

ANIMAL HEALTH SURVEILLANCE

Information contributed by staff of the Livestock Health and Pest Authorities and Industry & Investment NSW

Australia's first case of swine flu

Industry and Investment (I&I) NSW diagnosed the first case of swine influenza in pigs in Australia on 31 July 2009. Laboratories at both Elizabeth Macarthur Agricultural Institute (EMAI) and the Australian Animal Health Laboratory confirmed the case, which was caused by the pandemic H1N1 2009 influenza strain, as shown by positive PCR/gene sequencing results on nasal swabs and by the detection of influenza-specific circulating antibodies in affected pigs.



The first Australian pigs to get swine influenza.
Photo: T Harvey Holyoake

The affected herd consisted of 280 sows and their progeny, located on one site. This was a 'closed' herd and had not received live animals for over 18 months. The owner sold pigs to two domestic abattoirs. No other commercial piggery operations were within a 10-km radius of the farm.

The first signs were reduced feed intake and lethargy in individually housed pregnant sows and a dry cough in pigs of most age groups. Before the outbreak, the herd had been free from major endemic respiratory pathogens,

including *Mycoplasma hyopneumoniae* and *Actinobacillus pleuropneumoniae*, so the coughing was deemed to be unusual. The piggery workers had been on sick leave due to flu-like symptoms, and the owners subsequently became ill with the same symptoms. The piggery owners reported suspicious clinical signs to their consultant veterinarian, who notified I&I NSW because of the possible connection between human influenza and the illness in the pigs.

The I&I NSW Veterinary Specialist, Pig Diseases, inspected the property and found that approximately 5% of weaner and finisher pigs had a dry cough. The breeding herd appeared clinically normal, and only three grower pigs (10 to 16 weeks of age) were observed to be coughing. There was no evidence of fever, lethargy or inappetance in the pigs inspected during this visit. Coughing declined significantly in the 2 weeks after the initial visit to the property.

Once the diagnosis of influenza had been confirmed, the property was quarantined. Space was available to hold pigs normally sent off for slaughter. Following a 3-week standstill and veterinary clearance, clinically healthy pigs were released for slaughter at the two domestic abattoirs. Discussions between the owners, processors, buyers and Australian Pork Ltd facilitated normal processing. The farm was released from quarantine 22 days after coughing had last been observed in the pigs.

Cases similar to this one were subsequently reported near Shepparton in Victoria and near Dalby in Queensland. In each case, clinical signs were mild, with a consistent feature being reduced appetite in breeding animals. Overseas, cases of H1N1 2009 have been diagnosed

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in pigs in Canada, Argentina, Indonesia and Northern Ireland. In all cases, the disease has been reported to have only a minor impact on pig health. In most cases, there has been some evidence of human-to-pig transmission. More cases are expected as the pandemic H1N1 09 spreads through the human population, but the numbers will hopefully decline with the introduction of a vaccine for humans.

Influenza in pigs is a notifiable disease in Australia. The national control strategy is currently based on containment of infection in the piggery. Clinically healthy pigs may be processed by agreement with the processing plants after 7 days of being clinically free from disease. Studies are currently under way on the property to further understand the epidemiology of the disease in this piggery, and these studies will guide future management strategies for this virus.

For further information, contact Trish Harvey Holyoake, Technical Specialist – Pigs, I&I NSW, on (02) 6938 1993.

SHOWCASE

THE CENTRAL NORTH LIVESTOCK HEALTH AND PEST AUTHORITY

Tamworth, Gunnedah, Coonabarabran, Mudgee and Merriwa all lie within the Central North Livestock Health and Pest Authority (LHPA). It contains over 12 000 holdings (10 ha and above). Livestock enterprises include beef cattle, dairy cattle, sheep, horse studs, pigs and poultry.

The LHPA employs three District Veterinarians across the region to investigate significant flock and herd disease outbreaks, thus linking the region to State and national animal disease surveillance programs. The staff work with colleagues in I&I NSW to exclude emergency diseases, investigate and control (where necessary) notifiable diseases, and establish disease information management systems. Knowing the diseases that are present and what is causing any stock mortalities in the region allows LHPA staff to report on typical disease incidents that they see (*see examples below*) and on the disease status of the region, and to provide health certificates. This enables trade and access to markets according to international and national rules.

LHPA staff work with the regional I&I NSW veterinary officer, laboratory pathologists, livestock officers, agronomists, and approximately 37 private veterinary practitioners to make a formidable regional animal health system. The region has eradicated bovine brucellosis, tuberculosis and various emergency outbreaks of diseases, including avian influenza, Newcastle disease and equine influenza. It has minimised chemical residue problems from organochlorine chemicals such as dieldrin that have been long since banned on livestock but persist in the environment. It has significantly reduced or eliminated risks from pesticide use in cotton crops; if these risks had not been controlled they would have placed the cattle industry at risk. Current successful control programs aim to minimise the impact of enzootic bovine leucosis in dairy cattle, footrot in sheep and Johne's disease in cattle and sheep.

Management of Hendra virus traceforward

An outbreak of Hendra virus at Cawarral in Queensland tragically caused the death of a veterinarian and a number of horses. Around the time of the outbreak, an apparently healthy horse was transported from the Cawarral property to a property in the Tamworth region. Not all Hendra virus horses die, but the recovered ones can carry the virus and present a horse disease and public health risk. The questions were, 'Had this horse been infected and then recovered?' and 'How should it be managed safely?'

Working with I&I NSW, the Central North LHPA Senior District Veterinarian managed the case, including testing of the horse while using proper personal protective equipment. Whole blood was collected for serology and blood in heparin was collected for PCR testing (the white blood cells being the target sample). Nasal swabbing poses a risk to the vet's health unless the horse is already deceased. The test results were negative and the restrictions on the horse were removed.

Cattle with coughing and ill thrift

Animal Health Surveillance 2009/2 reported a significant ill thrift and respiratory disease problem in a large herd of beef cattle in the Merriwa district. The ill thrift was caused by selenium deficiency, but at the time of reporting the cause of the respiratory disease was unclear.

Serum samples from clinically normal and coughing cattle were seropositive for both parainfluenza 3 (PI3) virus and bovine respiratory syncytial virus (BRSV). Eight of 10 sampled were positive to PI3 and four of 10 to BRSV in antibody ELISA tests. All 10 cattle tested negative for infectious bovine rhinotracheitis (IBR) virus. One of six calves had evidence of recent exposure to pestivirus, with an AGID (agar gel immunodiffusion) titre of 3; one had a history of past exposure at some time; and the remaining four tested were antibody negative. Pestivirus, because of immune suppression, may have played a role in this bovine respiratory disease syndrome. The cattle recovered over a period of weeks.

Listeria abortion in 400 ewes

Ten percent of ewes aborted on a property near Mudgee. The ewes had been supplementary fed for a few weeks and were not due to lamb for another week when aborted lambs were found. A number of ewes were off their feed, with visible udders but no lambs. Some had retained foetal membranes.

Post-mortem examination of an aborted foetus revealed blood-stained fluid in the subcutaneous tissues, thorax and abdomen. The liver was swollen and darker than normal, with a friable cut surface. *Listeria ivanovii* was cultured in pure growth from the liver, lungs and pleural fluid.

The owners found that the ewes had been accessing mouldy hay beneath an old, disused ram shed on the leased property, and this was thought to be the source of the *Listeria*.

For further information contact the Central North LHPA, Bob McKinnon, Tamworth, on (02) 6762 2900 and David Gardiner, Mudgee, on (02) 6372 1866.

QUARTERLY HIGHLIGHTS

Rapid abortion test means less horse stress

EMA's virology laboratory now provides a rapid PCR test for diagnosis of abortion in mares due to equine herpesvirus-1 infection (EHV1). Test results are usually available about 24 hours after receipt of the samples.

The rapid test enables stud veterinarians to better manage pregnant mares when an aborted foetus is found. Both the foetus and dam are sources of infection for others in the paddock and for those in adjacent paddocks that have nose-to-nose contact or share water troughs. Because EHV-1 can cause abortion storms, managers think the worst first and isolate all the mares that may have been in contact with the affected mare and aborted foetus. However, this

can be very disruptive, so a rapid test result (especially a negative one) can inform best-management options.

Six cases of equine abortion due to EHV-1 were diagnosed this last quarter on three studs by using the EHV1 PCR test on foetal tissues—especially lung, liver, thymus and spleen. Three of the cases were also confirmed by histopathology performed at another laboratory, with viral inclusion bodies, pathognomonic for EHV, observed in foetal lung, liver, spleen and thymus samples.

Although studs try to manage the issue with a number of strategies (e.g. requiring vaccination for EHV-1; keeping mares in small groups without introductions; separating visiting mares from home mares), there are regular cases of EHV-1 abortion. Vaccination is not completely preventive. Movement of mares in the breeding season along with the attendant stresses can reactivate latent EHV-1 infection or infect others via contaminated transport vehicles or equipment.

For further information, contact Sarah Robinson, Regional Veterinary Officer, Wagga Wagga, on (02) 6938 1967.

Not bluetongue

Bluetongue was excluded as the cause of severe respiratory signs and death in a ram near Tullamore. Two of 13 rams had died in the preceding months, both exhibiting the same respiratory signs. Another ram, which died during examination, presented to the district veterinarian in severe respiratory distress with open-mouthed breathing, cyanotic mucous membranes and pyrexia.

At post-mortem examination, 100 mL of fibrinous pericardial fluid was found, along with haemorrhages over the right heart base, including the base of the main pulmonary artery. Haemorrhages at the main pulmonary artery are seen in bluetongue, and although clinical bluetongue disease is absent in Australia, samples were taken for laboratory examination.

Histology revealed severe diffuse smooth muscle hypertrophy in the lung. A number of mild changes were also noted in the muscle, heart, intestine and liver, but the vasculitis and necrosis expected with bluetongue



The Central North LHPA is larger than Denmark and smaller than Ireland. Map: C Ryan

were not features. Serology for bluetongue was also negative.

The lung lesion was considered a chronic process. A significant lungworm infection was proposed as the cause, although this was unlikely given the dry conditions in the area and the drenching history of the rams. Bacterial culture of the lung was negative. No toxic plants likely to cause the signs were found on paddock inspection.

For further information contact Katharine Marsh, DV Condobolin, Lachlan LHPA, on (02) 6895 2152.

Worn teeth in milk-tooth cattle

A producer at Rocky Creek (between Bingara and Narrabri) reported a widespread condition in his mob of milk-tooth heifers and steers: many animals had varying degrees of unusually worn deciduous incisor teeth. The necks of the teeth appeared to be thinning, and in some animals the teeth were worn back to the gum line.

Nutritional factors such as pasture type and quality and trace element deficiencies may have been involved in this condition, but the cause was not obvious.

Incidentally, a major problem with pestivirus infection was revealed. Ear-notch testing for pestivirus infection in six animals with the tooth condition revealed that four were persistently infected with pestivirus. To further explore a possible association with the tooth-wear problem, a further 30 affected animals were tested, but only a further four were identified as persistently infected with pestivirus.



Unusual wearing of the milk teeth in a heifer. Photo: Ted Irwin

For further information contact Ted Irwin, DV Warialda, North West LHPA, on (02) 6729 1528.

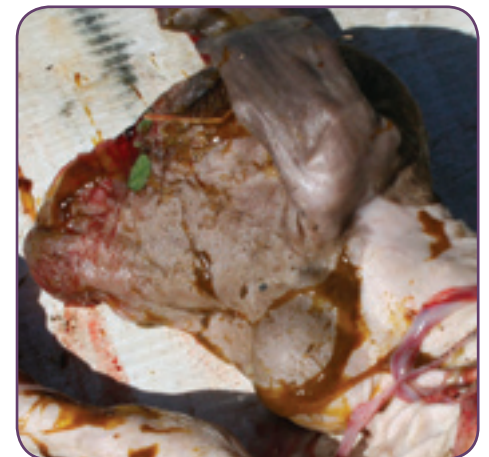
Goitre in goats

Iodine deficiency was suspected in a herd of over 800 Boer goats in the Grafton region; about 70 kids showed goitre, weakness and early death.

Affected kids were from does on a supplementary ration introduced this year. No adults showed signs of goitre.

Post-mortem examination of affected kids revealed greatly enlarged thyroid glands, which on histopathology appeared typical of iodine deficiency. Serum thyroxine (T4) levels in the does of two affected kids were 0 and 7 nmol/L (normal thyroxine levels are 40 to 100 nmol/L).

The iodine content of the supplementary feed was increased, and subsequent births were not unusual.



Enlarged thyroid gland (goitre) near the throat of a newborn goat. Photo: K Newby

For further information contact Keith Newby, DV Grafton, North Coast LHPA, on (02) 6642 3699.

Equine influenza exclusion

Horses on a property near Bingara were investigated for possible equine influenza (EI).

Two from seven stabled horses had nasal discharges and coughing. This occurred shortly after the introduction of two younger horses. The affected horses had fevers over 40.0°C, copious serous to mucopurulent nasal discharge, and frequent coughing. They were both treated with antibiotics, mucolytics, and non-steroidal anti-inflammatories, with little response, before the owner was advised by the attending private practitioner to notify the LHPA.

Notably, a horse in a stable near the affected horses was unaffected. This unaffected

horse had been imported from the northern hemisphere some years previously and would therefore probably have been vaccinated against EI.

Samples were taken by the investigating LHPA district veterinarian for equine influenza PCR testing and serology, and swabs were cultured to exclude strangles. A PCR test for EHV was also requested.

Both horses returned a positive test for EHV-4. The other laboratory results excluded EI, EHV-1, and strangles. EHV-4 is common in younger horses, but in this instance the two affected horses were 8 and 17 years old, so EI was a major differential diagnosis. Both horses recovered over a period of 3 weeks. The source of the infection is presumed to have been the introduced horses.

For further information contact Ted Irwin, DV Warialda, North West LHPA, on (02) 6729 1528.

Pregnancy toxemia in heifers

Sudden death occurred in some of a mob of 40 Hereford heifers near Walgett that were in fat condition. The heifers were heavily in calf and had recently been moved away from a paddock with good feed to one with significantly poorer quality pasture. The heifers had lost condition rapidly, and two died suddenly during mustering, exhibiting nervous signs that included muscle twitching, agitation, sudden collapse, and staggering.

Pregnancy toxemia was suspected, but other possibilities excluded were lead poisoning, flood plain staggers, billy-button toxicity, and polioencephalomalacia.

One affected heifer was examined in the crush and exhibited some muscle twitching and a high temperature and was highly agitated. The heifer was given an i.v. injection of Vitamin B1; when released from the crush she collapsed and remained recumbent for approximately 2 minutes, after which she was able to rise and walk away. This animal died 2 days later.

Necropsy revealed an enlarged liver (three times normal size) with marked yellow discoloration. A near-full-term single calf was also noted. Histopathology confirmed advanced necrosis of the liver due to fatty infiltration.



Fatty infiltration of the liver of a cow with pregnancy toxemia.
Photo: Ted Irwin

For further information contact Ted Irwin, DV Warialda, North West LHPA, on (02) 6729 1528.

Barber's pole worm in alpacas

With its prolonged wet and warm weather, the North Coast of NSW is the ideal climate for *Haemonchus contortus* (barber's pole worm) outbreaks. Alpacas in the region have been particularly affected with the parasite this season. Numerous mortalities have occurred. It has been difficult to predict some of these mortalities, as faecal egg counts have been zero or very low in a number of cases.

An alpaca on a local stud developed weight loss. Two weeks beforehand the owner had drenched it with albendazole and then re-drenched it with a product containing abamectin, oxfendazole and levamisole. Besides weight loss, an obvious 'bottle jaw' had developed and the owner had yet again drenched, this time for liver fluke with a drench containing both levamisole and oxyclozanide.

Two weeks later the alpaca was inappetent and down. A sample was submitted for a faecal egg count and the alpaca was drenched again with the same products. The result of faecal egg testing was zero eggs per gram.

Two days later the alpaca required euthanasia, and the North Coast LHPA was consulted to undertake a post mortem. The district veterinarian collected blood samples, which showed severe anaemia with a packed cell volume of 12% (normal 27% to 45%), low protein with an albumin reading of 18 g/L (normal 25 to 45 g/L), and elevated liver enzymes.

At post-mortem examination, barber's pole worms were found in the third compartment

of the stomach (C3) and the liver was noted to be abnormal. Laboratory testing found a total worm count of 1600 in the stomach. Of particular interest was that 1200 of the count was *Haemonchus* larvae. Histopathology of the liver showed hepatic necrosis consistent with a severe bacterial infection and other changes, indicating that alpaca had been trying to respond to a chronic severe anaemia.

This case highlights the danger that *Haemonchus* worms pose to alpacas in the region. It also shows the difficulties in monitoring for the disease. If an alpaca has disease from immature *Haemonchus* then there will be no or few eggs in the faeces, as the immature worms are infertile. However, these immature parasites can still inflict significant blood loss.

The alpaca in this case failed to respond to a number of drenches and also had liver disease. Alpacas are prone to liver disease, and in this case the animal, in its weakened state, would easily have been prone to being infected with infectious agents. The frequent use of drenching, including potential overdosage with levamisole, may also have placed stress on the liver.

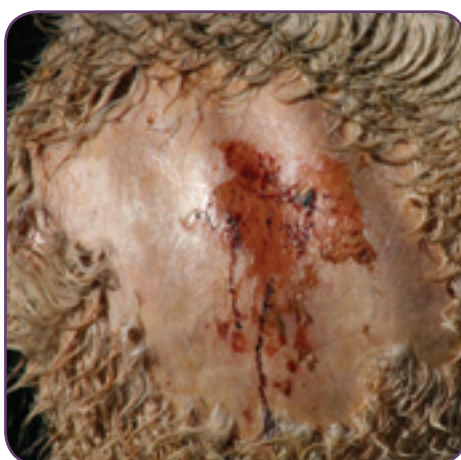
For further information contact Matt Ball, Senior DV, North Coast LHPA, on (02) 6621 2317.

Lantana poisoning

Lantana (*Lantana camara*) poisoning was diagnosed on a cattle property in the Grafton region. The owner reported 'skin falling off my cattle'. Some of the affected cattle had also become recumbent but had recovered after careful nursing.

The animal worst affected was a Belted Galloway steer, approximately 1 year old. The steer had grazed on a creek bank on which red lantana was growing abundantly following a major flood. The animal had skin lesions on both sides of its body, on the white-haired area of the 'belt'. There were no lesions visible on the pigmented areas.

Lantadene in lantana plants causes intra-hepatic cholestasis and associated liver damage. This leads to photosensitisation from the retention of phylloerythrin. Initial symptoms often include constipation and anorexia, and in 24 to 48 hours the animals may become jaundiced and photosensitive. Supportive care, shade and dosing with activated charcoal can help some animals.



Photosensitisation occurred only on the white 'belt'.
Photo: Keith Newby

For further information contact Keith Newby, DV Grafton, North Coast LHPA, on (02) 6642 3699.

***Histophilus somni* meningoencephalitis in pastured cattle**

Histophilosis killed seven weaner cattle in a mob of 170 on a commercial beef operation near Warialda. Another four became ill but recovered with treatment.

The initial six deaths occurred over an 8-day period. Carcasses were found near and in fence lines in a pattern consistent with a central nervous system condition.

One heifer was found withdrawn from the mob and seeking shade. She was frothing at the mouth and had dyspnoea. She died after a few days. On necropsy, lung changes were not major, with froth in the airways and congestion on the dependent side. The liver was moderately swollen, and there were petechial haemorrhages scattered through various organs. The brain appeared normal.

The Menangle Regional Veterinary Laboratory isolated *Histophilus somni* from lung and brain samples. Brain histology showed a severe multifocal to coalescing, suppurative and fibrinous meningoencephalitis.

Histophilus somni is rarely found as a cause of bovine respiratory disease in the North West LHPA area. In addition, this case is notable for the lack of any obvious stressors. One possibility is that the introduction of the new animals 4 weeks before the cases occurred also introduced viruses to which the home-bred weaners were susceptible, and that infection with these viruses was the precursor to the *Histophilus somni* infection.



This heifer died from *Histophilus somni* infection. Photo: S Slattery

For further information contact Libby Read, DV, North West LHPA, on (02) 6792 2533.

Anthrax case at Rankin Springs

Anthrax was confirmed as the cause of death of 17 sheep on a property near Rankin Springs in the Narrandera district. They were mostly 3-month-old lambs in a mob of 480 ewes with lambs.

The property had a past history of anthrax: it has been diagnosed in a single horse in a different paddock more than 20 years ago.

No stock movements on or off the property occurred in the 20 days before the appearance of signs, and there were no other livestock on the property. The property was placed in quarantine, the carcasses were burned, and all at-risk stock were vaccinated.

This was the first case of anthrax confirmed in NSW in 2009. The case previous to this was in October 2008, and this is the lowest number of anthrax cases ever recorded in NSW in a 12-month period.

Anthrax occurs sporadically in NSW, usually in the central 'anthrax belt', which is where this property was located.

Anthrax was excluded as the cause of sudden death on two properties in the Riverina LHPA. On one property two out of 103 crossbred cows died, and on another property two out of 48 cows died. All samples were negative for anthrax testing in the laboratory.

Transport-associated septic arthritis and pneumonia from *Arcanobacterium pyogenes*

Approximately 200 steers in store condition were transported from near Armidale to a property near Warialda, a journey of approximately 100 km. They were placed on a crop of fodder oats, and 1 week later two steers were found dead.

A third steer was found dead the next day. During a paddock examination of the mob, the district veterinarian found several steers with lameness. A swollen fetlock was seen in one steer.

Necropsy of the dead steer revealed septic arthritis of both a fetlock joint and a hip joint. There were numerous small abscesses within the lung tissue. Culture of this tissue resulted in a pure growth of *Arcanobacterium pyogenes*.

Arcanobacterium (formerly *Corynebacterium* or *Actinomyces*) *pyogenes* is ubiquitous in the environment. *Arcanobacterium pyogenes* is associated with pyogenic infections and gains access to the body through contaminated abrasions or wounds.

In this case the initial entry could have been through foot abrasions during transport. It is unclear whether the cause of death was a generalised septicaemia following bacterial entry or, more specifically, the subsequent pneumonia.

For further information contact Ted Irwin, DV Warialda, North West LHPA, on (02) 6729 1528.

Liver disease causes nervous signs

In Hume LHPA, 30 out of 600 eleven-month-old shorthorn steers and heifers died after introduction to a grazing crop. The cattle

had been grazing pastures containing heliotrope over summer and Paterson's curse during winter and spring.

Affected animals had rough coats, ill thrift and neurological signs such as depression, mania, head pressing and aimless wandering. Post-mortem findings included subcutaneous and intramuscular haemorrhages throughout the body, an enlarged heart with excess pericardial fluid, large haemorrhages over the heart and aorta, and a fibrotic liver. In one case lung pathology was also detected: the lungs were dark, haemorrhagic, and heavy and oedematous with excess pleural fluid.

Histopathology revealed severe changes in the liver, likely due to a chronic, ongoing hepatotoxicity. The lung pathology in the affected animal was described by pathologists as a significant interstitial pneumonia, which may have been of viral aetiology. Three of five typically affected animals were IBR positive. All five were pestivirus antibody negative.

For further information contact Steve Whittaker, Senior District Veterinarian, Hume LHPA on (02) 6040 4210.

Chlamydophilia infection in cattle

In Hume LHPA, sporadic bovine encephalomyelitis (SBE) was strongly suspected as the cause of neurological disease and death in three 3-month-old Hereford steers. Post-mortem examination of one animal revealed yellow peritoneal and thoracic fluid and fibrinous tags and adhesions throughout the abdominal and thoracic cavities. The animal had a titre of 32 on the complement fixation test (CFT) for chlamydia.

Further north in the Lachlan LHPA, five out of 60 ten-month old Hereford steers grazing a cereal crop developed ataxia, lethargy and fever. Two out of three had chlamydia CFT titres greater than 128 and one had a titre of 32, consistent with clinical SBE. There was a good response to treatment with oxytetracycline.

For further information contact Steve Whittaker, Senior District Veterinarian, Hume LHPA, on (02) 6040 4210.

Salmonella Dublin in dairy calves

In Hume LHPA, eight out of 40 dairy calves died over 4 to 5 weeks. The calves had had diarrhoea and increased respiratory effort for approximately 5 to 10 days before death. Affected calves did not respond to treatment with oxytetracycline or trimethoprim sulfur. Gross pathology was unremarkable. However, the histological changes in many organs were highly suggestive of septicaemic salmonellosis with paratyphoid nodule formation, thrombosis and probable disseminated intravascular coagulation. *Salmonella* Dublin was cultured from the liver, spleen and lymph nodes. Interestingly, sensitivity testing showed tetracycline and trimethoprim to be effective, although there was no clinical effect in the treated calves.

For further information contact Steve Whittaker, Senior District Veterinarian, Hume LHPA, on (02) 6040 4210.

Neonatal lamb mortality

Mortality in 2- to 3-week-old lambs was investigated in Lachlan LHPA. Out of 300 lambs, 15 had died and a further 10 were sick. Affected lambs were found down, with apparent lack of movement in the hind limbs. The condition appeared to be progressive, with neurological signs worsening until death. Post-mortem findings included moderate congestion of the lungs and the presence of oedematous material in the cervical spinal canal in one lamb; multiple 1-cm abscesses in the liver and chest cavity and adherence of the diaphragm to the liver capsule in another lamb; and multiple 2-mm white lesions in the heart muscle and pericardial sac, kidneys and lungs of a third lamb. *Erysipelothrix rhusiopathiae* was cultured from the lung tissue and *Fusobacterium necrophorum* was cultured from the liver. Bad weather and mismothering due to multiple births contributed to the high frequency of these infections, which probably entered via the navel.

For further information, contact Eliz Braddon, Senior DV, Lachlan LHPA at Young, on (02) 6382 1255.

Getting Information on Animal Diseases

This surveillance report can convey only a very limited amount of information about the occurrence and distribution of livestock diseases in New South Wales. If you would like more specific information about diseases occurring in your part of the State, contact your local Livestock Health and Pest Authorities District Veterinarian or Departmental Regional Veterinary Officer.

For Statewide information, contact I&I NSW Animal and Plant Biosecurity Branch in Orange on (02) 6391 3237 or fax (02) 6361 9976.

For more information on national disease status, check the National Animal Health Information System (NAHIS) via the internet at:
<http://www.animalhealthaustralia.com.au/status/nahis.cfm>

This is a report under the Animal Disease Surveillance Operational Plan, Project 3.1, 'Reporting for Animal Disease Status in NSW'.

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Copies of NSW Animal Health Surveillance reports are available on the internet at:
<http://www.dpi.nsw.gov.au/reader/ah-surveillance>

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (Oct 2009). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up-to-date and to check the currency of the information with the appropriate officer of Industry and Investment NSW or the user's independent adviser.

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LIVESTOCK HEALTH AND PEST AUTHORITIES

LHPA

Safeguarding Agriculture in NSW