	0	0	1
SA	41	70	1	3	0	115
TAS	16	43	3	0	0	62
VIC	1034	347	9	7	0	1397
WA	0	18	0	0	0	18
AUS	1221	1765	25	11	0	3022

* Individual properties infected with JD in sheep are no longer reported in high prevalence regions of NSW.

Table 3: Herds/flocks with a JDMAP status of at least MN1 status at 31 March 2005

	Cattle	Sheep	Goat	Alpaca	Total
NSW	721	385	48	105	1259
NT[#]	0	0	0	0	0
QLD[#]	0	0	0	0	0
SA	287	241	17	38	583
TAS	99	31	1	1	132
VIC	328	90	1	25	444
WA[#]	0	0	0	0	0
AUS	1435	747	67	169	2418

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

ENZOOTIC BOVINE LEUCOSIS

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

Table 4: Dairy herds tested free of enzootic bovine leucosis at 31 March 2005

	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
Free	1085	0	903	450	525	6172	360	9 495
Herds	1101	0	909	450	525	6222	360	9 567

OVINE BRUCELLOSIS

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

Table 5: Ovine brucellosis accredited-free flocks at 31 March 2005

NSW	NT	QLD	SA	TAS	VIC	WA	AUS
682	0	62	487	88	609	0	1928

Quarterly disease statistics — surveillance activities

TUBERCULOSIS

Australia was declared free from bovine tuberculosis (TB) on 31 December 1997, exceeding the OIE requirements for declaration of country freedom. The last cases of TB were detected in buffalo in January 2002 and in cattle in August 2000 and trace-forward and trace-back slaughter carried out according to the Tuberculosis Freedom Assurance Program (TFAP2). The National Granuloma Submission Program (NGSP) has been the major surveillance tool for TB since 1992. All Australian laboratories supporting TFAP2 are accredited for veterinary testing by the National Association of Testing Authorities (NATA) under ISO/IEC 17025. Laboratories approved for culture of *Mycobacterium bovis* must pass an external quality assurance program run by the Australian Reference Laboratory for Bovine Tuberculosis on an annual basis. Tables 6 summarises the program's results.

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 247 abortion investigations were performed during the reporting period—all with negative results for bovine brucellosis, as shown in Table 7.

Table 6: Results of the National Granuloma Submission Program

	Granulomas submitted	TB +ve
Jan–Mar 04	1192	0
Apr–Jun 04	1188	0
Jul–Sep 04	1081	0
Oct–Dec 04	1184	0
Jan–Mar 05	650	0
NSW	10	0
NT	1	0
QLD	558	0
SA	18	0
TAS	8	0
VIC	28	0
WA	27	0

Table 7: Surveillance for bovine brucellosis

	Abortion investigations		Test for other reasons	
	Tests	+ve	Tests	+ve
Jan–Mar 04	294	0	714	0
Apr–Jun 04	231	0	3025	0
Jul–Sep 04	187	0	795	0
Oct–Dec 04	247	0	3502	0
Jan–Mar 05	358	0	796	0
NSW	4	0	297	0
NT	0	0	1	0
QLD	188	0	214	0
SA	1	0	37	0
TAS	0	0	1	0
VIC	3	0	194	0
WA	162	0	52	0

NORTHERN AUSTRALIA QUARANTINE STRATEGY

In recognition of the special quarantine risks associated with Australia's sparsely populated northern coastline, AQIS conducts an animal disease surveillance program as an integral component of the Northern Australia Quarantine Strategy (NAQS). The NAQS surveillance program provides early warning of disease threats to livestock industries, and in some cases human health. NAQS surveillance activities include both offshore and onshore components. Tables 8 summarises NAQS activity in Australia over the past five quarters.

Contact: Jonathan Lee, Biosecurity Australia, DAFF

Table 8: Summary of recent NAQS activity in Australia

	Jan–Mar 04		Apr–Jun 04		Jul–Sep 04		Oct–Dec 04		Jan–Mar 05	
	Tested	+ve	Tested	+ve	Tested	+ve	Tested	+ve	Tested	+ve
Aujeszky's disease	117	0	71	0	74	0	90	0	157	0
Classical swine fever	117	0	71	0	74	0	90	0	157	0
Japanese encephalitis	48	9	394	16	173	0	97	0	201	5
Nipah virus	138	0	53	0	76	0	90	0	158	0
Porcine reproductive and respiratory syndrome	117	0	71	0	74	0	90	0	158	0
Surra	88	0	127	0	112	0	49	0	69	0

In 1995–97, animals at sentinel sites on islands in the Torres Strait, but not the Australian mainland, seroconverted to Japanese encephalitis during the latter part of the wet season (March–April). In March 1998, seroconversions occurred at a number of sites on islands in the Torres Strait, and for the first time on the mainland at the tip of Cape York Peninsula. Since 1999, sentinel pigs at Badu Island have seroconverted each wet season and seroconversions have been detected on other central Torres Strait islands in surveys. In early 2004 the sentinel pigs located on Badu Island and at Bamaga on the mainland seroconverted, and JE virus was isolated at each location. This was the first detection of JE on the mainland since 1998. Subsequently, feral pigs from south of Mapoon showed a pattern of serology consistent with exposure to JE virus, although the time of exposure is undetermined.

PORTS SURVEILLANCE PROGRAM

Biosecurity Australia conducts the Ports Surveillance Program for *Culicoides*, screw-worm fly, exotic bees and bee mites. Seaports, particularly those servicing returning livestock vessels and those dealing with high risk deck cargo such as timber, mining equipment and containers, are considered to be high risk locations for incursions of such pests. The program increases the capacity to detect any incursions at an early stage, and this in turn increases the probability of a successful eradication program. The *Culicoides* surveillance supports the livestock export trade by confirming the continuous or seasonal absence of *Culicoides* vectors at ports from which livestock are loaded. Table 9 shows the number of times that insect trap sites were inspected for the Port Surveillance Program — no exotic insects or mites were detected.

Contact: Howe Heng, Biosecurity Australia, DAFF

Table 9: Number of inspections of insect trap sites

	Jan–Mar 04	Apr–Jun 04	Jul–Sep 04	Oct–Dec 04	Jan–Mar 05
Port surveillance					
Asian bees	12	15	18	12	14
Bee mites	20	28	21	33	27
Culicoides	29	32	30	31	28
Screw-worm fly	30	28	21	23	28
NAQS					
Screw-worm fly	108	36	24	45	45

SALMONELLA SURVEILLANCE

The National Enteric Pathogen Surveillance Scheme (NEPSS) is operated and maintained on behalf of the Commonwealth and States/Territories by the Microbiological Diagnostic Unit at the University of Melbourne. Data on isolates of salmonellae and other pathogens are submitted to NEPSS from participating laboratories around Australia. Quarterly newsletters and annual reports of both human and non-human isolates are published, and detailed data searches are provided on request to NEPSS. Table 10 summarises *Salmonella* isolations from animals notified to NEPSS for the quarter.

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

Table 10: Salmonella notifications, 1 January to 31 March 2005

Serovars	avian	bovine	canine	equine	feline	ovine	porcine	other	Total
S. Bovismorbificans	0	20	0	1	0	1	1	1	24
S. Dublin	0	11	0	0	0	0	0	0	11
S. Infantis	0	1	5	0	0	0	4	1	11
S. Typhimurium	3	61	3	2	3	12	7	1	92
Other	2	22	27	4	6	1	8	20	90
Total	5	115	35	7	9	14	20	23	228

ZOONOSES

The National Notifiable Diseases Surveillance System (NNDSS) of the Communicable Diseases Network Australia collects statistics about many human diseases. A summary of information about five important zoonoses is submitted to NAHIS each quarter (see Table 11).

Contact: Communicable Diseases Intelligence, Australian Government Department of Health and Ageing (Internet address: http://www.cda.gov.au/pubs/cdipubs.htm)

Table 11: Notifications of zoonotic diseases in humans

Disease	Q1-04	Q2-04	Q3-04	Q4-04	Q1-05	Current quarter						
					AUST	NSW[#]	NT	QLD	SA	TAS	VIC	WA
Brucellosis	6	7	11	17	14	0	0	13	0	0	1	0
Leptospirosis	69	55	29	26	39	15	1	21	0	0	2	0
Listeriosis	16	21	16	14	13	8	0	1	1	0	1	2
Ornithosis	73	57	52	54	38	25	0	1	0	0	11	1
Q fever	118	111	121	127	74	26	0	40	5	0	3	0

[#] NSW and ACT data are combined

NATIONAL TSE SURVEILLANCE PROGRAM

The National Transmissible Spongiform Encephalopathies Surveillance Program (NTSESP) is an integrated national program jointly funded by industry and governments to demonstrate Australia's ongoing freedom from BSE and scrapie, and to provide early detection of these diseases should they occur. Table 12 summarises the activity of the program over the past five quarters. All specimens tested were negative for TSEs. Information about NTSESP is available on the internet (at www.aahc.com.au/surveillance/ntsesp).

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

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

	Jan–Mar 04		Apr–Jun 04		Jul–Sep 04		Oct–Dec 04		Jan–Mar 05	
	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep
NSW	25	38	38	40	48	49	12	20	1	0
NT	3	0	1	0	11	0	4	0	0	0
QLD	21	9	61	2	38	9	29	5	29	0
SA	3	18	10	19	6	11	3	6	2	7
TAS	1	1	4	1	5	1	2	10	2	6
VIC	19	11	12	32	26	37	23	24	14	10
WA	10	14	16	14	12	21	7	74	0	19
AUS	82	91	142	108	146	128	80	139	19	42

(Continued from page 7, Australian Wildlife Health Network)

thousands of kangaroos in Western Australia. Investigation, however, has been hampered by heavy rain in the affected area. Further information will be made available as it becomes available.

- Common ringtail possum (*Pseudocheirus peregrinus*) with non-suppurative encephalitis, Sydney, NSW. Results are pending.

CAPTIVE WILD ANIMALS

- Red kangaroo (*Macropus rufus*) with skin lesions. This animal is located at a facility where cutaneous Leishmaniasis was reported previously and Leishmaniasis is being ruled out. Results are pending.
- Juvenile saltwater crocodiles (*Crocodylus porosus*, n = 8) have been reported with various conditions including severe lymphocytic gastritis, disseminated mycobacteriosis (environmental rapid-growing species) and disseminated granulomas (cause unknown). These cases have differed from the usual submissions of septicaemic hatchlings because they have involved older crocodiles euthanised with ill-thrift.

The Network is interested in receiving reports of wildlife incidents, and definitive diagnoses of causes of death in wildlife in Australia. For copies of the Network newsletter please Amy Jones (at awhn@zoo.nsw.gov.au).

Contributed by: Chris Bunn, Office of the Chief Veterinary Officer, DAFF, and Rupert Woods, Coordinator Australian Wildlife Health Network. The Network would like to thank all those who submitted information for this report.

NATIONAL RESIDUE SURVEY

Of 3775 samples tested during the quarter for residues of agricultural and veterinary chemicals and environmental contaminants, there was a sulphonamide detection of sulfadimidine (0.11 c.f. an MRL of 0.1 mg/kg) in a pig that was above the Australian Standard, an OC detection of dieldrin (0.24 mg/kg c.f. an MRL of 0.2 mg/kg) in a cow that was above the Australian Standard. In both cases tracebacks have been instigated.

There were two metal detections above the relevant Australian standard in samples from sheep; one of cadmium (1.35 mg/kg c.f. an ML of 1.25 mg/kg) and one of lead (0.65 mg/kg c.f. an ML of 0.5 mg/kg). A traceback investigation was instigated for the lead detection but not for the cadmium detection as it was below the below the residue action level (RAL) of 2.5 mg/kg. The traceback on the lead detection was inconclusive as the property of origin could not be confirmed. A further thirty-one detections of metals were made in other species where standards have not been established, and so are not considered violative. The results are summarised in Table 13.

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

Contributed by: Jason Lutze, National Residue Survey, DAFF

Table 13: National Residue Survey, 1 January to 31 March 2005

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

	NSW		NT		QLD		SA		TAS		VIC		WA		AUS	
Anthelmintics																
cattle	0	46	0	1	0	74	0	9	0	4	0	42	0	16	0	192
pigs	0	21	0	0	0	21	0	10	0	0	0	24	0	5	0	81
sheep	0	82	0	0	0	11	0	49	0	12	0	88	0	54	0	296
other	0	11	0	0	0	7	0	7	0	0	0	2	0	3	0	30
Total	0	160	0	1	0	113	0	75	0	16	0	156	0	78	0	599
Antimicrobials																
cattle	0	79	0	1	0	120	0	17	0	6	0	47	0	12	0	282
pigs	0	59	0	0	0	49	0	37	0	5	1	62	0	11	1	223
poultry	0	8	0	0	0	0	0	0	0	0	0	21	0	0	0	29
sheep	0	93	0	0	0	13	0	42	0	9	0	70	0	77	0	304
other	0	10	0	3	0	9	0	3	0	0	0	8	0	2	0	35
Total	0	249	0	4	0	191	0	99	0	20	1	208	0	102	1	873
Growth promotants																
cattle	0	61	0	0	0	102	0	13	0	9	0	41	0	12	0	238
pigs	0	52	0	0	0	29	0	27	0	1	0	38	0	13	0	160
poultry	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3
sheep	0	75	0	0	0	2	0	27	0	7	0	41	0	56	0	208
other	0	6	0	2	0	6	0	3	0	0	0	2	0	1	0	20
Total	0	195	0	2	0	139	0	70	0	17	0	124	0	82	0	629
Insecticides																
cattle	0	95	0	0	0	137	0	19	0	16	1	64	0	15	1	346
pigs	0	24	0	0	0	16	0	12	0	1	0	19	0	4	0	76
sheep	0	131	0	0	0	14	0	72	0	14	0	115	0	89	0	435
other	0	31	0	0	0	34	0	15	0	0	0	12	0	1	0	93
Total	0	281	0	0	0	201	0	118	0	31	1	210	0	109	1	950
Metals																
cattle	0	18	0	0	0	26	0	3	0	2	0	12	0	8	0	69
pigs	0	21	0	0	0	12	0	21	0	2	0	22	0	3	0	81
sheep	0	30	0	0	0	3	1	13	0	1	0	28	1	16	2	91
other	0	12	0	0	0	12	0	5	0	0	0	6	0	1	0	36
Total	0	81	0	0	0	53	1	42	0	5	0	68	1	28	2	277
Miscellaneous																
cattle	0	33	0	0	0	70	0	12	0	4	0	26	0	9	0	154
pigs	0	37	0	1	0	46	0	24	0	0	0	41	0	13	0	162
sheep	0	25	0	0	0	5	0	16	0	6	0	25	0	12	0	89
other	0	3	0	2	0	3	0	2	0	0	0	0	0	1	0	11
Total	0	98	0	3	0	124	0	54	0	10	0	92	0	35	0	416

SUSPECT EXOTIC OR EMERGENCY DISEASE INVESTIGATIONS

There were 17 investigations of diseases suspected to be either exotic or a possible emergency reported during the quarter, as shown in Table 14. More details about some of these investigations can be found in State reports.

Table 14: Exotic or emergency disease investigations reported from 1 January to 31 March 2005

DISEASE	SPECIES	STATE	MONTH	RESPONSE	FINDING
Anthrax	bovine	VIC	Mar	1	pneumonia
Anthrax	bovine	VIC	Feb	1	negative
Anthrax	bovine	VIC	Feb	1	negative
Anthrax	bovine	VIC	Jan	2	lead poisoning
Anthrax	bovine	VIC	Jan	1	negative
Anthrax	bovine	VIC	Jan	1	negative
Anthrax	bovine	VIC	Jan	2	negative
Anthrax	bovine	VIC	Jan	2	negative
Avian influenza	avian	WA	Feb	3	Hypocalcaemia
Avian influenza	avian	WA	Feb	3	Negative for AI
Avian influenza	avian	WA	Jan	3	Vitamin A deficiency
Avian influenza	avian	WA	Jan	3	Negative for AI
Foot-and-mouth disease	porcine	NSW	Mar	3	Trauma
Foot-and-mouth disease	bovine	SA	Jan	3	Positive for bovine papular stomatitis
Hendra virus	equine	QLD	Jan	2	negative
Hendra virus	equine	QLD	Jan	2	negative
Screw worm fly		NT	Feb	3	Negative Screw worm

KEY to highest level of response:

1 Field investigation by Government Officer
2 Investigation by State or Territory government veterinary laboratory
3 Specimens sent to the Australian Animal Health Laboratory (or CSIRO Division of Entomology)
4 Specimens sent to reference laboratories overseas
5 Regulatory action taken (quarantine or police)
6 Alert or standby
7 Eradication

(Continued from page 17, Western Australia Report)
an unspecified number of gilts that gave birth to mummified litters were tested by HAI for porcine parvovirus. Titres in six unvaccinated gilts ranged from 1:8 to 1024. Titres in vaccinated gilts were much lower (1:8 to 1:128) except for one gilt (titre 1:4096).

BRONCHOPNEUMONIA PIGS

Small areas of pulmonary consolidation were seen in 12% of 22-week-old pigs slaughtered from a high health status herd at Bokal. Histopathology revealed suppurative bronchopneumonia consistent with *Pasteurella multocida* infection. However in one of the lungs submitted there was extensive lymphoid cell cuffing of bronchioles resulting in a reduction in the lumen diameter and development of lympho-follicular structures, features that are highly suggestive of *Mycoplasma hyopneumoniae* infection. Culture of the lung samples yielded mixed growths of *Pasteurella* sp, *P. multocida* and *Arcanobacterium pyogenes* but no *Mycoplasma* sp. Lymphocytic peri-bronchiolar cuffing is a sequel of chronic antigenic stimulation in the lung and not necessarily confined to infection by *Mycoplasma* sp.

ARTHRITIS IN POULTRY

Staphylococcal arthritis was diagnosed in a 12,000-bird broiler flock that experienced up to 3% leg weakness and 8% mortality. Examination of five well-grown male birds revealed brownish thick exudate in multiple joints including hip, stifle and tibiotarsal joints. *S. aureus* was recovered from all joint cultures. No predisposing factors were identified.

NAHIS contacts

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

Name	Role	Phone	Fax	e-mail
Rod Andrewartha	Tas State Coordinator	03 6233 6836	03 6278 1875	rod.andrewartha@dpiwe.tas.gov.au
Chris **Baldock**	National NAHIS Coordinator	07 3255 1712	07 3844 5501	chris@ausvet.com.au
Chris **Bunn**	Emergency Disease Preparedness, AFFA	02 6272 5540	02 6272 3372	chris.bunn@daff.gov.au
Celia **Dickason**	SA State Coordinator	08 8207 7803	08 8207 7852	dickason.celia@saugov.sa.gov.au
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Disease Watch Hotline — 1800 675 888

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

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