

ANIMAL HEALTH SURVEILLANCE

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

Sporadic anthrax cases

As at December 16 there were two confirmed anthrax incidents in New South Wales during the quarter; both were in November. One occurred on a property located in the Riverina Livestock Health and Pest Authority (LHPA) district and involved the death of more than 380 (mostly lambs) from a mob of 1550 ewes and lambs. The property had a history of earthworks for new dams in the past 12 months, and storms had been reported in the 2 days before the deaths began. The large number of deaths was initially assumed to be due to pulpy kidney. Testing of samples from a recently dead animal gave inconclusive results on PCMB (p-chloromercuric benzoate) smear but was positive on PCR (polymerase chain reaction). Because of the high death rate in the lambs, a decision was made to treat them with antibiotics at the time of diagnosis. The ewes were immediately vaccinated and the lambs were vaccinated 9 days after antibiotic treatment. This strategy was thought to have halved the potential lamb losses in this case.



A sheep that died of anthrax. Photo: Gabe Morrice

A second, unrelated incident occurred at almost the same time on a property in the Lachlan district. This involved the death of 14 sheep and one steer. Two steers showing clinical signs were treated with antibiotics and followed up with vaccination 10 days later. All other at-risk stock (1900 sheep and 24 cattle) were vaccinated at diagnosis. Both cases were managed according to the NSW anthrax policy and AUSVETPLAN. Carcasses were burned, properties were placed in quarantine, and all stock movements were traced. Overall, the number of cases of anthrax in NSW in 2009 was very low: as at December 18 there had been only three confirmed and one suspected.

For further information contact Barbara Moloney, Technical Specialist, Epidemiology, I&I NSW, on (02) 6391 3687.

Lyssavirus-positive Sydney bat

A grey-headed flying fox was found partly paralysed beneath bushes in the central Sydney suburb of Leichhardt. The animal accepted food and water from a WIRES carer before it became vocal and aggressive, trying to attack the carer. The bat's condition weakened and it was euthanased. The carcass was sent to EMAI for necropsy and collection of samples for analysis at AAHL in Geelong. Lyssavirus was detected in brain and salivary gland specimens. This is the second occasion on which this dangerous zoonotic virus has been found in a flying fox in Sydney, the previous case occurring in April at Padstow.

For further information contact Diane Ryan, RVO, I&I NSW, Menangle, on (02) 4640 6378.

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Suspected Hendra virus at Campbelltown ruled out

A 10-month-old Shetland pony from Campbelltown developed neurological signs and rapid deterioration over a 24-hour period. The horse had previously travelled from Tamworth and had stayed near Luddenham (a known flying fox colony area) for 2 weeks. The pony was admitted to the University of Sydney Veterinary Clinic at Camden, where it was euthanased. Blood samples taken from the pony returned negative results to Hendra. Although almost all cases of Hendra infection in horses have so far been reported in Queensland (with one single case on the Far North Coast of NSW), flying foxes collected from the Sydney area have tested positive to the virus.

Veterinarians investigating severe respiratory, neurological or febrile diseases in horses in the Sydney region should consider Hendra as an alternative diagnosis.

For further information contact Diane Ryan, RVO, I&I NSW, Menangle, on (02) 4640 6378.

A new project: NSDIP cases

The new National Significant Disease Investigation Program (NSDIP) helps fund the investigation of difficult and significant disease outbreaks by private practitioners. Details can be found at <http://www.animalhealthaustralia.com.au/programs/adsp/sdi.cfm>

A case submitted by a practitioner from the Corryong district in NSW was approved for payment. A herd of 400 Friesian cows had a history of mid- to late-term abortions occurring at the rate of 5 to 10 per 200 cows per year. A provisional diagnosis of *Neospora* abortion was based on necrotising placentitis and positive serology from the dams, but examination of foetal material did not conclusively confirm *Neospora* as the cause (foetal brain material was not submitted). Other predisposing conditions reported were proximity to a National Park (wild dogs), and heat-wave conditions with less than ideal water access. The cost of the outbreak to the producer has been estimated at \$2,000.

A practitioner from the Mudgee district was called to investigate illness in 25 of 40 cross-breed cows; two had died previously. The animals showed dramatic weight loss over a 2-week period after being moved to a dryland lucerne paddock and were suckling 2- to 3-month-old calves; they improved following movement to a new paddock and treatment with vitamins, antibiotics and

drench. Laboratory testing showed elevated pepsinogen levels in three out of four animals tested, suggesting ostertagiosis. The case was estimated to have cost the producer more than \$1,800.

For further information contact Barbara Moloney, Technical Specialist Epidemiology, I&I NSW, on (02) 6391 3687.

Winter mortality in Sydney rock oysters

Winter mortality in Sydney rock oysters has again been reported this year from a number of NSW South Coast estuaries. However, reports continue to be received many months after the suspected disease event, by which time appropriate samples are no longer available to achieve a meaningful diagnosis. Although winter mortality has been attributed to the microcell protozoan parasite *Bonamia (Mikrocytos) roughleyi*, the disease remains poorly understood.

I&I NSW researchers have developed a structured pilot project to further investigate winter mortality during 2010. This pilot project will involve serial sampling in two estuaries with a known history of winter mortality activity: Georges River, and the Shoalhaven–Crookhaven river system. Both estuary systems have had a long history of winter mortality; during 2009 very high mortalities were reported from the Shoalhaven–Crookhaven river systems in late winter and spring.

It is hoped that this small, structured investigation of winter mortality in 2010 will provide some important fundamental data to improve our understanding of winter mortality and pave the way for continued investigation into this disease issue.

For further information contact Jeffrey Go, Veterinary officer, I&I NSW, Menangle, on (02) 4640 0903.

False-positive Johne's disease reactors in a consignment of goats for export

As required for health certification for live export, a private veterinarian tested 293 goats on a property in south-east NSW for Johne's disease (JD), *Brucella abortus* and *Brucella ovis*. Three of the 293 goats tested positive in a Parachek® ELISA kit for JD, prompting further investigation, because JD is a notifiable disease. Repeat testing found a further 11 positive results.

The District Veterinarian visited the property and found that all the goats that reacted on the JD test had been vaccinated with a 6-in-1 vaccine at marking and weaning. It is known that the cheesy gland (caseous lymphadenitis) component of the vaccine causes a cross-reaction on serological tests for JD. A third blood sample from the reactor goats was collected and sent to Menangle RVL for testing with the more accurate Institute Pourvier test. Four of the goats tested positive on this test. It was concluded that the result was a cross-reaction due to the caseous lymphadenitis vaccine. However, under the NSW goat JD policy the status of these reactors was resolved by slaughter and histopathology and tissue culture. Both tests were negative.

This incident highlighted the importance and legal obligation of sending reports of laboratory test results positive for notifiable diseases to the NSW Chief Veterinary Officer immediately. These reports are sent on to the appropriate government field veterinarian for action within 24 to 48 hours.

For further information contact Tony Morton, District Veterinarian Hume LHPA, on (02) 6923 0903.

Lead poisoning

Lead poisoning occurred in cattle on a property at Tottenham in the Lachlan LHPA. The cattle had brief access to an old battery located next to the cattle yards. Two cows died and a further 20 cows and calves may have been exposed to the lead source. The animals have been detained and the owner will decide whether to have blood samples collected to potentially allow some animals to be released from detention if they have not accessed the lead.

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

Copper deficiency in cattle on the Northern Slopes of NSW

Over the latter part of 2009, District Veterinarians in the North West LHPA district investigated a number of copper deficiency cases in cattle on the northern slopes of NSW. This area has not been previously strongly associated with copper deficiency.

In herd one, located near Terry Hie Hie, 36 mixed-aged Angus cows with calves at foot were losing condition despite feed supplementation sufficient to maintain condition. On examination, the mob was found to be showing ill thrift and ginger coat-

colour changes. A small number of individuals also presented with patches of sparse hair around the face.

Samples from eight animals were submitted to EMAI for selenium and copper levels. Five of the copper levels were below 9 µmol/L, with the remainder marginally higher. All selenium levels (by plasma glutathione peroxidase testing; GSH Px) were within normal range. The owner was advised to treat the mob with injectable copper glycinate (Coppernate®) and has reported a marked improvement 2 months after treatment. No animals had serum levels below the normal range of 7.5 to 16 µmol/L for cattle, but 9 µmol/L is a level below which responses to treatment may be seen.

In herd two, a property south-west of Bingara was investigated for significant ill-thrift in cattle. The property had received abundant summer rainfall and there was ample pasture available for normal growth and production. Sub-fertility was also a problem in this herd. The property had recently changed hands, and the cattle had been stocked mainly from the Coonamble region and the North Coast approximately 12 months earlier.

Cows with calves at foot were in condition score two, and there was reddening of the coats of the Angus breed cows. Steers and dry cows were only in moderately better condition. Samples were taken to test the levels of selenium (by GSH Px) and copper, and for the presence of liver fluke, pestivirus and vibriosis. Of 11 samples taken, 10 were low on GSH Px testing. Six animals had low copper levels (below 7.5 µmol/L), with the other five marginal for copper (7.5 to 9.0 µmol/L). There was no evidence of vibriosis or liver fluke being present in the herd. Cattle on this property have improved markedly since supplementation with both selenium and copper via long-acting injection.

On another two properties in the Delungra and Inverell areas, samples for copper levels were taken because of ill-thrift or reddening of the coat. In both herds five samples were sent to EMAI and were found to have marginal levels of copper. The levels detected are considered consistent with subclinical hypocuprosis, and the owners have been advised to treat with copper. The response to these treatments is yet to be assessed.

For further information contact Allan Baker, District Veterinarian, North West LHPA Moree, on (02) 6752 8012, or Ted Irwin, District Veterinarian, North West LHPA, Wyallda, on (02) 67291528.

Salmonella orion isolated from calves in multiple death outbreak

Salmonella orion and cryptosporidia were cultured from faeces following the death of approximately 50 calves in a mob of 150 Angus cows with calves at foot run under extensive conditions near Goodooga, NSW. The property lies within the Darling LHPA.

All calves were under 8 weeks of age; the majority of those affected were 2 to 4 weeks of age. The calves died over a 2-week period. Clinically affected calves exhibited fever, depression, dehydration and profuse white scours. Deaths occurred within a few days of onset of diarrhoea. Initially, approximately 20 calves were found dead. Thirty subsequently affected calves died despite multiple treatments with antibiotics and electrolytes. Four of the calves also received non-steroidal anti-inflammatory medication.

A necropsy was conducted on one dead calf with gross changes that included inflamed intestines and signs of agonal death. Histology was unrewarding because of autolysis.

Faecal samples were taken from two affected calves: one sample gave a positive culture for cryptosporidia, and both samples grew *Salmonella* sp. A faecal sample taken from the large intestine of the autopsied calf was also positive for *Salmonella* sp. *Salmonella orion* was typed from all three samples.

Although *S. orion* is largely unknown as a pathogenic species in cattle, the clinical course of the syndrome seen in these calves supports its involvement. It would be unusual for cryptosporidia alone to be a cause of such extreme deaths in extensive circumstances in this region. *Salmonella orion* has been isolated from the intestines of cattle at slaughter in abattoirs in Australia. A decomposing calf found in a water trough at the time of examination may have been the source of infection of other calves with *S. orion*.

For further information contact Martyn Powell, Western Namoi Veterinary Services, Wee Waa, on (02) 6795 3066, or Libby Read, District Veterinarian, North West LHPA Narrabri/Walgett, on (02)6792 2533.

Ill-thrift caused in a backyard piggery by sarcoptic mange

Disease surveillance in non-commercial enterprises is important. An outbreak of sarcoptic mange caused by the mange mite *Sarcoptes scabiei suis* occurred in four sows,

two boars and seven weaner pigs in the North West LHPA. The constant irritation, over the course of 3 months, resulted in marked weight loss with bleeding skin and crusty scab formation, particularly on the infected areas of the face and behind the ears.

The pigs had been healthy until the introduction of a pregnant sow 3 months previously. Within a few weeks all pigs were rubbing vigorously against posts, wire and troughs. The piglets, within a week after birth, were also infected.

The pigs were well fed and received a balanced mixed diet of wheat, oats, barley and faba beans (25% of each) and a proprietary vitamin and mineral additive. In addition, the piglets were given a proprietary creep feed and post-weaning pig pellets. Green feed was supplied twice weekly from fresh lawn clippings. In spite of this, all the mature pigs were depressed and losing weight. The weaners were not growing and did not exhibit normal behaviour such as playing and frolicking.

The district veterinarian suspected sarcoptic mange. The pigs were restrained and four deep skin scrapings were taken from scabby lesions behind the ears in the sows and also four from sores on the weaners. Microscopic examination of these slides at the local LHPA office confirmed the presence of mites and eggs.

The owner treated all pigs with an injectable ivermectin (Noromectin®). Recovery was spectacular, and within 1 week the pigs' behaviour had changed and they were eating vigorously. One month later it was reported they were all rapidly gaining weight, though one sow remained in anoestrus.

This outbreak, in an otherwise well managed backyard piggery, demonstrates that severe infection with external parasites can restrict productivity, resulting in ill-thrift and temporary infertility.

For further information contact Allan Baker, District Veterinarian, Moree, North West LHPA, on (02) 6752 8012.

Bluetongue excluded as cause of death in sheep with swollen heads

Of a mob of 1500 ewes near Cryon (near Walgett), 300 died with clinical signs that included incoordination, weakness and swollen heads. The sheep were grazing a mixed native pasture that had been flooded 3 months earlier. Histological and biochemical results during the initial investigation of one sick ewe by a private practitioner confirmed a moderate

hepatopathy with ketosis, hypocalcaemia and hypomagnesaemia. The ewe did not have a swollen head at the time of examination.

Further examination was undertaken by District Veterinarians with the support of I&I NSW to investigate the case and the possible involvement of bluetongue virus. The property is reasonably close to the National Arbovirus Monitoring Program Bluetongue Surveillance Zone.

At the time of examination, two ewes were moribund and two showed signs consistent with photosensitisation around the face. The two moribund ewes were autopsied. Blood samples were taken from 25 other ewes, including the two showing signs of photosensitisation.

Histology results from the autopsies revealed hepatic cellular damage consistent with pyrrolizidine alkaloid toxicity. Biochemistry results showed changes consistent with a cholangiohepatopathy in the majority of samples. One sample was inconclusive for bluetongue virus, with the remaining samples negative.

It was concluded that the cause of the swollen faces, incoordination, weakness and deaths was a primary hepatopathy with secondary photosensitisation. Pyrrolizidine alkaloid (PA) toxicity is suspected as the cause of hepatopathy, although plants causing this toxicity were not seen in the paddock at the time of investigation, nor could the owner recollect their presence. PA toxins are cumulative, and toxicity can occur many months after consumption. It is proposed in this case that long-term consumption of PA plants occurred in south-west Queensland before the ewes were purchased. It is reasonable to expect that the plentiful growth of mixed pasture that occurred after flooding also contained PA plants, thus initiating clinical signs.



Ewe exhibiting signs of photosensitisation. Photo: Libby Read

For further information contact Libby Read, District Veterinarian, Narrabri/Walgett, and Shaun Slattery, Senior District Veterinarian, North West LHPA, on (02) 6792 2533.

Biosecurity in action: *Brucella ovis* accreditation

Sheep owners that belong to the *Brucella ovis* accreditation program practise biosecurity to prevent the introduction and spread of ovine brucellosis to their flocks and to the flocks to which they sell sheep. The program is coordinated by I&I NSW, and more than 800 flocks are accredited throughout NSW (see Table 1).

Table 1. Flocks in the ovine brucellosis accreditation scheme.

District	Number of OB-accredited Flocks
ACT	1
Armidale	97
Balranald	2
Bombala	13
Bourke	1
Braidwood	3
Brewarrina	1
Casin	1
Central Tablelands	48
Cobar	5
Condobolin	21
Cooma	35
Coonabarabran	30
Coonamble	15
Dubbo	62
Forbes	35
Gloucester	5
Goulburn	29
Grafton	2
Gundagai	15
Hay	8
Hillston	1
Hume	38
Hunter	4
Maitland	4
Molong	32
Moree	3
Moss Vale	13
Mudgee-Merriwa	38
Murray	32
Narrabri	7
Narrandera	25
Northern New England	22
Northern Slopes	13
Nyngan	9
Riverina	29
South Coast	5
Tamworth	45
Wagga Wagga	39
Walgett	7
Wentworth	6
Yass	39
Young	45
TOTAL	885

For further information contact Samantha Allan, RVO, I&I NSW, Tamworth, on (02) 6763 1103.

Hypocalcaemia and ketosis in Dorper cross ewes

The decision to move a Narrabri district mob of 400 lambing and lactating Dorper cross ewes from a faba bean stubble paddock to cereal stubble during a period of wet weather resulted in approximately 12 deaths.

The ewes were all in forward store condition, and the majority of those lactating were feeding thriving twin or triplet Dorper lambs. Four days after changing paddocks, four ewes were found dead and approximately 14 were recumbent. The latter showed tremors and convulsions and were unable to rise when stimulated.

A calcium–magnesium–glucose preparation was administered subcutaneously to affected sheep. Approximately 6 ewes responded to treatment and recovered within an hour. All other affected ewes died or were euthanased within 3 hours. The mob was immediately returned to the faba bean paddock and no further ewes succumbed.

Two ewes were autopsied and samples accepted for the Transmissible Spongiform Encephalopathy (TSE) Surveillance program. One ewe autopsied carried near full-term lambs *in utero*. The second ewe was lactating, with twin lambs at foot. Both ewes were negative for TSE histopathology but were hypocalcaemic. The pregnant ewe was also ketotic.

This case highlights the high nutritional requirements of late pregnant and lactating Dorper cross breed ewes, and thus their greater susceptibility to metabolic disease. The traditional lamb enterprise in the Narrabri district is Merino ewes joined to British breeds. In comparison, Dorper cross ewes joined to Dorper rams have higher fecundity, increased lactation potential and higher lamb growth rates. The management decision to move the ewes was based on experience with Merino ewes, in which such treatment was unlikely to lead to problems.



Twin lambing and nutritional stress caused deaths in Dorper ewes. Photo: L Read

For further information contact Libby Read, District Veterinarian, Narrabri/Walgett, North West LHPA, on (02) 6792 2533.

Photosensitisation

A beef producer in Lismore district reported cows with sores on their teats kicking at their feeding calves. The cows were Brahman cross cattle with mainly darkly pigmented skin. At examination, five cows out of 130 were observed to have skin lesions on the lateral surfaces of their teats. There were no lesions on the medial surface. The lesions were assumed to be photosensitisation lesions.



Caption: Suspected photosensitisation on teats of a cow. Photo: M Ball

All five of these cattle had been born and reared outside the North Coast region. All affected cattle were from one paddock where the producer had been feeding out bales of lucerne hay. An inspection of the paddock revealed the presence of fireweed, smartweed and red cotton bush. There was no evidence of these plants having been grazed. Blood was collected for biochemistry. In one sample there was a mild increase in GLDH (glutamate dehydrogenase) (43 U/L; normal 0 to 30 U/L), indicating hepatocellular damage. Other biochemistry values were within normal limits. Because of the absence of evidence of cholestasis, hepatogenous photosensitisation was considered to be less likely than primary photosensitisation.

Plants on the North Coast that cause photosensitisation include oats, signal grass, windmill grass, barley, St John's Wort, red lantana, ryegrass, lucerne, panics, smartweeds, Sudan grass and clovers. The producer was advised to stop feeding out the lucerne, move the cattle, provide shade, monitor for grazing of the smartweed and consider the use of antihistamines. The cattle gradually improved. This case indicates the value of collecting blood for biochemistry in photosensitisation cases to distinguish between primary and secondary causes. However, even with biochemistry a diagnosis of hepatogenous photosensitisation could be missed without liver function tests.

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

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'.

Prepared by Rory Arthur, Animal and Plant Biosecurity Branch,
Industry & Investment NSW, Kite St, Orange 2800.
Phone 02 6391 3823

E-mail: rory.arthur@industry.nsw.gov.au

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

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (Dec 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 & Investment NSW or the user's independent adviser.

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