Animal Health Surveillance

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QUARTERLY REPORT

CONTENTS

Preface

This issue reports on a wide range of topics that include an update of activities subsequent to last year's simulation exercise (Exercise Minotaur), the use of dogs to detect organochlorine residues on farms, an outline of the National Animal Welfare Strategy, the difference between antimicrobial residues and resistance, a summary of investigations into the origin of Sudden Acute Respiratory Syndrome (SARS), and facial tumours in Tasmanian devils.

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. *AHSQ* is available on the Animal Health Australia website (at www.aahc.com.au/nahis).

Gardner Murray
Australian Chief Veterinary Officer

Exercise Minotaur — one year on

National preparedness for any large pest or disease emergency has advanced substantially since Australia's largest disease simulation, Exercise Minotaur. The exercise was conducted in September 2002 to test Australia's national arrangements for managing a foot-and-mouth disease (FMD) emergency, prompted by the devastating epidemic in the United Kingdom (UK) in 2001.

As a result of the UK epidemic, more than 9300 farms were de-stocked, and more than six million stock destroyed. The cost to the government was £3000 million, and to the private sector was £5000 million. A study conducted in 2002 revealed that a large FMD outbreak in Australia would cost $450 million in disease control and compensation, and $9000 million in lost export earnings.

Exercise Minotaur was a week-long, nation-wide exercise conducted between 8 and 13 September 2002. Staff from all levels of government and industry were involved, with about 1000 people participating directly and an additional 2000 people involved indirectly. The exercise tested disease control policies, national consultative arrangements, trade management arrangements, relief and recovery responses, and communications.

During the exercise, three states experienced a simulated 84-day outbreak of FMD. The other 'un-infected' states and territories were involved in consultative arrangements (to support the 'infected' states), disease surveillance, and socio-economic recovery activities. The simulated outbreak affected the beef, feedlot, dairy, sheep, pig, and live animal export industries. The consequences of the simulated outbreak affected livestock industries, rural communities, non-rural communities, and the Australian economy as a whole.

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Exercise Minotaur highlighted the need for a whole-of-government approach for such situations, the critical role of good information and coordination systems, the large scale of public communications that would be required in a real event, and the need for up-to-date and well-understood disease control policies. Many of the insights and lessons of Exercise Minotaur have been incorporated into a wide range of pest and disease preparedness activities during the past year, including:

- developing new arrangements and contracts to ensure an adequate supply of FMD vaccine;
- substantially improving FMD diagnostic capacity at the CSIRO Australian Animal Health Laboratory;
- reviewing the Emergency Animal Disease Response Agreement (the cost-sharing agreement involving all jurisdictions and industry);
- investigating improvements to Australia's animal health information capability;
- progressing epidemiological modelling of FMD scenarios using real geographical and livestock information to explore a range of scenarios and emergency response options;
- planning and developing a national Rapid Response Team to assist smaller jurisdictions in emergency animal disease responses;
- negotiating an updated international agreement to source stock inspectors, field veterinarians, and specialists such as veterinary epidemiologists from throughout the world to assist a country experiencing a large disease outbreak;
- shring emergency animal disease preparedness and response approaches with other sectors such as plant health and aquatic animal health;
- strngthening preventive measures such as audits of swill-feeding bans and local control of feral animals;
- reching an agreement with Centrelink to enable the rapid establishment of a national telephone information service in the event of a major pest or disease emergency;
- exmining internet options for streamlining communications among national committee members and their supporting agencies during a major outbreak; and
- imroving awareness programs for emergency pests and diseases.

Australian governments have developed a program of exercises for the next five years to test and improve pest and disease emergency preparedness. For more information on Exercise Minotaur, e-mail mediacentre@daff.gov.au or call Peter Koob on 02 6272 3082.

Contributed by: Howard Conkey, Emergency Risk Management Unit, Australian Government Department of Agriculture, Fisheries and Forestry (DAFF)

OIE to review BSE guidelines

The Office International des Épizooties (OIE) announced in a recent media release that it is addressing demands for clarification of bovine spongiform encephalopathy (BSE) standards.

OIE convened a group of experts from around the world to meet in September 2003 to consider the most recent scientific knowledge to update the content and improve the understanding of the current OIE international standards on BSE. Further, during its May 2003 General Session, OIE received a mandate from its 164 member countries to consider the simplification of the current categorisation of countries' BSE status in the *Terrestrial Animal Health Code*. OIE has been asked to provide additional clarification on the interpretation of the BSE standards. Additionally, it has been asked to assist member countries in carrying out an appropriate risk assessment in accordance with international standards so that animals and some animal products can be imported safely even from countries identified with some BSE risk. The recommendations from the expert group will be submitted to the Specialist Commissions, made up of elected members. These Commissions will then elaborate formal proposals for consideration and adoption by all member countries at the General Assembly in May 2004 .

The full text of the media release from which this article was derived is available on the internet (at www.oie.int/eng/press/en_press.htm).

Contributed by: Ed Klim, Product Safety and Integrity, DAFF

National Animal Welfare Strategy

The development of a National Animal Welfare Strategy (NAWS) began in 1999 to provide a strategic national framework to ensure that the welfare of all animals in Australia is promoted and protected by the development and adoption of sound animal welfare standards.

NAWS is being developed by the National Consultative Committee on Animal Welfare (NCCAW) and the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF), in close consultation with representatives from terrestrial animal industries, aquatic animal industries, a range of government agencies, and animal welfare bodies.

Key points about NAWS:

- This Strategy sets broad national goals for animal welfare and provides a framework for sustainable, science-based improvements in animal welfare outcomes. An additional purpose of the strategy is to achieve effective communication, education and training across the community to promote improved understanding of animal welfare.
- It is aimed at the entire Australian community, including animal owners, the veterinary profession, livestock producers, researchers, zoological institutions, processors and transporters, animal welfare bodies, consumers, and government agencies.
- It covers the care, uses, and direct and indirect impacts on all species of animals in Australia including animals used in research and teaching, animals used for recreation and entertainment, animals used for the production of food and fibre, companion animals, aquatic animals, unwanted introduced animals, and wildlife.
- It embraces a science-based approach to animal welfare but recognises the importance of other factors in setting animal welfare standards such as ethics, culture, societal values, economics, the environment, and innovation.

The draft NAWS was endorsed by NCCAW in October, and the first stage of consultation with key stakeholders has begun, and will be completed by the end of December 2003. Consultation with the community at large will then commence, and when complete, a final version of NAWS will be prepared for endorsement by the Primary Industries Standing Committee and Primary Industries Ministerial Council.

Contributed by: Peter Thornber, Office of the Chief Veterinary Officer (OCVO), DAFF

Antibiotic residues and antibiotic resistance

Antibiotic residues and antibiotic resistance are two terms that are sometimes confused. The differences between them are explained in this article.

An antibiotic *residue* is the small amount of an antibiotic or its breakdown product(s) that remains in, or on, an agricultural product following treatment with an antibiotic. The regulatory standard that is used for antibiotic residues is the Maximum Residue Limit (MRL). This is the maximum amount of a residue of a particular chemical that is legally permitted or accepted in, or on, a food, agricultural commodity or animal feed. The MRL is set as low as possible while still allowing for the effective use of the chemical. An evaluation of dietary risk is made to ensure that, based on average Australian consumption and chemical use patterns, there are no risks to food safety. The actual levels of residues in the food we eat are invariably much lower than the MRL.

The Australian Government conducts random monitoring programs for chemical residues in basic foods through the National Residue Survey, and details are available on the internet (at http://www.daff.gov.au/nrs). In 2001–02, 99.8% of more than 16 000 samples of beef, sheep meat, pork, chicken and game meat tested complied with the Australian MRL standards.

In contrast, antibiotic *resistance* is a property of bacteria that enables them to multiply in the presence of antibiotic levels that would normally suppress or kill susceptible bacteria. Resistance arises when, in the face of treatment with an antibiotic, a few bacteria survive the treatment. With continued use of that antibiotic, these resistant bacteria make up an increasing proportion of the bacterial population, possibly leading to treatment failure, and the need to use a different antibiotic.

The increasing prevalence of antibiotic resistance is a global public health concern, and many governments in the developed world have put in place national programs to address the issue. In Australia, the Joint Expert Technical Advisory Committee on antibiotic resistance (JETACAR, details available on the internet at http://www.health.gov.au/pubhlth/strateg/jetacar/index.htm) was formed in 1997 to assess the scientific evidence for the link between the use of antibiotics in food-producing animals, the emergence of antibiotic-resistant bacteria, and their spread to humans. JETACAR developed 22 recommendations for the management of antibiotic use in humans and animals. Steady progress with the implementation of these recommendations is being made (see http://www.health.gov.au/pubhlth/strateg/jetacar/pdf/cijig_progress.pdf). The National Health and Medical Research Council's Expert Advisory Group on Antimicrobial Resistance (EAGAR) provides advice to government and regulatory agencies on antibiotic resistance (details available on the internet at http://www.nhmrc.gov.au/eagar/contents.htm).

To promote the responsible use of antibiotics in the livestock sector, the Australian Veterinary Association and its specialist bodies have developed guidelines for the prudent use of antibiotics, and the livestock industries have incorporated guidelines on the responsible use of antibiotics into on-farm quality assurance programs. These initiatives address both antibiotic residues and antibiotic resistance.

Contributed by: Gwendeline Lee, Product Safety and Integrity, DAFF

Facial tumours in Tasmanian devils

A fatal disease characterised by rapidly growing facial tumours is spreading among Tasmanian devils. Other animals are not affected. The cause of the condition is not yet known, but is suspected to be a virus. A community appeal has been launched to help raise funds for research into the condition, and the public has been asked to record and submit information about dead devils when they are found.

Typically, lesions first appear in the mouth, or around the head and neck. They grow rapidly, and ulcerate. Lymph nodes and internal organs can be affected, and animals die within five months of diagnosis. The neoplasm is a round cell tumour. Evidence of retroviral infection has been detected in affected animals using polymerase chain reaction tests, but clinically normal devils also show evidence of infection, so the significance of this finding is still uncertain. A provisional case definition has been developed. So far, 13 cases fit this definition. The first of these was submitted in June 2001, although it is likely that earlier cases of facial tumours of Tasmanian devils (submitted in 1995 and 1997) might also fit the case definition. Thus, the disease may have been present in Tasmanian devils before 1995.

At this stage, the north-western populations of devils are thought to be free of the disease. The condition seems to have spread from the north-east at approximately 12–15 km per year. Affected animals have been found as far west as Sheffield in the north, and Derwent Bridge in central Tasmania. Hobart appears to be the southern limit, although extensive trapping has not been conducted in this area. A survey to determine the distribution of affected Tasmanian devils is in progress.

A University of Tasmania study on the Freycinet Peninsula has shown a highly significant association between the prevalence of facial tumours and population decline in Tasmanian devils. A consequence of a reduced Tasmanian devil population is that other populations of predators could expand to take the place of this important predator. If introduced, foxes are more likely to become established in Tasmania if competition from, and predation by, Tasmanian devils is reduced. An increase in feral cat numbers may have already occurred, and may be contributing to an apparent increase in the number of outbreaks of toxoplasmosis. Since 2000, annual investigations of possible outbreaks of toxoplasmosis have risen from seven to 14. Toxoplasmosis was confirmed in only one outbreak in 2000, but eight outbreaks of toxoplasmosis were confirmed in the first nine months of 2003.

A workshop on facial tumours in Tasmanian devils will be conducted in October in Launceston, involving local, interstate and overseas participants, to assist DPIWE in developing plans for aetiological, pathological and epidemiological studies. In addition, various management options for the condition will be considered.

Further information is available on the internet (at www.dpiwe.tas.gov.au), or phone 03 6336 5216.

Contributed by: John Elliott, DPIWE, Tasmania

Investigations of the origin of SARS

Human cases of an atypical pneumonia, subsequently named Sudden Acute Respiratory Syndrome (SARS), were first reported in February 2003 in China and have since been shown to be caused by a previously unknown virus, now called the SARS coronavirus. Evidence to date indicates that wildlife traded in markets were the most likely original source of the outbreak in humans.

By the end of June 2003, 8437 cases (813 fatal) had been reported in 29 countries worldwide. On 5 July 2003, the World Health Organization (WHO) reported that the human chain of transmission had been broken. Notwithstanding this considerable achievement, our knowledge of the epidemiology of SARS, and particularly the source, transmission and maintenance of infection, is limited.

Knowledge of the source of the SARS coronavirus and an understanding of the factors associated with the outbreak are fundamental to prevention of further outbreaks. Simplistically, there are two plausible explanations of the origin of agent. It was either a previously unidentified human coronavirus with increased virulence and/or infectivity as a result of genetic change, or an animal coronavirus that 'spilled over' to humans. The findings of several studies indicate the latter scenario is more likely. First, epidemiological studies in Guangdong Province in southern China, where the outbreak originated, found that early human cases were more likely to work in the food industry and to live close to markets, but found no positive association with proximity to domestic livestock or farms. Second, surveillance of wildlife in a market in southern China identified a SARS-like virus in the faeces of two of seven species surveyed. Third, a serological survey of humans working in the market showed a significantly higher prevalence of neutralising antibodies to SARS coronavirus in wildlife traders and animal slaughterers than in market and community controls. None of the seropositive individuals had a reported history of SARS-like symptoms. The findings suggest a wildlife reservoir, with a market (or markets) being the original source of human infection.

Contributed by: Hume Field, Queensland Department of Primary Industries (QDPI)

Editorial note: Reference citations are available on request. The contributor of this article (Hume Field) was directly involved in the investigations concerning the origin of the SARS outbreak. Additional information can be found on the internet (at www.dpi.qld.gov.au/surveillancesnapshot/12828.html).

Organochlorine residue detector dogs

The detection of organochlorine (OC) residues in beef exported to the United States in 1987 prompted the ban of the use of OCs, and a national recall of OC chemicals from farms. Meatworks monitoring is successful in detecting cattle with OC residues. However, identifying the source of these residues on farm is more challenging. A National Organochlorine Residue Management (NORM) program commenced in 1995 and focuses on active management of OC broad-acre and point-source contamination at the farm level. The Queensland Department of Primary Industries (QDPI) Animal and Plant Health Service uses a residue detector dog named Norm in the program to improve the efficiency of detecting OC contamination on farms.

The Labrador-cross dog Norm is a world-first in the area of residue detection and is trained to seek out the following organochlorines in the soil: dieldrin, aldrin, dichlorodiphenyl trichloroethane (DDT) and its breakdown products, dichlorodiphenyl dichloroethane (DDD) and dichlorodiphenyl dichloroethylene (DDE). He is trained to detect as little as 1 part per million for each of these odours, but is capable of detecting much lower levels. Norm's key ability is the identification of point sources of OC residues. He is an active response dog and digs at the site when he detects an imprinted odour. Norm also displays attitude changes and obvious physical reactions when he detects an OC odour, and these indications are useful in mapping out the boundaries of contaminated areas. Factors that influence Norm's ability to detect residues include weather conditions, soil temperature and soil type. Norm provides savings in time and human resources, and reduces the numbers of soil tests required to accurately pinpoint contaminated sites. Norm's training began in 1997, and he became fully field operational in July 1999. Following in Norm's success is Breeze, a purebred chocolate Labrador female. She completed her accreditation trials in July 2003 and is currently undergoing field validation work before assuming full operational duties as a detector dog within the QDPI detector dog team.

Contributed by: Allison Crook, QDPI

Aquatic animal health

EXERCISE TETHYS

Much of the planning for Exercise Tethys (scheduled for November) was completed during this quarter. The aim of the exercise is to address issues of inter-jurisdictional communication and cooperation in response to an emergency disease incident, and to heighten the awareness of these jurisdictions to the potential for incursions of emergency animal disease in Australia's aquatic environment.

The exercise is based on a fictitious outbreak of a real disease in a silver perch farm in New South Wales. It will bring together participants from the Australian Government, each state and territory, producer organisations, and the Murray–Darling Basin Commission to battle the simulated outbreak.

The objectives of the simulation exercise are to evaluate formal and informal communication networks between jurisdictions, test State and Territory control centre manuals, and increase awareness of emergency disease management. Additional objectives are to improve cooperation between jurisdictions during an emergency response, and to improve general awareness of aquatic animal emergencies.

The exercise will take place in an operational environment and will require participants to perform their designated response roles. Emergency operations centres will be established, and participants will be required to meet, and make decisions. However, the simulation will not involve physical field operations (these will be simulated), actual communication with other countries (again, this will be simulated if required), or the establishment of local disease control centres (simulated as required).

Additional information is available on the internet (at www.daff.gov.au/exercisetethys)

AQUATIC CCEAD TRAINING

Three workshops were held between March and July to train government and industry members of the aquatic Consultative Committee on Emergency Animal Diseases (CCEAD) in the function and operations of CCEAD. Experienced members of CCEAD, including two Chief Veterinary Officers, assisted the facilitators by sharing their experiences of the CCEAD process. Each of the participants found the training relevant, and appreciated meeting other members of CCEAD in person. A training manual based on the training course material has been developed and will provide members with essential information on the CCEAD operating guidelines and terms of reference. The manual will be particularly useful for new CCEAD members.

DATABASE OF AUSTRALIAN LABORATORY DIAGNOSTIC EXPERTISE FOR DISEASES OF AQUATIC ANIMALS

The internet team at the Australian Government Department of Agriculture, Fisheries and Forestry (the Department) is developing a database to provide information on the diagnostic capability of laboratories around Australia that deal with aquatic animal disease. A prototype web-based database has been developed, and is searchable by laboratory, disease, or diagnostic technique. A wide range of stakeholders reviewed the prototype and provided detailed feedback and suggestions for improvement. New features have been incorporated into the database. These include contact details for each laboratory, and a brief description of the type of laboratory, and its National Association of Testing Authorities, Australia (NATA) certification, if any. A description of each test has also been added. Selection of a laboratory and test combination returns details of test availability at that laboratory. For instance, a test may be conducted routinely, or may be available only under exceptional circumstances. The revised database will be placed on the departmental website for further assessment by stakeholders.

AUSTRALIAN AQUATIC ANIMALS DISEASES AND PATHOGENS DATABASE

A national on-line database of Australian aquatic animals diseases and pathogens is being developed to provide rapid and appropriate access to current information on the viral, bacterial and parasitic diseases of marine and freshwater finfish, shellfish and crustaceans in Australia. The project is funded by the Fisheries Research and Development Corporation under its Aquatic Animal Health Sub-Program as part of the Federal Budget Initiative, and is managed by the Department. An information technology company specialising in database development has completed gathering the requirements from key users and stakeholders. After analysing the requirements and designing the database, the company will build it.

The database is expected to increase productivity in diagnostics, disease control, marketing, policy development, research, surveillance, and training. Information on hosts, pathogens, diseases, and (particularly) collections will be included in the database. Users will be able to submit and validate information (to enhance user confidence in information quality), and will be able to perform searches, and extract reports from the database. Decisions about restriction of access to the database have yet to be finalised.

Critical to the success of the database are its design, the willingness of aquatic animal health specialists to

submit information, and its ongoing maintenance. The database is expected to be fully operational before 30 June 2004.

DEVELOPMENT OF AN AQUATIC ANIMAL HEALTH AWARENESS PACKAGE

A video/compact disc/website package is being designed to educate the fishing and aquaculture industries on aquatic animal health matters. Filming for the video components has commenced. A range of locations around Australia will be covered to capture information about all the major industries. The compact disc will contain a range of detailed fact sheets and links to websites on the internet. The resource is expected to be available for distribution in early 2004.

Contributed by: Iain East, OCVO, DAFF

Australian Wildlife Health Network

The Australian Wildlife Health Network is interested in receiving reports of wildlife incidents, and definitive diagnoses of causes of death, in wildlife in Australia. It is now also responsible for the capture and reporting of data relating to the testing of bats for viral diseases. The network would appreciate copies of test results, both positive and negative. The Network appreciates and acknowledges the contributions from organisations and individuals that form the basis of this report.

FREE-RANGING WILD ANIMALS — BIRDS

In late May, the parrot species galahs (*Cacatua roseicipilla*) and corellas (*Cacatua* spp.) were seen behaving abnormally in recently seeded paddocks in the Moora shire of Western Australia. Signs included ataxia, weakness, head–nodding, droopiness, and reluctance to move. Similar signs were reported in kangaroos. In addition, the birds had reduced ability to fly. On windy days, the birds appeared to cartwheel but could not achieve flight. Deaths occurred, and a post mortem examination was performed on one galah, with unremarkable results. Testing for West Nile virus was negative. Fluquinconazole toxicity is suspected. Cereal crops in the area had been treated with an antifungal product containing this agent, and it is likely that the birds ate contaminated grain.

During the first two weeks of August, clusters of birds known as currawongs (*Strepera* spp.) died around Sydney's northern beaches, and more than 30 Australian magpies (*Gymnorhina tibicen*) died in Newcastle. No diagnosis was made after post mortem and histopathological examinations, but results from viral cultures are pending.

FREE-RANGING WILD ANIMALS — MARSUPIALS

The deaths in eastern grey kangaroos at Yarrambat (Yan Yean) in Victoria in March, reported in *AHSQ* Vol. 8, No. 1, have now been attributed to pindone toxicity. Pindone is an anticoagulant vertebrate poison. In addition to these 30 deaths, a second incident has been reported in New South Wales, but details of this incident are not yet available.

FREE-RANGING WILD ANIMALS — OTHER

A dugong (*Dugong dugong*) was found washed up on near Morton Bay on the Queensland coast. Toxoplasmosis is suspected as the cause of death on the basis of intestinal lesions observed by electron microscopy at the University of Queensland. *Toxoplasma gondii* causes significant mortalities in sea otters on the west coast of the United States (US) where it is thought that faeces from infected cats contaminate sea water after being washed down storm–water drains, or flushed down toilets.

CAPTIVE WILD ANIMALS — OPHIDIAN PARAMYXOVIRUS IN SNAKES

A diagnosis of ophidian paramyxovirus (OPMV) infection in a large captive snake collection in NSW was based on results of clinical, post mortem, and serological examinations. Investigation began in late 2002. Isolation of virus from three live snakes was unsuccessful, and viral particles were not seen via electron microscopy. However, sera from nine and seven of 25 snakes were positive for antibodies to OPMV1 and OPMV2, respectively. The serological testing was performed in the UK at the Veterinary Laboratory Agency, Weybridge. Previously, the disease was thought to be exotic to Australia. The Consultative Committee on Emergency Animal Diseases (CCEAD) is considering management options.

The virus was first recognised in 1976 as a cause of respiratory disease in captive snakes in Switzerland. It has since been identified as a cause of significant epidemics of respiratory and nervous disease in snakes in a variety of private and zoological animal collections throughout the US and Europe, and has been reported from Brazil, Canary Islands, and the UK. OPMV infection can cause 'die offs' in viperids, elapids, boids and colubrids. Australia's venomous snakes are all elapids and are assumed to be susceptible. However, the likelihood that the virus could be transmitted and maintained in the wild is unknown.

Most affected snakes have respiratory disease, stop eating, waste away, and die after two to eight weeks.

At post mortem examinations, visible changes range from diffuse haemorrhage and pulmonary oedema to accumulations of caseous necrotic debris in the lumen of the lung and, sometimes, the trachea. Histological examination of the lung reveals hyperplastic alveolar cells, septal congestion and oedema and, occasionally, interstitial and exudative pneumonia. Some affected snakes also develop a demyelinating encephalopathy.

BAT VIRAL DISEASES

A summary of testing for bat viruses throughout Australia during the quarter is presented below. The AHWN has received no reports of testing for Australian bat lyssaviruses from states other than those listed, and no reports of testing for other bat viral diseases (Hendra, Menangle, Nipah viruses) from any jurisdiction.

Contributed by: Chris Bunn, OCVO, DAFF, and Rupert Woods, Australian Wildlife Health Network Coordinator

Results of testing for bat viral diseases

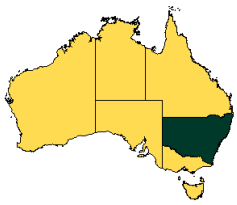
DISEASE SPECIES	STATE	CATEGORY	NUMBER TESTED	FINDINGS
Australian bat lyssavirus				
Grey-headed flying-fox (*Pteropus policephalus)*	NSW	2	2+#	negative
Black flying-fox (*Pteropus alecto*)	NSW	2	1+#	negative
Southern forest bat (*Vespadelus regulus*)	NSW	2	1+	negative
Gould's wattled bat (*Chalinolobus gouldii*)	Tas.	2	3+	two negative; one sample too autolysed to test
Long-eared bat (*Nyctophilus* spp.)	Tas.	2	1+	negative
Gould's wattled bat (*Chalinolobus gouldii*)	Vic.	2	2#	negative
Yellow-bellied sheathtail bat (*Saccolaimus flaviventris*)	Vic.	2	1#	negative

KEY to category:

1: routine submission (no suspicion of exotic or other emergency disease)
2: submission for exclusion of exotic or other emergency disease (remote likelihood of presence)
3: submission for confirmation of exotic or other emergency disease (high likelihood of presence)
+ Testing for Australian bat lyssavirus by fluorescent antibody test and immunohistochemistry
# Negative for encephalitis by histology

State and Territory reports

New South Wales



Contributed by:
Barbara Moloney
NSW Agriculture

ANTHRAX

Two out of 415 beef cows died in late September, and one further death occurred in early October. Anthrax was confirmed by laboratory examination. The property had no known history of anthrax, but is located in the endemic area. The property was placed in quarantine, carcases burnt, and all remaining cattle (412) on the property were vaccinated against anthrax.

Anthrax was suspected, but excluded, in fifteen other investigations during the quarter (ten in beef cattle, five in sheep). Alternative diagnoses in sheep included lactic acidosis and enterotoxaemia; and in cattle, a suspected plant-induced hepatopathy and blackleg (*Clostridium chauvoei*).

TRICHOMONIASIS

Poor pregnancy rates, mummified foetuses and pyometra were found by ultrasonic examination in a group of beef cows from a large herd in the tablelands of northern NSW. Trichomoniasis was confirmed in 13 of 110 bulls by culture of preputial washings. Only one group of cows had notably low pregnancy rates but, as breeding cows are moved between four properties, bulls on all four properties were tested. Twelve positives in a group of 32 bulls on one property were found to be infected, with a further infected bull detected during a second round of testing. Quarantine and a management plan based on movement restrictions, testing and culling have been implemented on one property. Another property in the group was diagnosed with trichomoniasis five years ago, managed, then released from quarantine one year ago.

INFECTIOUS LARYNGOTRACHEITIS

Infectious laryngotracheitis (ILT) was suspected on the basis of clinical signs, and confirmed by laboratory testing, in a flock of 49-day-old broilers in the Sydney area. Signs were observed only in one shed. Losses of 1% per day were observed. The flock was processed by the company. Previous cases of ILT had occurred on this property in 2002 and 2001. No further cases of ILT were reported in the Sydney area at the time the cases occurred in this flock.

EQUINE HERPESVIRAL ABORTION

There was only one diagnosis of equine herpesvirus-induced abortion in NSW during the 2003 breeding season. In contrast, in 2002, there were equine herpesviral abortions in 17 herds.

STRANGLES

In the past 12 months, 48 cases of strangles were notified compared to 39 in the preceding 12 months. In this quarter, there were a number of isolations of *Streptococcus equi* subsp. *equi* from unusual sites, such as pneumonic lungs, and wounds and abscesses unrelated to the respiratory tract.

STILLBIRTHS AND PRE-WEANING MORTALITY IN PIGS

NSW Agriculture is investigating the cause of a disease syndrome in pigs on two sites in NSW. The syndrome is characterised by increased stillbirths and pre-weaning mortality, with non-suppurative myocarditis, and is consistent with a viral infection. There is no evidence of any potential for human infection, and ante- and post- mortem abattoir examinations of stock from the infected units have not shown any unusual abnormalities. Movement restrictions are in place on the units affected and there is no evidence that the disease is occurring elsewhere.

Exotic disease agents that have been excluded include foot-and-mouth disease (FMD) virus, swine vesicular disease virus, classical swine fever virus, Aujeszky's disease virus, and porcine reproductive and respiratory syndrome (PRRS) virus. Disease agents that occur or have previously occurred in some parts of Australia that have also been excluded include bovine viral diarrhoea virus, encephalomyocarditis virus, Menangle virus, porcine parvovirus, porcine circovirus types 1 and 2, and toxoplasmosis.

Virus-like particles have been demonstrated by electron microscopy in some tissues from affected piglets, but the agent has not yet been isolated and identified. Investigations are continuing.

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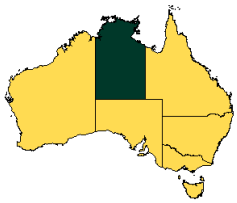
Northern Territory



Contributed by:
Diana Pinch
DBIRD

COCCIDIOSIS IN CATTLE

Diarrhoea was reported in weaner steers that had been recently transported to a property in the Katherine region after being dehorned, castrated, vaccinated and drenched. Although placed on calf pellets and molasses mixture containing a coccidiostat, four animals required treatment and one recumbent animal died. The laboratory reported an extremely high faecal oocyst count of *Eimeria zuernii*, a highly pathogenic coccidial species that affects cattle.

UREA TOXICITY

Five cattle were reported dead at a station in the Katherine region. Post mortem examination findings were consistent with urea toxicity. Blood urea levels were elevated. An additional six deaths occurred within a week.

BOTULISM AND PHOSPHORUS DEFICIENCY

Deaths and injury in cattle on a station on the Barkly Tablelands were attributed to the effects of both botulism and phosphorus deficiency. The owner reported up to 10% of the deaths in the herd were from botulism, and had introduced a vaccination program to prevent further losses. In addition, post mortem examination on several recumbent heifers with posterior paralysis showed fracture of the spine in the thoracolumbar region. The owner was provided with information regarding the need for supplementation to prevent clinical disease associated with phosphorus deficiency.

BOVINE EPHEMERAL FEVER

Several cattle were sick, and a few died, after mustering on a property near Alice Springs. Sick cattle showed lameness and recumbency. Tissues from one dead steer appeared normal on histological examination. Two out of three sick cows were positive to a polymerase chain reaction test for bovine ephemeral fever.

FUNGAL INFECTION IN A HORSE

The fungus *Fusarium proliferatum* was identified by culture of the ethmoid turbinates and turbinate membrane from an aged mare from the Katherine region that had a long-term illness. This fungus is commonly associated with ingestion of contaminated corn in horses. Leucoencephalomalacia may occur in horses following ingestion of mycotoxins produced by the fungus. However, in this case, the fungus itself was present in the horse's turbinates.

CROCODILE CONDITIONS

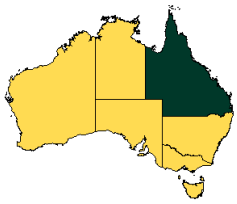
Saltwater crocodile (*Crocodylus porosus*) hatchlings (2–6 months of age) submitted from two farms showed evidence of septicaemia on post mortem examination. *Providencia rettgeri*, *Aeromonas veronii* biovar *sobria*, *Proteus vulgaris*, and *Alcaligenes* spp. were cultured from various organs, and *Salmonella* spp. was cultured from a brain. Another hatchling had a suspected ascending infection from a wound in the foot, and a heavy growth of *Providencia stuartii* was cultured from the liver and muscle.

THIAMINE DEFICIENCY IN SMALL RUMINANTS

A sheep at a research farm showed acute neurological signs of lateral recumbency with tetany, opisthotonos and paddling, consistent with polioencephalomalacia, a thiamine deficiency. There was a dramatic response to vitamin B complex therapy, supporting the clinical diagnosis.

A Boer goat was euthanised due to chronic weight loss and neurological signs (including blindness and recumbency). A number of goats were observed eating potentially toxic plants in the paddock. Although plant toxicity was a likely field diagnosis, laboratory results confirmed polioencephalomalacia.

Queensland



Contributed by:
David Pitt
QDPI

GASTROINTESTINAL NEMATODE INFESTATIONS

There were three reports of infestations of *Haemonchus* spp. in goats from south-east Queensland, and one report from Julatten in far-north Queensland. In all but one of these incidents, *Trichostrongylus* spp. were also identified. In addition, haemonchosis was responsible for depression and weight loss in five-month-old dairy calves in the Gold Coast hinterland in mid-August.

LIVER FLUKE

Liver fluke (*Fasciola hepatica*) and classical 'pipe stem' livers were found in two young bulls that came from a Cloncurry property and were slaughtered at the export abattoir in Townsville. The flukes were forwarded to Oonoonba Veterinary Laboratory for identification. As north Queensland is liver-fluke free, this was investigated. It was determined that the animals had been purchased from the Guyra area in NSW and were culled as they had not thrived in north Queensland.

HYDATIDS

Approximately 150 domestic dogs from the Springsure area of central Queensland were tested for hydatids using a faecal antigen test. (An advantage of this test is that the traditional purging is not required.) None was infected with *Echinococcus granulosus*. However, four local dingoes were trapped and tested, and all had significant numbers of hydatid tapeworms in their intestines.

LUNGWORM

Two of 70 eleven-month-old steers from a property in the Sarina shire in north Queensland died, and eight more were sick. A severe fibrinopurulent bronchopneumonia (consistent with pasteurellosis) and *Dictyocaulus viviparous* (lungworm) infestation were found at post mortem examination. In addition, there were 10 000 strongyle eggs per gram of faeces.

SWINE DYSENTERY

Swine dysentery (*Brachyspira hyodysenteriae*) was responsible for diarrhoea and poor growth rates in ten of 600 twelve-week-old pigs in Murgon shire in south-east Queensland. The deaths of 6 eight-week-old pigs in another piggery in the same area in early August were also attributed to this disease. Anaemia and diarrhoea had been seen in the piglets.

MIXED INFECTION IN PIGS

Diarrhoea and weight loss in weaner pigs was investigated on an isolated 100-sow piggery in the Charters Towers area of north Queensland. Post mortem examinations of two weaner pigs with red and grey scours were conducted at Oonoonba Veterinary Laboratory. The pigs were depressed and had extensive bluish discolouration of ears and abdomen, but were in fair condition. One pig had a scab-encrusted wound on the tip of a shortened tail, and the right mitral valves had a vegetative granulomatous lesion from which *Streptococcus equisimilis* was cultured. The infection of the valves is likely secondary to the tail bite wound. Both pigs had oedematous colon walls with haemorrhagic contents from which *Salmonella* spp. (including *Salmonella enterica* subsp. *arizonae*) were cultured. The lesions in the colon wall of both animals are consistent with those seen in swine dysentery (*Brachyspira hyodysenteriae*).

CLOSTRIDIAL DISEASES

Enterotoxaemia due to *Clostridium perfringens* type D was responsible for the deaths of four of 180 red deer in the Brisbane Valley in early September. The deer were fed dairy meal from self-feeders, and deaths commenced one day after delivery of a new batch of grain. The affected younger animals were noticed lagging behind the mob and became recumbent and died within two hours. The older stags were found in lateral recumbency and struggled violently for several hours before death. Faeces of porridge consistency were noted in affected animals. Small intestinal contents tested positive for *Clostridium perfringens* by an enzyme-linked immunosorbent assay. The investigating veterinarian thought that the grain supply may have finished and that dominant deer, which were the most affected, may have rushed in and overeaten when the new feed was introduced. The source of infection was not found.

Blackleg was diagnosed on a 1500-head beef property in the Charters Towers area in north Queensland. Six died from a herd of 500 after weaning. Sections of muscle contained areas of haemorrhage and necrosis. There were moderate numbers of large bacilli present within the affected areas. Histological changes were consistent with those seen with *Clostridium chauvoei* infections. Blackleg was also diagnosed in unvaccinated animals on a Darling Downs property in south-east Queensland. There were seven deaths out of 28 three-year-old beef cattle. Signs included sudden death, and typical lesions were found in the heart and neck muscles.

Five sheep died, and two were sick, out of a flock of 180 two-tooth Merino sheep on a Darling Downs property. The sheep had been vaccinated only once with a '5-in-1' vaccine about four months previously. Lesions included a preferential autolysis of renal cortical cells, and enterotoxaemia was diagnosed.

MYIASIS

Cases of myiasis in a cat and a horse were investigated, with exotic screwworm flies ruled out. The four-year-old cat from Bowen had a severe laceration that was infested with *Chrysomya megacephala* and *Lucilia cuprina* larvae. The horse, from an island north of Townsville, had an infected hoof that was also infested with *Lucilia cuprina* larvae.

PLANT POISONINGS

Plant poisonings were reported across the state this quarter.

In the Mareeba shire of far north Queensland, pathological changes in the kidney and liver from a 5-month-old Anglo-Nubian goat indicated a subacute to chronic hepatoxicity and nephropathy, most likely due to lantana poisoning.

Xanthorrhoea spp. (grasstree) leaf fragments were identified in the rumen contents of an animal euthanised on a Darling Downs property. There were eight deaths, and one sick beef cow, out of 250 five-year-olds. The cows exhibited incoordination of hindquarters and walked sideways before going into sternal, then lateral, recumbency.

Darling Pea (*Swainsona* spp.) affected 15 twelve-month-old steers out of a herd of 120 on a southern Queensland property. The steers lost weight, were uncoordinated, and had a poor appetite. They were introduced to the property and ate *Swainsona luteola* (dwarf Darling Pea) growing in a dam bed. On another southern Queensland property, 180 five-year-old steers were introduced onto pasture containing a prolific growth of dwarf Darling Pea. Subsequently, one died and six showed clinical signs including incoordination, high stepping gait, blindness, recumbency, and hypersensitivity to touch. Foamy neurones in the central nervous system, typical of an induced lysosomal storage disease, were seen on histological examination. A similar condition was seen on a southern Queensland property that had a prolific growth of dwarf Darling Pea. Three hundred of 680 three-year-old Merino wethers died.

There were widespread reports of plants poisonings in cattle from western Queensland including St George disease (*Pimelea* spp.) in the south; Noogoora burr (*Xanthium pungens*) after rain, near Hughenden; caustic vine (*Sarcostemma australe*) and yellow-wood (*Terminalia oblongata*) after mustering, also near Hughenden; and heart-leaf poison bush (*Gastrolobium grandiflorum*) in the Flinders Shire.

PORCINE PLEUROPNEUMONIA

Porcine pleuropneumonia was diagnosed on a Darling Downs piggery in a group of 600 pigs aged 21 weeks. Sixty pigs were sick, and 18 died. Signs were sudden death, and respiratory problems. On post mortem examination, there was increased fluid in the chest cavity, fibrinous pleuritis and bronchopneumonia. *Actinobacillus pleuropneumoniae* was isolated.

SALMONELLOSIS

Four hundred of 600 eight-week-old pigs on a Darling Downs piggery were sick with acute watery diarrhoea and vomiting, and 30 died. At post mortem examination, signs of enteritis and dehydration were seen. *Salmonella* spp. were isolated from the intestines and intestinal lymph nodes.

South Australia

Contributed by:
John Weaver
PIRSA

RUMINAL IMPACTION IN WATER BUFFALO

Severe acute ruminal impaction occurred in a herd of 140 water buffalo near Port Pirie. The water buffalo were routinely vaccinated against clostridial diseases with a '5-in-1' product, and treated with a broad-spectrum anthelmintic. There had been very little pasture growth on the property during the previous two seasons. When the pastures developed a green flush after rains in early June, most of the mature animals engorged themselves. The new pasture had little root development, and the animals pulled up clods and ingested large amounts of earth as they grazed. The ruminal impaction that developed was accompanied by varying degrees of inappetence. More than 20 animals died over three weeks. Some of the less severely affected water buffalo were slaughtered, and their rumen contents were described as having the consistency of curing concrete. Unweaned calves belonging to dead cows were euthanised. In all, 46 animals died or were humanely destroyed. The survivors were fed with high roughage dry feed and treated orally with liquid paraffin to assist the mobilisation and dispersion of the impacted material. The animals were closely monitored for pain and other clinical signs. A month after the initial investigation, clinical and post mortem examinations at slaughter indicated resolution of the impaction. However, haematology, biochemistry and liver assay results indicated the presence of ongoing liver damage, and copper and cobalt trace element deficiencies in the herd.

PYRROLIZIDINE ALKALOID TOXICITY

Signs of wasting and ill-thrift were reported in a ewe flock in the Kingston SE area. From the history, photosensitisation (with subsequent ill-thrift) was suspected. Some jaundiced sheep were found when the flock was examined. Clinical pathology results suggested liver damage and liver lesions consistent with pyrrolizidine alkaloid toxicity were seen on histopathological examination. During this quarter, much of the intensive agricultural area of SA was swathed in purple from the flowering 'Salvation Jane'/'Paterson's Curse' (*Echium plantagineum*). The relatively few cases of toxicity reported so far may indicate that sheep do not find the plant palatable when other grazing is available.

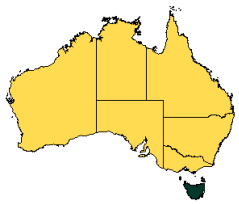
MALIGNANT CATARRHAL FEVER

One cow in a Red Angus stud near Victor Harbor had severe dyspnoea with crusting of the nostrils. The tentative diagnosis of malignant catarrhal fever (MCF) was confirmed using the polymerase chain reaction test for ovine herpesvirus 2 (sheep-associated MCF). A test based on the wildebeest strain (alcelaphine herpesvirus 1) was negative.

MENINGOENCEPHALITIS IN BOER GOATS

An increased (but low) mortality rate over three weeks was reported in a mixed-age and -sex Boer goat flock. The owner had not reported neurological signs. However, the attending veterinarian considered some animals to have central nervous system depression. No abnormalities were seen on post mortem examination of one goat. However, histological examination revealed a severe purulent meningoencephalitis, consistent with listerial infection. This could not be confirmed, as no fresh material was available for culture.

Tasmania



Contributed by:
John Elliott
DPIWE, Tasmania

SALMONELLOSIS IN CALVES

Private practitioners investigated several incidents of losses in young dairy calves. The calves died 3–4 days after being placed in rearing sheds. Diarrhoea, pneumonia, septicaemia and sudden collapse were observed, and case fatality rates of 10–15% were seen. Lesions observed at post mortem examination included pyelonephritis, enteritis, hepatitis and bronchopneumonia, which are typical of bacterial septicaemic disease. *Salmonella* Typhimurium phage type 9 and *Salmonella* Dublin were isolated.

RABBIT CALICIVIRUS

About half of a group of Californian/Flemish Giant rabbits died over a three-day period. Affected rabbits died quickly, but the signs of illness were unremarkable. Young rabbits in contact with those that died were not affected. There were multiple lung haemorrhages. The spleen was swollen and the liver was mottled and pallid. Rabbit caliciviral infection was suspected based on the lesions and clinical history, and this was confirmed by antigen-capture enzyme-linked immunosorbent assay.

'SCHOOL SORES' IN A (GOAT) KID

A seven-day-old goat kid had scabs on its upper lip and under the lower jaw. The lesions were slightly raised and 1–2 mm in diameter. A raw (rather purulent surface) remained after removal of the scabs. Scabs were also present on the bare skin on the underside of the tail. In the mouth, an area of congestion was observed on the gum beneath the right central incisor. Diarrhoea was not present. Contagious pustular dermatitis (scabby mouth) was suspected, and samples were submitted for examination by electron microscopy and for bacteriological culture. No viral particles were seen. *Staphylococcus aureus* was isolated from the scabs. It appears that the kid had a caprine version of impetigo — a staphylococcal skin infection seen in children.

LABORATORY ACCESSIONS AND NOTIFIABLE DISEASES

During the quarter, there were 86 aquaculture accessions, 552 livestock accessions, 37 companion animal accessions, 42 wildlife accessions, and 1 accession from another source.

The following investigations into possible cases of notifiable diseases were undertaken during the quarter:

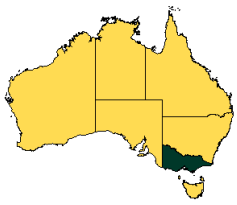
Disease	Investigations	
	+ve	No.
Anthrax	0	7
Avian psittacosis	1	8
Bacterial kidney disease	0	29
Bluetongue virus	0	25
Brucella abortus (bovine brucellosis)	0	13
Brucella ovis	0	27
Clinical salmonellosis	39	99
Enzootic bovine leucosis	0	26
Hydatids	5	7
Johne's disease	8	116
Leptospira hardjo	3	23
Leptospira pomona	1	24
Listeria	6	13
Negative fish bacteriology*	0	24
Negative fish virology+	0	3
Pullorum disease (*Salmonella pullorum*)	0	3
Q fever	0	1
Salmonella abortus ovis	0	7
Salmonella enteritidis	0	3
Transmissible spongiform encephalopathy	0	5
Verotoxic *E. coli*	0	85

* Bacterial kidney disease, furunculosis, goldfish ulcer disease, streptococcosis of salmonids

\+ Epizootic ulcerative syndrome, epizootic haematopoietic necrosis, infectious haematopoietic necrosis, infectious pancreatic necrosis, *Oncorhynchus masou* virus disease, spring viraemia of carp, viral encephalopathy and retinopathy, viral haemorrhagic septicaemia

Iridovirosis of shellfish, nocardiosis of shellfish, perkinsosis of shellfish

Victoria



Contributed by:
Tristan Jubb
DPI, Victoria

SUSPECTED DRENCH TOXICITY IN YOUNG LAMBS

On a sheep–wheat property near Horsham in western Victoria, 10 of a group of 100 lambs aged 3–6 weeks convulsed and died within 20 minutes of castration, and drenching with an abamectin parasiticide. An additional 40 lambs had transient neurological signs. Typically, a lamb collapsed in the front legs, then curled its head and chin into its chest. Abamectin toxicity was suspected. The manufacturer is investigating the incident but has mentioned that young lambs with little or no body fat may be at risk of toxicity.

DIARRHOEA IN A DAIRY HERD

An outbreak of acute, severe diarrhoea in dairy cows on a property in the Upper Murray region of Victoria was investigated. Sixty-eight of 70 cows were affected. In addition to the diarrhoea, the cows were dehydrated, and had decreased appetite and milk production. All cases appeared to have developed within a 12-hour period. No deaths occurred, and most of the cows recovered quickly. Haematology showed a mild stress leukogram. The faeces were negative for coronavirus, *Salmonella* spp. and *Yersinia* spp. Pasture analysis was negative for nitrate. The only notable laboratory finding was a markedly elevated serum D-lactate level, indicating acute rumen lactic acidosis. This outbreak was unusual in that no deaths occurred despite the high morbidity, and that no change in either feed type or quantity was identified as a possible cause.

CONGENITAL DEFORMITIES IN CALVES

Similar calf deformities were seen on a number of unrelated and geographically-separate properties in north-east Victoria. Between 5% and 50% of calves were born with skeletal deformities, which were more severe in the stillborn calves. Stillborn calves, or those that died soon after birth, showed distinctive front leg varus (bowed legs), twisted hind legs, domed heads with associated deformities in the atlanto-occipital region, and humped backs with semi-fused vertebrae and compressed spinal cords. Surviving calves had less prominent domed heads with associated mild neurological signs, short and thick front legs with a distinctive wide-legged stance, and varus deformity. A number of dams of affected calves, live affected calves, and two freshly dead stillborn calves had negative serological results for pestivirus, Akabane virus and Aino virus. Sera from two stillborn calves had immunoglobulin G concentrations of less than 200 U/L. No significant histopathological lesions were observed in the brains or spinal cords of the two stillborn calves. The dams were of mixed ages and breeds. Investigations into the aetiology of the condition are continuing.

SUSPECTED MYCOTOXICOSIS IN FARMED DEER AND GOATS

Seventy of 150 fallow deer, and two of about 45 goats, died over five days after being fed a pelleted barley ration on a property on the outer eastern fringe of Melbourne. Three deer and one goat had post mortem examinations, and all animals were in marginal to poor body condition with moderate to high faecal egg counts and worm burdens. There were no other significant gross or histological lesions. On-farm investigations showed that pelleted feed, made from barley and imported from Sri Lanka, was covered with *Aspergillus* spp. An aflatoxin enzyme-linked immunosorbent assay was negative. Remaining deer on the farm showed no further signs of disease, and there were no deaths after the initial episode. However, the owner reported that some goats had blood in the faeces for a short while (but were otherwise unaffected), and that fewer-than-expected kids were born to surviving nannies. Although the cause of death was not confirmed, a toxicosis was suspected due to the large number of deaths of multiple species and age-groups over a short time period.

POLIOENCEPHALOMALACIA IN CATTLE

A steer on a farm feedlot near Ballarat in south-west Victoria died after showing pyrexia and a sudden onset of blindness that was not responsive to antibiotics and antiinflammatory drugs. A second animal, fed the same corn pellets as the first, died after showing circling and blindness. A diagnosis of polioencephalomalacia was based on histological results. A third animal responded to treatment with thiamine. The combination of pelleted feed, lack of roughage and dietary changes were considered to be contributory factors. Cases ceased after pasture conditions improved.

BRACKEN FERN POISONING IN CATTLE

Sudden deaths of six-month-old Friesian bull calves at Ullswater in the West Wimmera Shire were attributed to bracken fern poisoning after anthrax was excluded by microscopic examination of stained blood smears. The calves had evidence of internal and external bleeding, and there was spectacular haemorrhage on the serosal surfaces of abdominal organs and several litres of unclotted blood free in the abdominal cavity. The calves had been introduced to the farm and had spent one to two weeks in a good pasture paddock in which there was a relatively small patch of bracken fern. Homebred calves were unaffected.

SMALL HIVE BEETLE

In August 2003, DPI Apiary Inspectors detected small hive beetle (SHB, *Aethina tumida*) in beehives introduced to north-west Victoria from interstate for the purpose of pollinating almonds. Between 9000 and 10 000 hives from 20 beekeepers were introduced as part of the almond pollination program. The beetle was observed among bees on brood frames. Samples were captured and the beetles' identity confirmed by an entomologist. No SHB larvae were observed, indicating that breeding was not taking place. The cold weather conditions, and the relative isolation of the infested apiary from other hives, has probably prevented spread to Victorian hives. The infested apiary was returned to its interstate origin after loading at night and netting to prevent the escape of beetles. Five sentinel hives and three bait traps have been set up in the immediate area where the beetles were detected. No SHB were found on three subsequent inspections.

RUMINAL ACIDOSIS IN BEEF CATTLE

More than 30 cattle and 50 sheep died on five farms in south-west Victoria. Ruminal acidosis was diagnosed based on clinical and post mortem examination findings that included low rumen pH. The animals had died within 12 hours of being fed with a grain-based flour-milling product imported from overseas. The fine particle size probably made the product particularly lethal. Less salivation is induced by low roughage feeds and, consequently, less salivary buffers are ingested. In another herd in south-west Victoria, 15 cattle died and another 30 became sick after being fed a new batch of pellets. Trails of pellets were fed on the ground at a rate of four to five kg/head on alternate days. Many cattle were found dead and dehydrated, with no signs of ante mortem struggling. Some cattle appeared ataxic and blind, others were bloated, and some appeared to have grass tetany-like symptoms. Histologically, there was severe rumenitis and the rumen contents had a pH of 5. The cattle had been fed pellets for some months but the new batch of pellets from the same manufacturer was considerably higher in energy.

ENTEROTOXAEMIA IN GOATS

Enterotoxaemia was diagnosed in a sudden-death syndrome that killed 12 of 400 goats on a farm in central Victoria. Acute enteritis and large quantities of blood-tinged fluid in the bowel were seen on post mortem examination. The goats were not vaccinated against clostridial diseases and were grazing lush pasture.

PREGNANCY TOXAEMIA IN SHEEP

Pregnancy toxaemia was diagnosed in one- and two-year-old pregnant sheep on a farm in north-central Victoria. Affected sheep showed blindness, depression, tremor, frothy salivation and circling with crossed legs. The sheep were grazing a lush capeweed pasture with low energy and high water content, explaining their undernourishment.

COPPER POISONING IN SHEEP

Romney Marsh rams on a sheep stud near Geelong in south-west Victoria showed respiratory distress, anaemia, and jaundice. At post mortem examination, the carcass was yellow and the spleen, liver and kidney were black and swollen. Acute copper poisoning was diagnosed. Copper sulphate had been added to the water supply to prevent copper deficiency.

LISTERIOSIS IN GOATS

An outbreak of listeriosis killed 43 kids, 26 does and one wether in a flock of 140 Boer goats after they were fed spoiled silage on a farm near Wangaratta in north-east Victoria. Most showed circling, salivation and dysphagia, and were euthanised. White spots in the liver were commonly seen at post mortem examination.

OXALATE POISONING OF SHEEP

Oxalate poisoning caused the deaths of 24 of 240 merino wethers that were grazing lush soursob (*Oxalis pes-caprae*) on a central Victorian property at the beginning of July. The wethers were given access to a lucerne–clover pasture that had a heavy growth of capeweed and soursob after significant rains. Affected sheep showed muscular tremors and collapse, and many were moribund. There was also excessive salivation, and bleeding from the mouth at death. No significant lesions were apparent at post mortem examination. However, histological examination of the kidney showed nephrosis consistent with oxalate poisoning.

Western Australia

Contributed by:
Richard Norris
Department of Agriculture – WA

ERYSIPELAS POLYARTHRITIS

An outbreak of erysipelas polyarthritis was seen in Merino hoggets from Merredin that had been crutched in their paddock, rather than in sheep yards. Affected animals had thickened joints and suppurative synovitis was confirmed in the laboratory. *Erysipelothrix rhusiopathiae* was isolated from joints and viscera. Attention to hygiene (use of portable yards and clean instruments when handling young animals) will reduce infection rates, but vaccination remains the most effective form of prevention for this condition.

OESTROGENIC INFERTILITY

Oestrogenic infertility was diagnosed by examination of reproductive tracts from ewes from Kojonup with a history of low conception rates. Cervical histomorphology showed mild to severe glandular change typical of that produced by phyto-oestrogens. Classical overt 'clover disease' is not seen now; it has been replaced by the more subtle version where changes to cervical glandular morphology make the cervical environment unsuitable for spermatozoal survival.

EPERYTHROZOONOSIS

Eperythrozoonosis was judged to be the cause of anaemia, weakness and respiratory signs in Merino ewe hoggets from a property near Wickepin. There was liver damage as a result of profound anaemia and peripheral blood smears were positive for *Eperythrozoon ovis*. Haemonchosis, which has been common during this period, was excluded.

MONENSIN TOXICOSIS

Monensin toxicosis was diagnosed in calves from a farm near Bunbury that died with respiratory signs after being massively overdosed with the drug (which had been inadvertently mixed at a dilution of 5:1 rather than 1:5). There was extensive necrosis in the liver and diffuse congestion and oedema in the lungs. Unfortunately the heart, which is usually affected in monensin poisoning, was not submitted for examination. It is possible that monensin at such a highly toxic dose has a direct effect on the liver. However, the lesions in liver and lung were probably secondary to severe myocardial damage, as monensin is a known myocardial toxin.

SELENIUM POISONING

Selenium poisoning was suspected in newborn calves from Kojonup after dosing with selenium to prevent deficiency. The affected animals showed lethargy and respiratory distress before death. Lesions were seen in the lungs, as expected, and the brain had symmetrical malacia similar to that seen in pigs with selenium poisoning. There was also an acute degenerative skeletal myopathy. Liver selenium concentrations were in the toxic range.

INFECTIOUS BOVINE RHINOTRACHEITIS

Infectious bovine rhinotracheitis (IBR) was suspected in Angus bulls that had recently been introduced to an Esperance farm. The bulls had penile and preputial ulcers. Cytopathic effects in cell cultures were typical of herpesvirus. Similar cases have been recorded during the same period in previous years in newly acquired young Angus bulls with balanoposthitis. These bulls were antibody negative several weeks later. This does not preclude the diagnosis of IBR, as titres to IBR virus, especially for genital infections, can decline fairly quickly.

SWAYBACK SUSPECTED

Swayback was suspected in goat kids in the Gascoyne region. Ten per cent of the flock showed posterior paresis, and lesions in the spinal cord were typical of copper deficiency.

ENDOTOXAEMIA IN AN ALPACA

A case presented at a recent Diagnostic Workshop proved to have good educational value. The alpaca was one of a large group transported to York from interstate three weeks previously. A dozen had become depressed and had signs of ill-thrift. The one submitted for necropsy, although afebrile, was in poor condition and extremely weak. On post mortem examination, there was severe muscle wastage, serous atrophy of remaining fat reserves and fluid in the pericardial, thoracic and peritoneal cavities. Both kidneys had multiple cortical haemorrhages and infarcts of one to two days duration. Renal cortical vessels and glomerular capillaries were thrombosed. The condition was consistent with a generalised Schwartzmann reaction, in which the renal cortex suffers the effects of disseminated intravascular coagulation (DIC) as a result of overwhelming endotoxaemia, usually from colisepticaemia. Malnutrition probably predisposed the animal to the condition.

PROLIFERATIVE ENTERITIS

Proliferative enteritis was seen in weaner pigs raised in paddock shelters on a property near Harvey. The piglets had watery diarrhoea (some with haemorrhage), followed by an increased mortality rate. Proliferative enteritis with haemorrhage and ulceration was seen in the small intestines. Numerous modified acid-fast organisms typical of *Lawsonia intracellularis* were present in mucosal smears, and silver-positive organisms were present in enterocytes in histological sections.

GLASSER'S DISEASE

Glasser's disease was again seen in grower pigs near Narrogin, with typical lesions of fibrinosuppurative pleuritis, peritonitis and pericarditis. *Haemophilus parasuis* was isolated from numerous organs.

CURLED TOE PARALYSIS

Curled toe paralysis (riboflavin deficiency) was seen in 13-day-old commercial chickens from Mt Barker that had difficulty standing. Ten to fifteen per cent of 15 000 had curled toes and leg weakness, and many were sitting on their hocks, unable to rise. Mild lesions were seen in the peripheral nerves. Investigations showed there had been an inadvertent omission of vitamin B supplements from the ration. Test-feeding for two days with fortified rations produced marked improvement.

ABDOMINAL ASCITES SYNDROME IN BROILERS

Abdominal ascites syndrome, also known as pulmonary hypertensive syndrome, was responsible for deaths of fast-growing broilers at Mount Barker. The largest birds were most affected, at seven weeks of age. Gross findings included massive ascites, pulmonary oedema and haemorrhage. The condition occurs in some broilers bred for rapid growth, where the somatic development outstrips the visceral development producing pulmonary hypertension and right-sided cardiac dilatation. The pathology in this condition is the same as that observed in cattle suffering from high altitude disease (mountain sickness or brisket disease).

LEISHMANIASIS IN A DOG

Leishmaniasis was diagnosed in a five-year-old miniature poodle that had been imported from Portugal with two other dogs about three years ago. The dog recently developed severe weight loss and was presented for veterinary examination. Emaciation, splenomegaly and scaly skin were found. In addition, it had pancytopaenia, hypoalbuminaemia, hyperglobulinaemia, and severe proteinuria, consistent with severe glomerulonephritis and chronic renal failure. A diagnosis of leishmaniasis was made by splenic aspirate cytology and confirmed to be *L. infantum* by molecular genotyping in Switzerland. The dog was treated with allopurinol and meglumine antimonate and is under observation.

The phlebotomine sand flies known to transmit leishmaniasis are not known to exist in Western Australia. There is thus no obvious risk to the owners or the other dogs, both of which are seronegative for leishmaniasis (the affected dog was seropositive).

The case emphasises the importance of obtaining a travel history. Leishmaniasis is known to have a very long incubation period of up to seven years in some individuals.

Quarterly Disease Statistics

Quarterly disease statistics — control activities

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 1 shows the number of accredited flocks at the end of the quarter.

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 2 shows the number of dairy herds tested free of EBL at the end of the quarter.

TUBERCULOSIS

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

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. JD occurs in NSW, Victoria, Tasmania and South Australia. Surveillance programs have not identified endemic JD in Queensland, Western Australia and Northern Territory, and active measures are taken to stamp-out any incursions. Table 4 shows the number of herds and flocks known to be infected. A National Ovine Johne's Disease Control and Evaluation Program will be completed in 2004. A new National Strategic Plan for bovine JD has recently been endorsed. 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 5.

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/jdmap).

Table 1: Ovine brucellosis accredited-free flocks at 30 September 2003

NSW	NT	QLD	SA	TAS	VIC	WA	AUS
789	0	54	479	102	625	138	2187

Table 2: Dairy herds tested free of enzootic bovine leucosis at 30 September 2003

	NSW	NT	QLD	SA	TAS	VIC	WA	AUS
Free	1247	0	1058	510	679	6549	360	10 403
Herds	1253	0	1063	510	741	6597	360	10 524

Table 3: Results of the National Granuloma Submission Program

	Granulomas submitted	TB +ve
Jul–Sep 02	1577	0
Oct–Dec 02	1373	0
Jan–Mar 03	874	0
Apr–Jun 03	1296	0
Jul–Sep 03	1742	0
NSW	56	0
NT	0	0
QLD	1,404	0
SA	80	0
TAS	4	0
VIC	70	0
WA	128	0

Table 4: Herds/flocks with JD at 30 June 2003

	Cattle	Sheep	Goats	Deer	Alpaca	Total
NSW	143	1213	9	1	0	1366
NT	0	0	0	0	0	0
QLD	0	0	0	0	0	0
SA	55	57	7	2	0	121
TAS	21	41	6	0	0	68
VIC	1129	118	8	8	2	1265
WA	0	0	0	0	0	0
AUS	1348	1429	30	11	2	2820

Table 5: Herds/flocks with a JDMAP status of at least MN1/TN1 status at 30 Jun 2003

	Cattle	Sheep	Goat	Alpaca	Total
NSW	835	315	32	59	1241
NT#	0	0	0	0	0
QLD#	0	7	0	0	7
SA	278	247	19	34	578
TAS	111	33	1	1	146
VIC	376	152	6	34	568
WA#	0	0	0	0	0
AUS	1600	754	58	128	2540

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

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 118 abortion investigations were performed during the reporting period — all with negative results for bovine brucellosis, as shown in Table 6.

Table 6: Surveillance for bovine brucellosis

	Abortion investigations		Test for other reasons	
	Tests	+ve	Tests	+ve
Jul–Sep 02	182	0	2336	0
Oct–Dec 02	69	0	3617	0
Jan–Mar 03	183	0	5205	0
Apr–Jun 03	157	0	1728	0
Jul–Sep 03	118	0	1646	0
NSW	6	0	286	0
NT	0	0	0	0
QLD	60	0	1217	0
SA	19	0	2	0
TAS	12	0	0	0
VIC	21	0	141	0
WA	0	0	0	0

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 7.

Table 7: 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
Jul–Sep 02	12945	530	21762	264	1196	273	11428	7	1142	0	432	22
Oct–Dec 02	3222	358	12223	462	1754	243	8155	4	1127	1	417	12
Jan–Mar 03	5604	505	16018	406	1681	308	2277	4	686	3	353	11
Apr–Jun 03	6239	725	7045	487	1526	421	851	0	561	8	504	11
Jul–Sep 03	2854	724	6307	445	1472	354	2662	8	745	0	376	26
NSW	348	209	1842	27	227	22	404	0	361	0	213	8
NT	721	343	1817	252	743	231	260	0	0	0	0	0
QLD	251	135	751	135	213	75	31	0	184	0	21	0
SA	188	0	264	0	1	0	717	0	8	0	2	0
TAS	364	0	364	0	19	0	479	0	0	0	0	0
VIC	76	0	107	0	85	0	167	0	192	0	82	12
WA	906	37	1162	31	184	26	604	8	0	0	58	6

Quarterly disease statistics — surveillance activities

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 8 summarises *Salmonella* isolations from animals notified to NEPSS for the quarter.

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

Table 8: Salmonella notifications, 1 April to 30 June 2003

Serovars	avian	bovine	canine	equine	feline	ovine	porcine	other	Total
S. Bovismorbificans	0	39	2	0	0	1	0	0	42
S. Dublin	0	55	2	0	0	0	0	0	57
S. Infantis	0	3	1	0	0	0	1	2	7
S. Typhimurium	0	103	4	1	0	1	1	10	120
Other	5	23	11	1	2	0	8	42	92
Total	5	223	20	2	2	2	10	54	318

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 9).

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

Table 9: Notifications of zoonotic diseases in humans

Disease	Q2-02	Q3-02	Q4-02	Q1-03	Q2-03	Current quarter							
					AUST	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Brucellosis#	11	11	5	8	4	0	0	0	3	0	0	1	0
Leptospirosis	17	25	33	46	21	0	6	0	13	0	0	0	2
Listeriosis	16	13	24	18	12	0	6	0	2	0	1	2	1
Ornithosis	97	33	27	31	69	0	34	1	1nn	0	0	33	0
Q fever	181	196	205	128	93	0	60	0	26	2	0	2	3

nn disease is not notifiable in this State

Brucella melitensis and *Brucella abortus* are exotic to Australia.

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 10 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 10: Number of animals tested under NTSESP (All were negative for TSE)

	Jul–Sep 02		Oct–Dec 02		Jan–Mar 03		Apr–Jun 03		Jul–Sep 03	
	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep
NSW	29	21	17	23	15	26	41	18	17	21
NT	10	0	6	0	1	0	6	0	4	0
QLD	43	16	71	31	38	4	46	8	48	7
SA	6	17	6	3	5	7	8	10	5	14
TAS	2	5	2	5	3	0	1	7	2	3
VIC	34	24	28	36	13	11	23	17	28	35
WA	5	28	9	36	7	35	1	15	12	27
AUS	129	111	139	134	82	83	126	75	116	107

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 11 and 12 summarise NAQS activity in Australia over the past five quarters.

Contact: David Banks, Biosecurity Australia, DAFF

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 also supports the livestock export trade by confirming the continuous or seasonal absence of *Culicoides* vectors at ports from which livestock are loaded. Table 12 shows the number of times that insect trap sites were inspected for the Port Surveillance Program — no exotic insects or mites were detected.

Contact: David Banks, Biosecurity Australia, DAFF

Table 11: Summary of recent NAQS activity in Australia

	Jul–Sep 02		Oct–Dec 02		Jan–Mar 03		Apr–Jun 03		Jul–Sep 03	
	Tested	+ve	Tested	+ve	Tested	+ve	Tested	+ve	Tested	+ve
Aujeszky's disease	179	0	197	0	53	0	235	0	34	0
Classical swine fever	179	0	197	0	53	0	235	0	34	0
Japanese encephalitis	79	0	210	0	362	17	169	0	197	0
Nipah virus	179	0	197	0	76	0	192	0	28	0
Porcine reproductive and respiratory syndrome	179	0	197	0	53	0	235	0	34	0
Surra	8	0	69	0	182	0	175	0	45	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. Sentinel pigs at Badu Island have seroconverted each wet season since then (except for 1999), and seroconversions have been detected on other central Torres Strait islands in surveys. No further seroconversions have been recorded at the mainland sentinel pig locations.

Table 12: Number of inspections of insect trap sites

	Jul–Sep 02	Oct–Dec 02	Jan–Mar 03	Apr–Jun 03	Jul–Sep 03
Port surveillance					
Asian bees	0	12	16	12	5
Bee mites	16	27	31	30	15
Culicoides	35	34	35	32	31
Screw-worm fly	35	36	36	38	31
NAQS					
Screw-worm fly	33	53	108	108	108

AUSTRALIAN MILK RESIDUE ANALYSIS SURVEY

The Australian Milk Residue Analysis (AMRA) Survey is an independent monitoring program for agricultural and veterinary residues and environmental contaminants in raw cow's milk. The AMRA Survey is coordinated by Dairy Food Safety Victoria on behalf of the Australian Dairy Authorities Standards Committee (ADASC) and the Australian dairy industry. The AMRA Survey is an integral part of the Australian dairy industry's efforts in securing access to major export markets, including the European Union. The samples taken in the Survey are from bulk milk farm pick-up tankers. Table 13 summarises the results for the quarter.

For further information contact: Kelly Long (AMRA Survey Coordinator), Dairy Food Safety Victoria, phone 03 9810 5900; fax 03 9819 4299; e-mail klong@dairysafe.vic.gov.au

Table 13: Australian Milk Residue Analysis Survey, 1 July to 30 September 2003

Each pair of figures gives the number of samples above the maximum residue limit and the number of samples tested.

	NSW		NT		QLD		SA		TAS		VIC		WA		AUS	
Aflatoxins	0	1	0	0	0	0	0	1	0	0	0	7	0	0	0	9
Antimicrobials	0	15	0	0	0	5	0	4	0	6	0	60	0	4	0	94
Benzimidazoles	0	0	0	0	0	1	0	1	0	0	0	4	0	0	0	6
Levamisole	0	0	0	0	0	1	0	1	0	0	0	4	0	0	0	6
Macrocyclic Lactones	0	1	0	0	0	0	0	0	0	0	0	4	0	1	0	6
Organochlorines	0	2	0	0	0	0	0	1	0	1	0	6	0	1	0	11
Organophosphates	0	2	0	0	0	0	0	1	0	1	0	6	0	1	0	11
PCBs	0	2	0	0	0	0	0	1	0	1	0	6	0	1	0	11
Synthetic pyrethroids	0	2	0	0	0	0	0	1	0	1	0	6	0	1	0	11
Triclabendazole	0	15	0	0	0	5	0	4	0	6	0	60	0	4	0	94

NATIONAL RESIDUE SURVEY

Of 2965 samples tested during the quarter for agricultural and veterinary chemicals, there were one antimicrobial, three hormone residues, and five metal detections above action levels. The results are summarised in Table 14.

The one antimicrobial residue was a sulphadimidine (sulphamethazine) detection in a pig kidney of 0.16 mg/kg, which exceeded the maximum residue limit (MRL) of 0.1 mg/kg. Traceback investigation has been initiated, but a report is not yet available.

Detections of 17-alpha 19-nortestosterone were found in urine samples of two sheep and one horse. All residues detected were consistent with natural levels of these hormones in the respective species, and no traceback was requested.

One beef liver sample was found to contain a lead residue of 0.6 mg/kg (MRL 0.5 mg/kg). Two lead residues of 0.75 mg/kg and 0.94 mg/kg (MRL of 0.5 mg/kg) were detected in sheep livers. All lead residues were below the common residue action level (RAL) of 1.0 mg/kg, and traceback investigations were not initiated for these detections. Two lead residues of 0.76 mg/kg and 0.83 mg/kg were detected in game pig samples. The lead RAL of 1.0 mg/kg for domestic pig meat offal was used for these samples. As the residues were below this RAL, no traceback investigation was requested.

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

Contributed by: Daryl Crapp, National Residue Survey, DAFF

Table 14: National Residue Survey, 1 July to 30 September 2003
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	61	0	1	0	72	0	7	0	2	0	29	0	11	0	183
pigs	0	5	0	0	0	6	0	4	0	0	0	9	0	2	0	26
sheep	0	36	0	0	0	6	0	15	0	5	0	15	0	17	0	94
other	0	14	0	0	0	5	0	1	0	0	0	3	0	3	0	26
Total	0	116	0	1	0	89	0	27	0	7	0	56	0	33	0	329
Antimicrobials																
cattle	0	114	0	2	0	92	0	26	0	8	0	115	0	19	0	376
pigs	0	32	0	1	0	34	0	23	0	0	1	18	0	18	1	126
sheep	0	81	0	0	0	6	0	54	0	3	0	50	0	42	0	236
other	0	12	0	0	0	10	0	4	0	0	0	6	0	1	0	33
Total	0	239	0	3	0	142	0	107	0	11	1	189	0	80	1	771
Growth promotants																
cattle	0	110	0	0	0	172	0	17	0	5	0	23	0	15	0	342
pigs	0	20	0	0	0	9	0	6	0	0	0	6	0	6	0	47
sheep	0	86	0	0	0	4	1	34	0	1	0	28	1	42	2	195
other	0	10	0	0	1	10	0	3	0	0	0	2	0	1	1	26
Total	0	226	0	0	1	195	1	60	0	6	0	59	1	64	3	610
Insecticides																
cattle	0	153	0	8	0	150	0	14	0	6	0	90	0	11	0	432
pigs	0	7	0	0	0	7	0	2	0	0	0	5	0	3	0	24
sheep	0	75	0	0	0	3	0	40	0	2	0	33	0	43	0	196
other	0	40	0	4	0	22	0	14	0	0	0	5	0	3	0	88
Total	0	275	0	12	0	182	0	70	0	8	0	133	0	60	0	740
Metals																
cattle	1	29	0	1	0	29	0	6	0	1	0	19	0	4	1	89
pigs	0	6	0	1	0	6	0	3	0	0	0	3	0	6	0	25
sheep	1	17	0	0	0	2	1	10	0	0	0	11	0	13	2	53
other	0	20	1	3	1	13	0	4	0	0	0	2	0	1	2	43
Total	2	72	1	5	1	50	1	23	0	1	0	35	0	24	5	210
Miscellaneous																
cattle	0	51	0	3	0	70	0	9	0	8	0	22	0	7	0	170
pigs	0	11	0	0	0	12	0	6	0	0	0	14	0	7	0	50
sheep	0	18	0	0	0	3	0	12	0	0	0	12	0	15	0	60
other	0	14	0	2	0	9	0	0	0	0	0	0	0	0	0	25
Total	0	94	0	5	0	94	0	27	0	8	0	48	0	29	0	305

SUSPECT EXOTIC OR EMERGENCY DISEASE INVESTIGATIONS

There were 25 investigations of diseases suspected to be either exotic or a possible emergency reported during the quarter, as shown in Table 15. More details about some of these investigations can be found in State and Territory reports.

Table 15: Exotic or other emergency disease investigations reported from 1 July to 30 September 2003

DISEASE	SPECIES	STATE	MONTH	RESPONSE	FINDING
Anthrax	bovine	VIC	Aug	1	negative; four investigations
Anthrax	bovine	VIC	Aug	2	negative
Anthrax	bovine	VIC	Aug	5	negative; two investigations
Anthrax	bovine	VIC	Sep	1	negative; three investigations
Anthrax	bovine	VIC	Sep	2	negative; two investigations
Anthrax	ovine	VIC	Sep	1	intestinal accident
Foot-and-mouth disease	ovine	NSW	Jul	3	suspect caustic burns
Foot-and-mouth disease	caprine	TAS	Sep	2	staphylococcal impetigo
Foot-and-mouth disease	ovine	VIC	Aug	1	pregnancy toxaemia
Leishmaniasis	canine	WA	Jul	3	smear positive for leishmaniasis
Newcastle disease	avian	VIC	Aug	2	respiratory infection
Screw-worm fly	avian	NT	Sep	2	negative, third instar larvae of *Lucilia* spp.
Screw-worm fly	equine	QLD	Aug	2	*Lucilia cuprina*
Screw-worm fly	feline	QLD	Aug	2	Lucilia cuprina and *Chrysomya megacephla*
Sheep pox and goat pox	ovine	WA	Jul	3	negative
Sheep pox and goat pox	ovine	WA	Sep	3	negative
Vesicular stomatitis	equine	VIC	Oct	1	chemical irritant

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

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.

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
Chris **Baldock**	National NAHIS Coordinator	07 3255 1712	07 3844 5501	chris@ausvet.com.au
David **Banks**	Northern Australia Quarantine Strategy	02 6272 5444	02 6272 3399	david.banks@daff.gov.au
Chris **Bunn**	Emergency Disease Preparedness, AFFA	02 6272 5540	02 6272 3372	chris.bunn@daff.gov.au
John **Elliott**	Tas. State Coordinator	03 6336 5334	03 6336 5374	john.elliott@dpiwe.tas.gov.au
Jenny **Hutchison**	Australian Government NAHIS Coordinator	02 6272 4719	02 6272 3150	jenny.hutchison@daff.gov.au
Tristan **Jubb**	Vic. State Coordinator	03 5430 4545	03 5430 4520	tristan.jubb@dpi.vic.gov.au
David **Kennedy**	Johne's Disease Coordinator	02 6365 6016	02 6365 6088	david@ausvet.com.au
Diane **Lightfoot**	National Enteric Pathogen Surveillance Scheme	03 9344 5701	03 9344 7833	d.lightfoot@ microbiology.unimelb.edu.au
Kelly **Long**	Australian Milk Residue Analysis Survey	03 9810 5900	03 9819 4299	klong@dairysafe.vic.gov.au
Angela **Merianos**	Communicable Diseases Intelligence	02 6289 1555	02 6289 7791	www.health.gov.au
Peter **Miller**	National Residue Survey	02 6272 3762	02 6272 4023	peter.miller@daff.gov.au
Barbara **Moloney**	NSW State Coordinator	02 6391 3687	02 6361 9976	barbara.moloney@ agric.nsw.gov.au
Richard **Norris**	WA State Coordinator	08 9368 3637	08 9367 6248	rnorris@agric.wa.gov.au
Diana **Pinch**	NT Coordinator	08 8999 2354	08 8999 2024	diana.pinch@.nt.gov.au
David **Pitt**	Qld State Coordinator	07 4722 2694	074778 4307	david.pitt@dpi.qld.gov.au
Neville **Spencer**	National Granuloma Submission Program	02 6271 6650	02 6272 5442	neville.spencer@aqis.gov.au
John **Weaver**	SA State Coordinator	08 8207 7925	08 8207 7852	weaver.john2@saugov.sa.gov.au
Simon **Winter**	Animal Health Australia Program Manager	02 6203 3988	02 6232 5511	simon.winter@aahc.com.au
Rupert **Woods**	Australian Wildlife Health Network	02 9978 4749	02 9978 4516	rwoods@zoo.nsw.gov.au

AnimalHealth Surveillance

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