

# ANIMAL HEALTH SURVEILLANCE

Information contributed by staff of the Livestock Health and Pest Authorities and the Department of Primary Industries

## Coccidiosis in lambs: get the prevention right

Scouring and weight loss were found in lambs in the New England region. The lambs had been weaned 2 months earlier, drenched with monepantel, given a vitamin B12 injection and treated with a proprietary coccidiostat, toltrazuril, off label to prevent coccidiosis. The lambs had been mustered into a small yard and fed a grain diet for 2 hours every day. After they started scouring the grain was withdrawn, but this didn't stop the scouring, depression and lethargy in affected lambs.

An underweight and severely dehydrated lamb euthanased for post mortem examination had pale

mucous membranes and profuse watery faeces. The carcass was pale. There was increased pleural fluid in the chest and abdominal cavities. The small intestine was inflamed, with thickened walls. There were small (1–2 mm diameter) white foci in the intestinal wall and the intestinal lymph nodes appeared swollen.

Microscopic examination of the intestine at EMAI (Elizabeth Macarthur Agricultural Institute) revealed an acute, neutrophilic, multifocal, moderate enteritis associated with intracellular coccidia. Bacteriological examination was negative for *Yersinia* sp. A blood test was positive on a PCR (polymerase chain reaction) test for *Mycoplasma ovis*.

High levels of coccidia, especially in lambs, damage the intestinal



These scouring Merino lambs had been given the wrong preventive treatment for coccidiosis.  
Photo: S. Eastwood

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*Small white foci in the wall of the small intestine in coccidiosis. Photo: S. Eastwood*

lining, resulting in improper or reduced absorption of nutrients, as well as scouring and weight loss. This mob was predisposed to clinical coccidiosis by the stress of recent weaning, a change to a grain diet, daily mustering and being forced into a feedlot-style yard where they were exposed to large numbers of oocysts on the ground.

The weaners were treated with sulfadimidine and moved to a clean paddock, where they were left unstressed. Generally, lambs with coccidiosis make a spontaneous recovery within a week without any treatment, but in this case the concurrent infection with *M. ovis* prolonged the recovery. Toltrazuril should not have been used off-label for prevention of coccidiosis, as it is suitable for treatment, not prevention. Other products, based on monensin and lasalocid, are registered for prevention. Off-label use of toltrazuril for treatment is permitted only with written veterinary direction, because there are no approved limits for residues of toltrazuril in sheep meat.

**For further information contact Steve Eastwood, Senior District Veterinarian, New England Livestock Health and Pest Authority, Armidale, on (02) 6772 2366.**

### **Unusual disease in kangaroos: call for cases**

During the quarter a number of cases of unusual disease occurred in eastern grey kangaroo joeys (*Macropus giganteus*)

being raised by carers. They had lethargy, anaemia and neurological signs, including blindness. Cases occurred from north of Sydney to Port Macquarie from early February 2012 onward.

The main signs were diminished sight (no menace reflex or light reflex, but varying ability to navigate objects) and in some cases subtle ataxia. Animals also presented with sudden-onset lethargy, or anaemia or chronic ill-thrift. Illness was associated with wet weather and increased activity of insects, including ticks and mosquitoes.

Similar cases were reported in the previous 12 months in eastern grey kangaroos and red-neck wallabies (*Macropus rufogriseus banksianus*) in care on the North Coast of NSW and in South East Queensland. Presenting signs in these cases ranged from 'increased macropod mortalities' to 'acute seizures'.

There are no current recommended treatment options.

The ill-thrift and anaemia are likely to be caused by a haemoprotozoan infection. A syndrome of haemoprotozoa-associated anaemia has been recognised periodically since 1994 in eastern grey kangaroos (usually hand-reared joeys) from northern New South Wales. Investigation to identify the protozoa and better characterise this disease syndrome is ongoing and new, suspect cases from veterinarians or carers are welcomed.

**For further information contact the Australian Wildlife Health Network on [tgrillo@zoo.nsw.gov.au](mailto:tgrillo@zoo.nsw.gov.au) or [jhall@zoo.nsw.gov.au](mailto:jhall@zoo.nsw.gov.au).**

## Calicivirus in farmed rabbits

A large, well-run vertically integrated rabbit farm on the North Coast of NSW lost 1000 growers and breeders from sudden death in early 2012. The breeders were routinely vaccinated against calicivirus on an annual basis in September. At the time of the outbreak there were a large number of midges in the sheds and low numbers of house flies.

A sharp rise in mortalities started in early February in 11-week-old growing rabbits in one shed. All rabbits died suddenly and few were seen sick, despite close observation at 2-hourly intervals. The rabbits that died were all in good condition, although 10% to 20% had evidence of epistaxis.

Veterinary inspection revealed a sick rabbit that was near death and had moderately pale mucous membranes, a low temperature (32.8°C) and coarse lung sounds. It was grinding its teeth and groaning.

Post mortem examination of 39 rabbits showed that most had petechial and ecchymotic haemorrhages in the lungs but only 10% had bleeding from the nose. About 30% had changes to the liver,

including sinusoid congestion, enlarged rounded edges, raised cobblestone surfaces and petechial haemorrhage.

Laboratory examination revealed that 2 of 3 livers were positive on ELISA for rabbit calicivirus antigen. The livers from the same 2 rabbits also had random, multifocal, moderate, peracute hepatic necrosis. Lungs from all 3 rabbits had interstitial and alveolar, multifocal, moderate, acute pulmonary haemorrhage. The samples were negative for calicivirus antibody.

Vaccination of growers and insect and rodent control in the sheds were implemented, and the breeders were also given a booster vaccination. Mortalities in the vaccinated rabbits dramatically decreased from 12 days after vaccination.

Calicivirus has the potential to cause significant losses in farmed rabbits. In this outbreak the industry practice of vaccinating only breeders was not enough to prevent deaths in growers. The cause of the apparent failure of immunity from maternal colostrum is not clear. One possible explanation is an antigenic shift in the strain of the virus.

Similarly, the cause of the biosecurity breakdown in this outbreak was not clear. Calicivirus circulates in the local wild rabbit population, but the closest wild rabbits were 2 km away. Flying insects may have been vectors.

**For further information contact Phillip Kemsley, District Veterinarian, North Coast Livestock Health and Pest Authority, Casino, on 02 662 3166.**

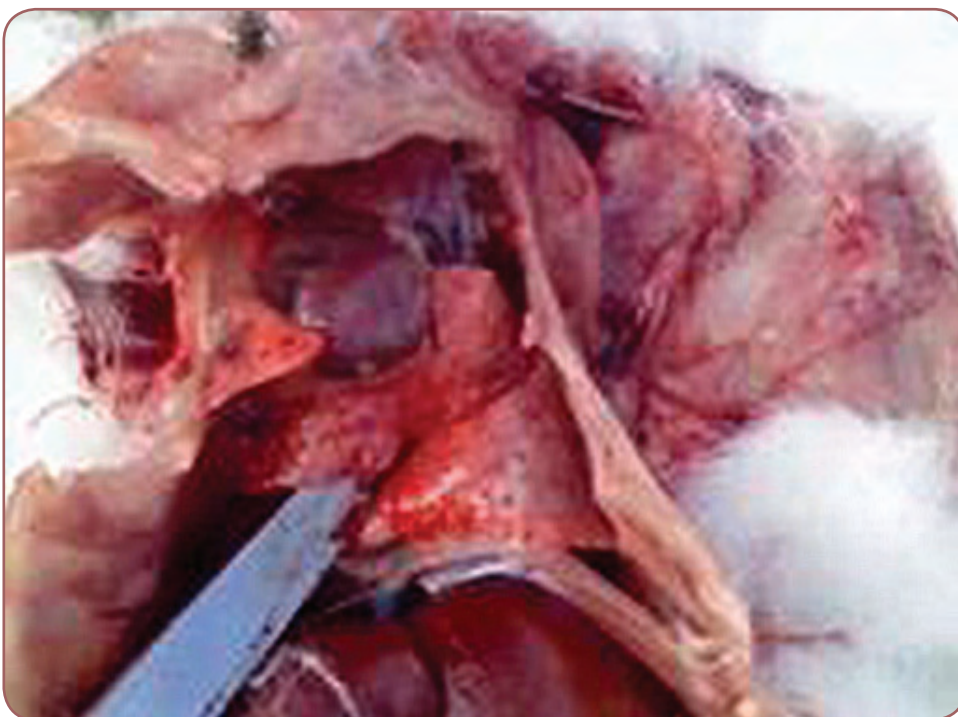
## Foot abscesses in the flooded North West

The wet weather and flooding resulted in cases of foot abscess near Walgett in the North Western area of the state during late summer and early autumn. In one case in early March 2012, 46 of 1500 ewes were affected and another mob of weaners from the same property had 22 affected.

The ewes were grazing tall, lush natural pasture that had been consistently wet from persistent rain since December the year before. The owner noticed that the ewes were lame and reported it to the LHPA, because footrot must be considered under these circumstances and is subject to an eradication program in NSW.

Most of the affected sheep had more than one foot affected, usually on the hind legs. There was swelling around the coronet and a purulent discharge from the coronary band. Hair had been rubbed from the interdigital space. Many sheep had overgrown hooves; this may have predisposed them to infection. As there was no under-running of the horn of the hoof and the interdigital inflammation was minimal, virulent footrot was excluded as a diagnosis.

Affected sheep were treated with long-acting oxytetracycline and were placed in a shearing shed to keep their feet dry. Thirty-two of the 46 ewes and 16 of the 22 weaners responded to a single dose of antibiotic, and all but 4 of the rest responded to a second dose given 4



*In calicivirus in rabbits, lung haemorrhages were the most common post-mortem finding.  
Photo: P. Kemsley*





*Surveillance transport strategy after flooding rains in the Walgett region of NSW. Photo: S. Slattery*



*Foot abscess in a sheep. Photo: T. Jericho*

days later. The unaffected mob of sheep was moved to a drier paddock.

**For further information contact Toni Jericho, Ranger, or Shaun Slattery, Senior District Veterinarian, North West Livestock Health and Pest Authority, Narrabri, on (02) 6792 2533.**

### **Bronchopneumonia in feral goats on the coast**

In early April 2012, 6 feral goats died in a mob of 30 that had been transported from western NSW to the North Coast and used for short periods for training cutting horses. The remainder had breathing difficulties and scours. They were treated by a private veterinarian with penicillin, an oral benzimidazole drench and an oral ivermectin drench. The drenching reduced the scouring in some of the goats, but deaths still occurred.

At later inspection by LHPA staff, the goats were in poor body condition and more than 30% were scouring. A recumbent goat had a rectal temperature of 35.8°C, mild respiratory difficulty, nasal discharge, black, hard faeces and pale mucous membranes. At necropsy the goat had minimal omental fat, ascites, and a well-demarcated red-grey diffuse discolouration of the cranio-ventral lung lobes, which, when cut, oozed purulent exudates. Fibrinous adhesions connected the pleural surface of the affected parts of the lung to the thoracic wall. There was a moderate number of live *Haemonchus* worms in the abomasum.

The laboratory confirmed a diagnosis of severe, subacute, suppurative bronchopneumonia.

Disease on this property was due to a combination of nutritional, parasitic and infectious causes. These goats were not suited to the North Coast environment, having originated from the drier Western

region. The nutrition available on the property was not sufficient to provide enough nutrients, especially protein. The land was overstocked, and feed was both short and of poor quality. The wet moist conditions favoured the pasture survival of *Haemonchus contortus*, which contributed to the hypoproteinaemia and anaemia. The goats were given supplementary feeding, drenched with an effective drench and treated with oxytetracycline. They recovered uneventfully.

**For further information contact Linda Dillenbeck, Veterinary Intern, Sydney University, or Matt Ball, Senior District Veterinarian, North Coast Livestock Health and Pest Authority, Lismore on (02) 6621 2317.**

### A neurological puzzle in Shorthorn calves

Our animal disease surveillance system has detected a problem, and the solution is still not clear. The problem is confined to only a few animals in one herd. It is not a major disease event and is not of national significance, although it is still important to follow it through.

Nine 3- to 9-month-old Shorthorn calves from a herd of 45 cows have been euthanased or have died from an undiagnosed progressive neurological syndrome on a North Coast property over the past 3 years. Eight cows and two bulls sourced from a single stud have produced calves between 3 and 5 months of age that present with staggers, vision abnormalities, apprehension and a slightly elevated heart rate. The calves feed and suckle normally and maintain good body condition, but their relative growth rates are less than those of their herd mates. Death occurs from misadventure or euthanasia within 4 months of the onset of signs.

The farm has pasture interspersed with rainforest, and there is a high prevalence of ticks (*Haemophysalis* bush tick and *Ixodes* paralysis tick). Three veterinarians have walked the property, but no toxic weeds have been identified. Despite the whole herd being sourced from a single stud, no cases of this neurological syndrome have been reported from the parent stud.

Laboratory findings have been unrewarding. Standard blood parameters have been normal, apart from one case in which there was a modestly elevated white cell count.

Gross pathological findings include cavernous frontal sinuses, enlarged blackberry jam spleen (possibly related to the barbiturate euthanasia) and an enlarged, flabby heart.

Histopathology of internal organs has ruled out known toxic or genetic storage diseases. The brain and spinal cord have revealed minimal abnormalities, including:

- occasional small glial nodules in the cerebral cortex
- scattered small focal haemorrhages throughout
- mild vacuolation of the optic radiation of the thalamus
- eosinophilia of the dendritic processes of Purkinje cells in the cerebellum
- occasional mild Wallerian degeneration of the lateral column of the spinal cord.

There is no evidence of storage disease, encephalomalacia or spongiform encephalopathy.

Despite the best efforts of the owner, three different veterinarians and the laboratory, the cause of the neurological syndrome affecting this Shorthorn herd remains an enigma. The probable differential diagnoses appear to include genetic or toxic factors. Hopefully the final

diagnosis will ultimately be revealed by the examination of preserved samples.

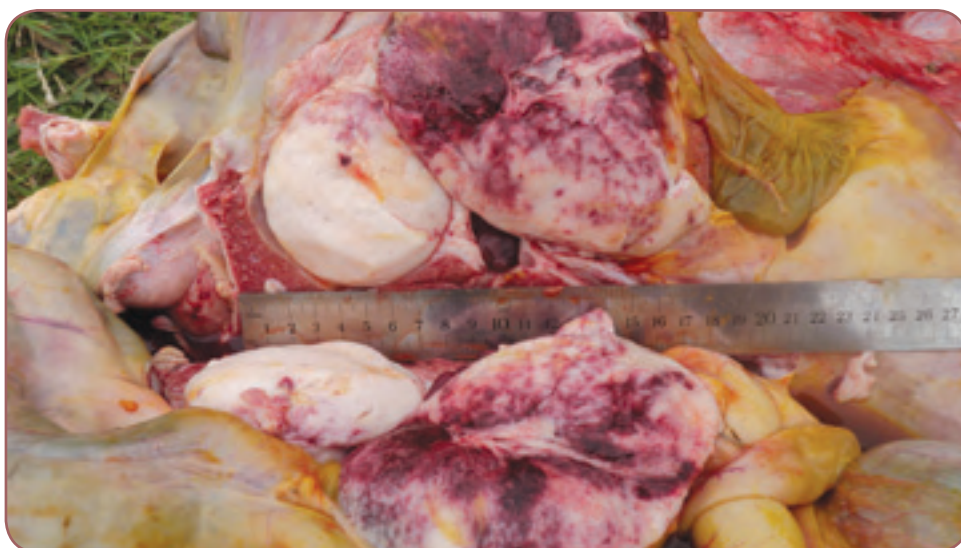
**For further information contact David Thomson, District Veterinarian, North Coast Livestock Health and Pest Authority, Grafton, on (02) 6642 3699.**

### Rare sporadic bovine leucosis in a calf

With only 1 in 100,000 cattle affected by sporadic bovine leucosis, the confirmation of a case in a 3- to 4-month-old calf from a property on the Nandewar ranges east of Narrabri was quite surprising. The calf was from a mob of 40 cows grazing lush native pasture. It presented in thin body condition with enlarged superficial lymph nodes. It had been previously treated for suspected calf diphtheria with tolfenamic acid and neomycin sulfate initially, then penicillin. However, it continued to deteriorate and died 3 weeks after the onset of clinical signs.

Post mortem findings included:

- generalised lymphadenopathy, with purplish necrotic areas on the cut surface of the nodes and petechial haemorrhages
- an enlarged thymus with petechial haemorrhages
- petechial haemorrhages in the epicardium
- an enlarged liver with a grainy appearance and cream-coloured flecks



*Sporadic bovine leucosis. All lymph nodes in the calf were greatly enlarged and some were pale or purplish. Photo: L Read*



- an enlarged spleen with a pulpy parenchyma
- purple to black caudal abdominal lymph nodes occluding the large intestine.

Histopathology of the lymphoid tissue and liver revealed juvenile multicentric lymphosarcoma, or SBL (sporadic bovine leucosis).

**For further information contact Libby Read, District Veterinarian, North West Livestock Health and Pest Authority, Narrabri, on (02) 6792 2533.**

### Cattle tick surveillance

NSW has movement controls on cattle from the tick-infested area of Queensland and surveillance programs to detect ticks when they enter NSW.

A property near Texas was found to have cattle ticks this quarter. The owner also owned properties in Queensland. In early March, at a saleyard in Queensland, Biosecurity Queensland inspectors found cattle ticks on cattle from one of the Queensland properties. They traced stock movements off the property and found that cattle had recently been moved to the property at Texas. Biosecurity Queensland staff alerted NSW cattle tick program staff, and they made arrangements to inspect the herd for cattle ticks.



*Abattoirs are good places for cattle tick surveillance. Photo: P. Freeman*

The most recent consignment that had moved to the Texas property consisted of 6 steers moved in February. These had been confined to a small management paddock since their introduction and had not mixed with the main herd of about 250 grown cattle and some calves.

While waiting for the cattle tick program staff to arrive, the stockowner noticed ticks on one of the 6 steers and removed some and kept them in a bottle. He suspected they were cattle ticks, and this was confirmed by cattle tick program inspectors when they visited the property. The other 5 steers in this consignment were free of cattle ticks when they were manually examined by the inspectors; the main herd was also free of cattle ticks on manual examination.

The exact date when the cattle ticks were introduced on to the Queensland property is uncertain. Some cattle had been moved to the Texas property from the other Queensland property on previous occasions, so it is possible that some undetected ticks could have dropped off on to pasture and may have given rise to another generation of ticks. Another complication was that most of the boundary fences at the Texas property were washed away in recent floods. Even though no ticks were found on the main herd, it was subjected to a precautionary eradication program using flouzuron and moxidectin.

There were 14 new cattle tick infestations in NSW between 1 October 2011 and 30 March this year. This was a 40% reduction in new infestations compared with the previous season. Early detection using the cattle tick surveillance system on properties, at saleyards and at abattoirs has been important in preventing spread.

**For further information contact Paul Freeman, Regional Veterinary Officer, NSW DPI Wollongbar, on (02) 6626 1214.**

### Sheep drench resistance survey in the Lachlan LHPA

Part of the role of government veterinary surveillance is to be familiar with the properties and diseases in a region. Mostly, this can be done by field veterinary investigations of major mortalities that could be caused by notifiable diseases. In this case, a targeted surveillance program

helped to promote cooperation of owners with the official field veterinary service.

Within the Lachlan LHPA there is concern that expensive anthelmintics are failing to control parasites in sheep. In a pilot study, 25% of flocks in the Young district were shown to have macrocyclic lactone (ML)-resistant strains of *Teladorsagia* (*Ostertagia*). Given the likely increase in worm challenges from increased rainfall in spring and summer 2011, a survey was initiated to determine if overuse of ML drenches had led to increased resistance of sheep worms.

Sixty-four properties are participating in a randomised trial throughout the Lachlan LHPA. On each property, 60 sheep have been placed in four groups of 15. Each group had a minimum baseline FEC (faecal egg count) of 200 eggs per gram.

Each group received one of the following drench treatments:

- No treatment (control)
- Group 1 NBL: naphthalophos–benzimidazole–levamisole combination
- Group 2 ABA: abamectin
- Group 3 ABL: abamectin–benzimidazole–levamisole combination

To date, half the properties have been tested and the data show that most producers still have good use of Group 2 and 3 drenches but there is a wide variation of efficacy among worm populations. Results show:

- *Teladorsagia* (*Ostertagia*) was the worm most likely to show resistance, with 19 out of 21 properties affected. The greatest resistance was to the NBL and ABA groups.
- *Haemonchus* spp. resistance to ABA was present on 3 of 8 properties.
- Encouragingly, *Trichostrongylus* spp., which are predominant worm pathogens in the Lachlan area, are showing less resistance to all groups, with 3 of 17 resistant to NBL treatment and 1 of 17 resistant to ABA treatment.

The final results will be published elsewhere. In the meantime the standard advice to producers is:

- Do regular faecal egg count testing before strategic drenching (e.g. pre-lambing, first summer, second summer, weaning).

- Do a larval culture at least once a year to get an idea of the species of worms that are present on the property. This information will help in recommending the best drench choices.
- Do post-drench checks, including larval culture where warranted, for each annual drench rotation.
- Prepare relatively worm-free pastures.

**For further information contact Eliz Braddon, Senior District Veterinarian, Lachlan Livestock Health and Pest Authority, Young, on (02) 6382 1255.**

### Floods bring pink eye in sheep

Approximately 100 of 900 five- or six-month old lambs on a large Merino breeding enterprise in the Lightning Ridge district were affected with infectious keratoconjunctivitis (pink eye) probably caused by *Chlamydia* sp.

The property had received significant rains over most of the summer, culminating in extensive flooding from early February and high pasture growth, which could have caused eye irritation.

The owner reported that the lambs had separated into a number of small mobs, and that a large number of lambs had behaviour consistent with blindness (running into shrubs and fences, and unable to return to the mob even if it was within sight).

The lambs were inspected by an LHPA Ranger, who took photographs of the

affected eyes for distance examination by the veterinarian.

All examined lambs had both eyes affected. Around the eye there was evidence of recent serous discharge and crusting. The conjunctiva was reddened and there was corneal opacity. The veterinarian confirmed pink eye as the diagnosis.

Management of the situation was complex. Somewhat ironically on a flood-affected property, it was apparent that the lambs whose sight was affected would have trouble finding the water troughs. The height and thickness of the pasture, along with the blindness-related behaviour, made locating and moving lambs very difficult. Bringing in temporary additional water sources was not possible because of the flooding. Antibiotic treatment by parenteral injection or topical sprays was not practical in the paddock, and the flooding prevented mustering of the lambs into the yards. Mustering could also have raised the risk of spread.

After a concerted effort, the lambs were moved out of the paddock into an open cultivation paddock watered by a dam and flooded waterways. Seven days later the owner reported that there had been no new cases, and that the affected lambs had improved markedly.

**For further information contact Emma Tighe, Ranger, and Shaun Slattery, Senior District Veterinarian, North West Livestock Health and Pest Authority, Narrabri, on (02) 6792 2533.**



*Pink eye, showing acute inflammation of the eye causing clouding of the cornea. Photo: E. Tighe*

## 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 the Department of Primary Industries 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 8, '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/newsletters/animal-health-surveillance>

### Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (April 2012). 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 Department of Primary Industries or the user's independent adviser.

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