

# ANIMAL HEALTH SURVEILLANCE

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

## What is your diagnosis?

Four of sixty cows, aged 7 or 8 years and in good condition, died in steep, hilly, basalt country some 100 km from the Queensland border in the northern New England region. This was reported to be a closed breeding herd with no trading introductions or movements.

The cause was not immediately clear, but toxic plants were suspected. The dead cattle had been found in steep gullies or among fallen timber piles. The remaining cows were treated with 5-in-1 vaccination boosters against pulpy kidney and removed from the paddock.

A further two cows became affected. On examination in the paddock one cow was very quiet, constantly circling and ataxic. It appeared blind and had a protruding tongue, with constant non-functional biting or chomping at the pasture. There was no excessive salivation. The cow was not interested in water or hay.

The second cow was febrile. It was recumbent for long enough for blood samples to be collected. This cow had heavy, laboured respiration and dry, firm faeces. She was able to rise but was ataxic and knuckling in the hindlimbs when walking. She was not observed to be circling and did not appear blind. On drive-by examination of the mob, one or two other cows appeared mildly lame or slightly tucked up; otherwise they appeared normal.

Within 12 hours the ataxic cow was dead at the bottom of a steep gully and the other cow was found moribund and was euthanased. At post-mortem examination, both carcasses showed enlarged spleens and gallbladders, with dark kidneys and livers and congested blood vessels in the brain. No urine was noted in the bladders. No jaundice was noted. Fresh and fixed samples were collected and sent to the State Veterinary Diagnostic Laboratory for testing for benign theileriosis, lead toxicity, botulism, listeriosis and anthrax.

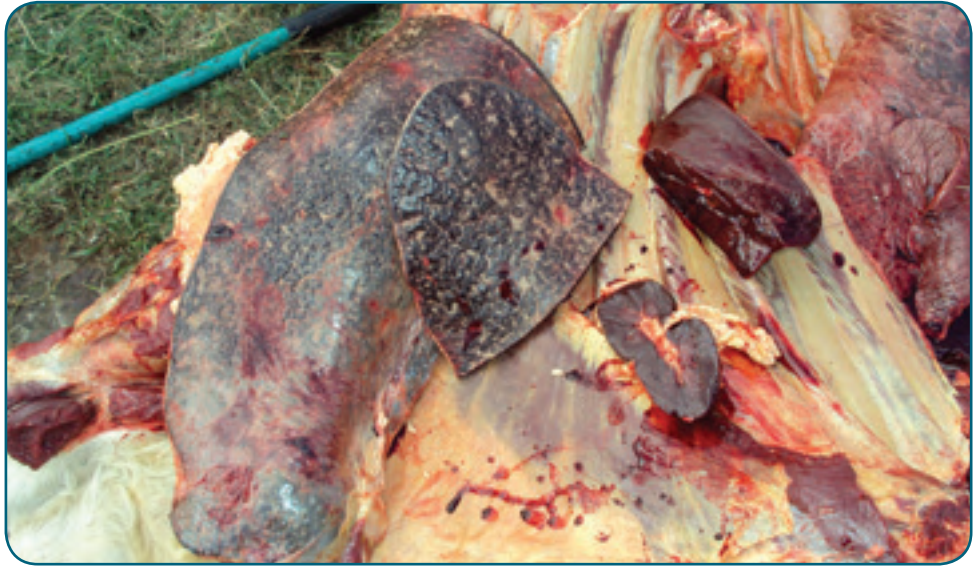
While we were awaiting the laboratory results, four additional cows were reported sick over the weekend and another examination was conducted. This time, there was evidence of anaemia and red urine. A blood smear was sent to a private laboratory. The result was reported as a regenerative anaemia with an occasional *Babesia bovis* organism. It is not unusual to find this organism in healthy cows imported into NSW from Queensland.

Further samples were taken from sick and healthy cows, and by this time the owner had observed that some cows were aborting.

No ticks were observed on any of the inspected cattle. The owner reported regular recent use of a pour-on chemical treatment for buffalo fly control. It emerged that the owner now also recalled the purchase and introduction of two bulls from Queensland 4 months earlier; these bulls had been in the same

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Above: Tick fever causes an enlarged spleen. Photo: L. Martin

paddock as the now-affected cows for a short period of time.

So far, the investigation had been frustrated by delays in laboratory examination of the samples owing to delays caused by airport and courier problems and a weekend. The collected samples were therefore driven directly to the specialist tick fever laboratory in Brisbane. Results received the same day confirmed tick fever with *Babesia bovis* infection.

Treatment of all the cows began, but losses continued for a short time.

Tick fever can be spread only by the cattle tick *Boophilus microplus* and is a Notifiable Disease in NSW. Examination by Stock Inspectors from the NSW DPI Cattle Tick Program confirmed infestation of the herd with low numbers of cattle ticks. The numbers may have been suppressed by the ongoing buffalo fly treatments.

Quarantines and an eradication program were started and the losses abated. In total, nine adult cows died and several aborted.

Quarantines and inspections of adjoining herds also began. The vector for the introduction of the *B. bovis* and cattle tick infestation was assumed to have been the two bulls from Queensland, although these had been presented for clearance examination and treatment at a Queensland clearing dip.

It was a timely reminder to producers sourcing and introducing stock from

Queensland that ticks and tick fever can be seen in non-traditional areas. Good biosecurity measures should always be practised. Any introduced stock should receive an entry treatment with a macrocyclic lactone for internal and external parasites. Where possible the stock should be isolated from other cattle on the property. The introduced stock should be monitored regularly over the next 3 weeks and after they are mixed with other stock.

**For further information contact Lisa Martin, District Veterinarian, New England Livestock Health and Pest Authority, Tenterfield, on (02) 6736 1355.**

### Testing for *Theileria*

NSW DPI will pay for testing when cattle have clinical signs suggestive of anaemia that could be due to *Theileria* infection. To be eligible, the guidelines ([http://www.dpi.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0010/395839/Biosecurity-Bulletin-CVO-to-all-veterinarians-16-June-2011.pdf](http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0010/395839/Biosecurity-Bulletin-CVO-to-all-veterinarians-16-June-2011.pdf)) should be consulted. These guidelines provide for considerable help where a farm is experiencing protracted disease. For example, testing to identify concurrent trace-element deficiencies or other infectious agents could qualify.

**For further information contact Graham Bailey, Cattle Health Coordinator, Department of Primary Industries Orange, on (02) 6391 3870.**

## Anaplasmosis at Casino

Anaplasmosis caused abortions in a stud beef herd near Casino about 2 months after a tick fever outbreak due to *Babesia bovis*.

*Anaplasma marginale* was detected in blood smears taken from a cow that aborted late term. This was the thirteenth late-term abortion or stillbirth following the babesiosis outbreak. The owner thought that this was related to the severe fevers suffered by the cows from the babesiosis.

*Babesia bovis* (classified as a piroplasm) and *A. marginale* (classified as a Rickettsia) are both blood parasites transmitted by ticks.

Both parasites were probably introduced in apparently clinically normal cattle in the same consignment as the ticky cattle. The parasites then spread to the susceptible cows on the property that were not immune to these diseases. It is not uncommon for both diseases to appear sequentially in herds like this one.

*Babesia bovis* can be passed from female ticks to their offspring (by transovarial transmission), but this does not occur with *A. marginale*. Consequently, transmission of anaplasmosis from cow to cow requires close contact between the cattle and usually involves male ticks (which can live for up to 2 months) moving from infected to susceptible cows.

Once the *Anaplasma* problem was diagnosed, the herd was placed under close observation and any cows that appeared depressed were treated with oxytetracycline. As the ticks were eradicated, the problem resolved.

**For further information contact Paul Freeman, Regional Veterinary Officer, Department of Primary Industries, Wollongbar, on (02) 6626 1214.**

## An unusual case of pestivirus

A 6-year-old Santa Gertrudis × Droughtmaster cow from a property south of Cobar, NSW, has been diagnosed with an unusual disease manifestation of pestivirus, in that she was quite old before clinical signs appeared.



*Above: Skin and hoof lesions from pestivirus infection. Photo: C. Cavanagh*

The cow was reported by the owners as 'walking like a cat on a hot tin roof', being reluctant to move and put weight on its limbs. It was in good body condition but had a reduced appetite, as well as inflammation and crusting at the level of the coronary bands on all four feet. The cow was treated with a course of penicillin, but after a further 3 weeks she was still lame and was losing weight.

On clinical examination the cow was sore-footed, with cracking and bleeding of the skin around the coronary bands. There was sloughing of skin on the nose and lips and ulcerations in the mouth. The cow was drooling and agitated and had a high fever and diarrhoea. The skin around the udder was also sloughing.

Foot-and-mouth disease was ruled out as a cause of the mouth ulcers and lameness. Mucosal disease due to persistent pestivirus infection was suspected, and this was confirmed by laboratory testing.

**For further information contact Charlotte Cavanagh, Veterinary Officer, Department of Primary Industries, Bourke, on (02) 6830 0003.**

## National reporting for 'new' neurological disease in horses

The January–March 2011 edition of *Animal Health Surveillance* reported on surveillance activities being undertaken for a 'new' neurological disease in horses in NSW,

Victoria and South Australia. Surveillance has been ongoing, with Queensland and Western Australia also reporting cases.

In an Emergency Animal Disease outbreak, the Commonwealth relies on timely and consistent data reporting from jurisdictions to develop a national perspective on the outbreak. NSW, together with other affected States, is currently trialling the use of the Biosecurity, Surveillance, Incident Response and Tracing (BioSIRT) system to meet these reporting needs.

Initial case reports in NSW are largely captured into BioSIRT from laboratory specimen advice forms submitted by private veterinarians who sample affected horses.

A workspace in BioSIRT has been designed and built in NSW for this disease investigation and is being trialled by NSW, Queensland, South Australia and Western Australia. The workspace includes surveillance information such as:

- the dates of onset of clinical signs, sampling, inspection, euthanasia and post mortem
- the total numbers of animals and the number inspected, affected, sampled and dead
- individual animal details, including clinical signs and final diagnosis
- the disease status recorded against each horse location.

The laboratory submission number and BioSIRT case numbers are entered into the corresponding databases to create a cross reference in each system.

Reports from both the databases are being used to meet national reporting objectives.

**For further information contact  
Chris McIvor, NSW Senior BioSIRT  
Administrator, Department of Primary  
Industries, Orange, on (02) 6391 3305.**

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### **Hypovitaminosis A in a backyard piggery**

Hypovitaminosis A was diagnosed in June 2011 as the cause of ill thrift in a small non-commercial piggery in the Walgett district.

The Landrace × Large White pigs were located on a large mixed-cropping beef and sheep property. A litter of eight 9-month-old home-bred pigs was presented for examination for poor growth rates. No losses were reported. The sow and boar and three pigs from a previous litter were also on the property. The previous litter had appeared healthy.

All of the examined pigs were active and non-pyrexia. They were all of similar size but were severely undergrown for their age, at 12 to 14 kg. All pigs in the litter were of poor body condition.

Some showed valgus deformity of the hindlegs, with the hock joints turned inwards. At a walk or running gait a mild hindlimb ataxia was noted.

The age of weaning was unable to be determined, as the litter was still penned with the sow. However, none of the pigs had been suckling for a considerable time. Wheat had been offered from an early age as their only other food.

Clotted blood was submitted for vitamin A analysis. The result was 0.5 µmol/L, below the normal range of 0.7 to 1.0 µmol/L.

The growth rate of the pigs improved significantly when the ration was supplemented with green feed as a source of vitamin A.

**For further information contact Derek Lunau, District Veterinarian, North West Livestock Health and Pest Authority, Moree, on (02) 6752 2533.**

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### **Undiagnosed septicaemia – not benign theileriosis**

In the Northern New England region, four of 110 mixed-sex weaners died while grazing a highly improved rye, clover, chicory and plantain pasture. They had been vaccinated against clostridial diseases and pestivirus, injected with vitamin B12 and drenched on arrival from the northern slopes. The property had a history of clinical benign theileriosis and had previously lost animals under similar circumstances following introduction.

At veterinary examination, a recumbent heifer had a heart rate of 120, shallow rapid respiration and white mucous membranes. A presumptive diagnosis of benign theileriosis was made; the animal was euthanased on welfare grounds and samples were taken for laboratory confirmation. The post-mortem examination revealed yellow subcutaneous fat and large quantities of straw-coloured fluid in the chest and abdominal cavity. The small lobes of the lung were dark red and mottled, with an interstitial pattern. Pus and adhesions were found between the lung lobes. In the abdominal cavity, masses of fibrous tissue adhered to the omentum, rumen, small and large intestines, liver and pancreas. The lumen of the intestine contained blood and the mucosal surface was haemorrhagic.

At the laboratory, although theileria were present in the blood smears, the packed cell volume was within the normal range. Histopathology of various tissue samples indicated septicaemic change widespread through the organs, including the pancreas. The pancreatitis may have accounted for the severe peritonitis, and the internal bleeding accounted for the anaemia.

The district veterinarian diagnosed an outbreak of severe acute septicaemia, probably caused by an organism such as *Pasteurella*. No further cases occurred.



Above: Haemorrhages in heart muscle. Photo: A. Biddle

**For further information contact Andrew Biddle, District Veterinarian, New England Livestock Health and Pest Authority, on (02) 6732 1200.**

### Abortion storm and pregnancy toxemia in a feedlot

In a Wagga Wagga district feedlot, 18 of 500 twin-bearing ewes aborted in a single day. Many sheep had been observed licking a large heap of old silage in the middle of the pen; this was a most unusual behaviour, because fresh silage and grain were available in their feeders.

Post mortems were conducted on the two freshest aborted lambs. Excess bloody fluid was noted in the peritoneal and pleural cavities. One lamb had congested, haemorrhagic kidneys. A range of samples were sent to the State Veterinary Diagnostic Laboratory and *Listeria ivanovii* was cultured from the stomach contents. Tetracycline-medicated feed was recommended to treat the problem.

One week later, 12 ewes started showing signs of depression, dullness and blindness, and one died with terminal paddling. Tests confirmed that they were affected by pregnancy toxemia, with three sampled ewes showing elevated beta-hydroxybutyrate (ketone) levels of 3.1 to 6.4 mmol/L (normal range, 0 to 0.9 mmol/L). Although there had been a short period of feed deprivation, the primary problem

was that the ewes had depressed appetites because of the heavy worm burdens. Faecal worm egg counts averaged 1200 eggs/g.

**For further information contact Tony Morton, District Veterinarian, Hume Livestock Health and Pest Authority, Wagga Wagga, on (02) 6923 0903.**

### Severe lupinosis – scrapie excluded

An owner was confronted with dozens of dead sheep out of a mob of 1000 two-year-old Merino ewes on a Sunday night. The sheep had been moved onto burnt lupin stubble in late April and then moved to a lush lucerne/phalaris/clover mixed pasture 1 week later. Three days later 30 sheep were dead, with numerous others wandering into fences and trees and apparently unaware of their surroundings.

A veterinary investigation revealed that at least 30 or 40 ewes were affected, with a staggering gait, apparent blindness, and a tendency to run into the fence and just head-press there. The rest of the mob appeared to be normal when quietly driven.

The clinically affected sheep showed jaundice, lethargy, circling, head-pressing and decreased awareness to stimuli. Euthanasia and examination of two of the affected animals showed severely jaundiced carcasses and bright yellow, waxy livers. Brain tissue was taken to rule out scrapie as well to determine the cause of the neuropathy.

Histopathology of the liver indicated a severe, diffuse, subacute, toxic hepatopathy consistent with phomopsin intoxication. There were spongy vacuoles in the brain consistent with hepatic encephalopathy. Tests for scrapie were negative.

In this case the appearance of disease was sudden and severe in comparison with what might otherwise be expected with lupinosis, because the addition of a highly digestible protein pasture aggravated the hepatic failure and triggered the encephalopathy.

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



Above: Head pressing from lupinosis. Photo: E. Braddon

## ***Xanthorrhoea* (grass trees) and cattle**

Four of 30 heifers died over a 2-week period in the Lismore region. They had been recently weaned onto timbered hill country at the end of a valley. The heifers were all lethargic and anorexic 1 to 4 days before death.

Post-mortem examination revealed large numbers of lineal ulcers 10 to 15 mm long in the small intestine, most in clusters of two to four. Most of the ulcers had perforated the intestinal wall and had been partially plugged by the omentum. The mesenteric lymph nodes were very enlarged and inflamed. There was a mild peritonitis. There were ecchymotic haemorrhages in the heart and petechial haemorrhages scattered throughout the body. Moderate quantities of *Xanthorrhoea* (grass tree) leaves were found in the rumen. All other feed was well digested.

The diagnosis was septicaemia due to perforating ulcers in the small intestine following physical abrasion from *Xanthorrhoea* leaves.

Ingestion of *Xanthorrhoea johnsonii* flower heads is well documented as the cause of 'thumps'; this condition is named after the sound that intoxicated cattle make during mustering when they fall over because of damage to, and necrosis of, skeletal muscle.

In this case the grass tree was *X. australis*, which is not recorded as being toxic.



Above: The spiky leaves of *Xanthorrhoea can* cause abrasion of the intestine. Photo: P. Kemsley

However, its leaves are quite long and abrasive, as many a bushwalker has discovered when attempting to hold the leaves when walking on steep slopes.

**For further information contact Phil Kemsley, District Veterinarian, North Coast Livestock Health and Pest Authority, Casino, on (02) 6662 3166.**

## **Abortions on a dairy farm – not brucellosis**

During the quarter five abortions occurred during a 2-week period in a dairy herd of 220 milkers near Lismore. These cows were all middle-aged and 5 to 7 months pregnant. They were all pregnant to different bulls by artificial insemination. The weather was very hot at the time of these abortions. The cows had been vaccinated against leptospirosis but not pestivirus.

Four out of the five cows that aborted in March and April had blood samples taken 2 to 3 weeks after the abortions. All four cows were negative for *Brucella abortus* antibody. Two were seropositive for *Neospora caninum*. Two of the other cows were seropositive for pestivirus, with one having been infected in the previous 6 to 9 months. The other two were pestivirus-antibody negative. Targeted surveillance of a sample of antibody-negative cows did not reveal any cows carrying persistent pestivirus infection.

A study of farm records showed that the annual prevalence of abortions between 2008 and 2011 was 4%; this was above the normal levels of less than 1%. It is suspected that a combination of *N. caninum* and pestivirus is causing the long-term increase in abortion rates on this dairy farm. It is likely that the two agents are acting independently of each other, although some of the literature suggests that infection of cows with pestivirus makes any pre-existing *Neospora* infections more likely to be associated with abortion.

A domestic dog on the farm had full access to paddocks on the farm, including any foetal calf material. Foxes were being increasingly seen in the area.

The producer was advised to confine the domestic dog and enter into a group baiting program for the foxes to reduce potential exposure to *Neospora* oocysts. The producer will also conduct serological testing of cows to monitor the herd's pestivirus susceptibility status. If necessary, a pestivirus vaccination program will be started.

**For further information contact Matthew Ball, Senior District Veterinarian, North Coast Livestock Health and Pest Authority, Lismore, on (02) 6621 2928.**

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### Mortality investigation in mature beef breeders

A case of suspected botulism occurred on a farm on the North Coast of New South Wales. Over a 2-day period, three Angus cows died and two were sick in a herd of 33 breeders. The two sick ones were in recumbency when examined. They were alert and not febrile, and their neck strength was poor. One was also unable to retract its tongue readily. One cow that was able to rise had hindleg weakness. Both subsequently died within 24 hours. No significant changes were found at post-mortem examination.

An ELISA test for botulism on blood, rumen content and environmental samples was negative. However, *Clostridium botulinum* was cultured from a rumen sample and from poultry-pen effluent that was pooling near the cattle camp.

The clinical findings and the spatial and temporal cluster of cases are strongly suggestive of botulism. The effluent from the poultry yard was strongly suspected as being the source. The ELISA test has low sensitivity in cattle because of the minute amounts of toxin required to produce disease.

The problems ceased when the cattle were shifted from the paddock and vaccinated.

**For further information contact Phil Kemsley, District Veterinarian, North Coast Livestock Health and Pest Authority, Casino, on (02) 6642 3699.**

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### Suspected poison peach toxicity in cattle

A cattle producer in the Casino region noted that leaves from a number of poison peach trees, *Trema tomentosum*, had been eaten. This tree is commonly seen to be eaten on the North Coast by eastern grey kangaroos (*Macropus giganteus*) without any apparent ill-effect. Given that there were substantial numbers of kangaroos on the property, it was suggested to the owner that he observe the cattle to ensure that they were not eating the plant. Seasonal conditions had been exceptionally good and the pasture on the property was abundant and lush, so it was assumed that the cattle would have no need to seek alternative feed.

The owner spent several hours watching them graze. They were seen to be actively seeking out and eating leaves from the poison peach trees.

Three weeks later, the owner reported that a cow was weak and had gone down. On examination, the cow had mild dehydration and no gut movements and was not cudding. The faeces were firm and mucus-covered; this was consistent with anorexia. The cow had mild submandibular oedema and dewlap oedema, consistent with hypoproteinaemia. The vaginal mucosa was mildly jaundiced. The temperature was normal, as were the heart and respiration rate.

All laboratory tests for liver function indicated liver damage, and a liver fluke

test was negative. The most likely cause of death was intoxication from eating poison peach leaves.

*Trema tomentosum* is an Australian native shrub to small tree that is distributed over much of NSW, excluding the Western Division and Riverina. It is found in wet sclerophyll forests and on the margins of rainforest. Among rainforest regenerators it is recognised as a pioneer rainforest species. It dies out when the rainforest matures and canopies over, so is not found in mature rainforest stands. In drier areas it grows only to shrub size, generally under tree cover. The small black fruit appears early in the tree's life in the autumn months and is carried by small birds. The plant is very fibrous, and the bark peels readily rather than breaks.

Mortalities in cattle are usually seen during dry times when feed is scarce, and in newly introduced hungry stock. In this instance the cattle were locally bred and had been on the property for several years. Seasonal conditions during the preceding months were exceptionally good, and for sandy ridge country in early winter the pasture on the property was unusually abundant and lush. The conclusion of the investigating veterinarian was that the cattle were actively seeking fibre to balance their pasture intake.

**For further information contact Phil Kemsley, District Veterinarian, North Coast Livestock Health and Pest Authority, Casino, on (02) 6642 3699.**

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Above: Poison peach leaves. Photo: A. Glassop

## 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 (August 2011). 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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