NSW GOVERNMENT

Information contributed by staff of
NSW Department of Primary Industries
and Local Land Services

NEW SOUTH WALES

ANIMAL HEALTH SURVEILLANCE

April–September 2020 » Issue 2020/2

Contents

Background to the NSW DPI-Local Land Services animal disease and pest surveillance program

The NSW DPI is obliged under the *Biosecurity Act 2015* to detect and manage notifiable animal disease outbreaks. This obligation is met by government veterinary officers being required to investigate potential notifiable disease outbreaks and unusual diseases that may be new, emerging or difficult to diagnose. They also conduct targeted surveillance projects, inspections of stock at saleyards and monitoring of compliance programs.

The desired outcome is the early detection of notifiable diseases, including exotics, and thus minimisation of negative impacts, and accurate, verifiable data on the animal disease and pest status of NSW. Reports are collated at the state level, for subsequent official reporting to the National Animal Health Information System (NAHIS), which is managed by Animal Health Australia. The NSW surveillance program is supported by Laboratory Services at Elizabeth Macarthur Agricultural Institute (EMAI) and by research staff who design and improve diagnostic tests and, working with field veterinarians, investigate the epidemiology of diseases that may have significant biosecurity impacts.

Anthrax exclusions April–September 2020

There were no cases of anthrax during the two quarters.

A total of 90 mortality investigations excluded anthrax as the cause of death. Fifty-five of these involved cattle where alternative diagnoses included bloat, malnutrition, plant toxicities (*Claviceps paspali, Avena sativa, Cestrum parqui,* sorghum spp), infections (bovine ephemeral fever, Clostridium spp, Salmonella), metabolic (hypocalcaemia, hypomagnesaemia, ketosis), pneumonia and oesophageal obstruction.

Twenty-eight investigations involved sheep where alternate diagnoses included hypocalcaemia, internal parasites, pneumonia, urea toxicity, plant toxicities (*Malva parviflora, Cheilanthes sieberi*) and Clostridial infections.

Three investigations involved pigs where *Brucella suis* was diagnosed in one of those.

An investigation involved an alpaca which was found to have been poisoned by Nerium oleander, and a horse was found to have circulatory failure. An investigation of a goat found no alternate diagnosis. A full list of alternate diagnoses can be found in Table 1.

The anthrax immunochromatographic test (ICT) was used in 76 of these investigations with negative results. The other 14 were negative for anthrax with laboratory testing alone. Of the ICT test negatives, 22 of these were confirmed negative with laboratory testing.

Figure 1: Anthrax zones in NSW.

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Table 1: Alternate diagnoses for mortality investigations where anthrax was excluded

Species	Diagnosis	ICT done		Grand Total
		Yes	No	
Cattle	Bloat	6		6
	Bloat, Clostridial infection	2		2
	Bloat, Deficiency-selenium		1	1
	Bovine ephemeral fever	1		1
	Bovine ephemeral fever, Toxicity - ergot - paspalitrem - *Claviceps paspali* - paspalum staggers	1		1
	Clostridial infection - *Cl. chauvoei*	2		2
	Clostridial infection - *Cl. novyi*		1	1
	Clostridial infection - *Cl. perfringens*	1		1
	Hepatopathy, Cardiomyopathy, Nephritis	1		1
	Hypocalcaemia		1	1
	Hypocalcaemia, Hypomagnesaemia	1		1
	Hypomagnesaemia	1		1
	Ketosis		1	1
	Malnutrition	1		1
	Malnutrition, Lactic acidosis, Toxicity - ergot - paspalitrem - *Claviceps paspali* - paspalum staggers	1		1
	Mastitis - bacteria unknown	1		1
	NSW investigation tested in Qld	1		1
	Oesophageal obstruction	1		1
	Peritonitis	1		1
	Pneumonia	1		1
	Salmonellosis	1		1
	Septicaemia; blood poisoning; bacteraemia	1		1
	Toxicity - diterpenoid glycoside - *Cestrum parqui*	1		1
	Toxicity - nitrate nitrite - *Avena sativa*	1		1
	Toxicity - nitrate nitrite - plant not identified	1		1
	Toxicity - nitrate nitrite - Sorghum spp	1		1
	(blank)	18	4	22
Pig	Brucellosis – *B. suis*		1	1
	(blank)	3		3
Sheep	Bloat		1	1
	Clostridial infection	1		1
	Clostridial infection - *Cl. perfringens*	2		2
	Hypocalcaemia		1	1
	Hypocalcaemia, Toxicity - urea	1		1
	Internal parasitism - Haemonchus		1	1
	Lactic acidosis	1		1
	Malnutrition	1		1
	Pneumonia, Internal parasitism - General, Abscess - *Trueperella pyogenes*	1		1
	Sarcocystis, sarcosporidia, sarcospoidiosis, Pneumonia, Abscess - Corynebacterium pseudotuberculosis	1		1
	Toxicity - copper	1		1
	Toxicity - Malva parviflora, Pneumonia	1		1
	Toxicity - ptaquiloside - *Cheilanthes sieberi*	1		1
	Trauma, Misadventure	1		1
	(blank)	11	2	13
Horse	Circulatory failure	1		1
Goat	(blank)	1		1
Camelid	Toxicity - cardiac glycoside - Nerium oleander	1		1
Grand Total		**76**	**14**	**90**

For further information contact Barbara Moloney, Technical Specialist Disease Surveillance, NSW DPI, Orange, on (02) 6391 3687.

Lead toxicity excluded in a case of polioencephalomalacia (PEM) in Angus weaners grazing forage brassicas

In early June 2020 the District Veterinarian, North West Local Land Services, was called to a property on the Western side of Tamworth to investigate three Angus weaners that were described by the producer as "dopey, very quiet and difficult to muster".

The affected animals were grazing a paddock of Winfred forage brassica (*Brassica napus*) in a mixed sex mob of 139 yearlings. Two of the three were mustered with difficulty as they were slow and uncoordinated when walking. The third could not be mustered and remained in the paddock. On clinical examination, the two in the yards were depressed, listless and unresponsive to touch. They were apparently blind, with an absence of menace reflex, however; palpebral and pupillary light reflexes were normal. They had normal rectal temperatures.

The animal that could not be mustered was more severe in clinical presentation (Figure 1). It was very difficult to move and was also unresponsive to human touch with absence of menace reflex.

In addition it exhibited fine muscle tremors affecting the head, champing of the jaws with frothy salivation and an intermittently protruding tongue. On examination the tongue was found to be soft and pliable.

The mob had been yard weaned one month prior and all were fully vaccinated with 7 in 1. They grazed the brassica for a period of three weeks before being moved onto an oat crop for a week. They were then placed back onto the brassica crop for a period of a week (Figure 2). There was no other forage in the paddock and hay was not provided.

Based on the history and clinical signs a presumptive diagnosis of PEM was made and the animals were treated with thiamine intramuscularly at a dose rate of 10 mg/kg (10-15mg/kg is recommended) and referred to a private practitioner for ongoing treatment. As much of the thiamine given is rapidly excreted, it is recommended that animals receive further treatment at the same dose two or three times daily for at least three days. The mortality rate can be greater than 25% even with prompt treatment and generally the prognosis is better for the least affected animals. In this case, the worst affected animal recovered within a couple of days whereas the least affected animals regained their mobility within a few days but the producer has doubts as to return to normal vision three weeks post diagnosis.

Figure 2: Winfred forage brassica plant.

Lead toxicity was excluded with blood lead < 0.1 umol/L.

PEM associated with grazing brassicas is thought to be due to sulphur toxicity. Brassicas are known to contain high levels of sulphur, particularly when stressed. The crop had been grazed twice with no rain events while the cattle were on the crop. There had been a couple of frosts in the week when clinical signs were noticed which may have contributed to the toxicity. The brassicas constituted more than 40% of the diet which is also thought to increase the risk. It was recommended that the young cattle be moved off the brassica crop as the disease is most common in well-conditioned young cattle with peak incidence at around six to 12 months old. Older cows were placed on the crop and a fence was taken down to allow access to a rough grass paddock in addition to the brassica. Hay could also be included in the diet to reduce the risk.

For more information contact Heidi Austin, District veterinarian, North West Local Land Services, Tamworth, on (02) 6764 5900.

Figure 1: Angus yearling affected by PEM.

Paspalum Staggers

With the Autumn rain and high humidity following a flush of growth of paspalum over the summer on the North Coast of NSW, there were large numbers of cattle affected by paspalum staggers in the months of April, May and June.

The district vets from the Casino, Lismore and Grafton regions were inundated withfielded multiple calls and property visits directly attributed to livestock displaying varying degrees of toxicity to the ergot.

Several investigations were also made into deaths in cattle and sheep due to misadventure, aspiration, bloat and prolonged recumbency that had resulted resulting from the condition.

Laboratory exclusion of other possible causes of these neurological signs, such as bovine ephemeral fever, Hypomagnesemia, Babesia and Polio Encephalomalacia were made.

District vets advised producers to remove cattle from affected pasture and, if possible, to top the seed heads from the paspalum with a slasher.

A discussion post was also placed on North Coast social media pages warning producers of the dangers of feeding paspalum to livestock.

DISCUSSION

Paspalum staggers is seen in cattle, and more rarely in sheep and horses grazing paspalum grass or water couch seed heads infested with fungus, or ergot, *Claviceps, paspali*.

Outbreaks usually occur in autumn when warm wet weather promotes the ergot's growth.

The ergots are initially sticky and yellow-grey in colour but become hard and black as they mature.

The affected animals have muscle tremors, head shaking, incoordination and animals can fall over when overstimulated or stressed.

Deaths are uncommon and cattle generally recover when removed from the infected pasture.

However, cattle can become cast, suffer injuries or even die from misadventure, so it is important to place affected animals in safe paddocks for close observation.

There is no effective treatment and prevention is based on effective pasture management – frequent grazing or topping of paspalum pasture will reduce the development of fungus-infected seed heads.

For further information contact Liz Bolin, District Veterinarian, North Coast Local Land Services, on 0412 303 907.

Figure 2: Normal Paspalum dilatatum seed head on left; infected with *Claviceps paspali* on right.

Figure 1: The immature yellow stage of the ergot produces a nectar-like secretion called honeydew that has been suggested to make the seed head more palatable to cattle.

Figure 3: High rainfall, humidity and day temperatures negatively impact pollination, which results in the paspalum floret remaining open for a longer period of time, making them more susceptible to infection from *Claviceps paspali*.

Acute deaths in free range pigs in NSW

In April 2020, a free-range pig producer contacted the Riverina Local Land Services to report unusual pig losses in his herd over the past five days. At the time of the call the producer had lost five pigs, aged 10-16weeks from three different paddocks. In some cases, up to 75% of the litter was lost post-weaning. The pigs showed signs of staggering gait, extreme lethargy, weakness and open mouth breathing when stressed. In most cases, affected pigs died within 10-24 hours from the onset of clinical signs. Where animals were treated with antibiotics and anti-inflammatories, deaths were sometimes delayed for 24-48 hours; but all affected pigs died despite treatment. The affected weaners had recently been introduced to ad lib feeding. There had been no deaths amongst any of the older pigs or breeding stock.

The piggery has approximately 20 sows. The pigs are housed entirely outdoors with shelters in each paddock. They are vaccinated with Eryvac and Porcine Circovirus 2 vaccine at weaning. The piggery has undergone significant improvements in management over the past 12 months. The farm uses a pig veterinary consultant for pig health management.

The Local Land Services district veterinarian conducted a property visit to examine the pigs. A live sick weaner pig on the day showed recumbency, fever (40.1°C), swollen eyelids and neck, open mouth breathing when handled and green frothy stools. A recently deceased pig was also available for sampling. The case history and clinical presentation of the pigs warranted including African Swine Fever (ASF), Classical Swine Fever (ASF) and Aujesky's Disease as differential diagnoses, along with *Escherichia coli* (*E. coli*) and pneumonia. PCV2 was also requested as the owner was concerned about its involvement in his herd as he only recently had begun vaccination. Appropriate samples were collected and sent to Elizabeth MacArthur Institute for laboratory testing.

Laboratory testing for ASF, CSF and Aujesky's disease returned negative results by Taqman Assay at the Australian Centre for Disease Preparedness (ACDP) for both the live pig and deceased pig.

Figure 1: Pigs sampled for PCV-2 – hairy, thin pigs selected +/- littermates to deceased pigs.

Figure 2: Pigs accessing the ad lib feeders in the weaner paddocks.

Lung samples from the deceased pig were positive for porcine circovirus type 2 (PCV-2) by polymerase chain reaction (PCR), and histology noted a histiocytic, neutrophilic, subacute, patchy, moderate bronchopneumonia. Haemolytic *E. coli* was isolated from the jejunum (Stx2e, AIDA, f18).

The laboratory noted that the Stx2e toxin is produced by Shiga toxin-producing *E. coli* (STEC) and associated with oedema disease. AIDA (Adhesions involved in diffuse adherence factor) and F18 (fimbria 18) are virulence factors involved with attachment of *E. coli* to the intestinal wall. AIDA may be associated with Enterotoxigenic *E. coli* (ETECs), Enteropathogenic *E. coli* (EPECs) and STECs. F18 can be associated with ETECs and STECs. All three are associated with oedema disease.

Three more weaner pigs were affected and died after the property visit.

In consultation with the pig veterinary consultant and the district veterinarian, considering the clinical signs of disease,

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the diagnosis of Oedema Disease (caused by the *E. coli*) was confirmed. However, the PCV-2 result was also of interest as this farm was being vaccinated. Porcine Circovirus type 2 (PCV-2) is known to be associated in cases of Post-weaning Multisystemic Wasting Syndrome (PMWS) which is a notifiable disease in NSW. PMWS is not currently seen in Australia despite the presence of PCV-2 in Australian pig herds. PCV Associated Disease (PCVAD) has appeared in screening tests on this farm in the past. The producer has noted the occasional clinical signs (skin lesions associated with dead weaner pigs) consistent with Porcine Dermatitis and Nephropathy Syndrome (PDNS), another PCV Associated Disease.

The district veterinarian returned to the farm to sample five ill-thrifty weaner pigs from the affected paddocks and performed post-mortems on one deceased weaner pig and two of the five particularly poor weaner pigs to investigate the impact of PCV-2 on this farm.

Two of the five pigs (1 post-mortemed pig and 1 live pig) sampled were PCR positive for active PCV-2 infection in the weaner groups. In addition, the deceased pig lung showed signs consistent with PCV-2. PCV-2 should not be detectable in tissues and blood of pigs where vaccination has been performed correctly. Upon further investigation, the farmer advised that it is possible that the batch of PCV-2 vaccine he used for these pigs may have been frozen prior to use.

In the opinion of the pig veterinary consultant, this farm was likely to have PCV-2 circulating on farm and may have contributed to the recent E. coli issues. In this case, the presence of PMWS was ruled out due to the lack of supporting post-mortem lesions. There was also no evidence to support cases of PDNS. All evidence pointed towards a vaccination failure, likely due to frozen product in this case.

This investigation was the result of a cooperative effort between the pig producer, the private veterinary consultant and the Local Land Services district veterinarian. In addition, an Australian Pork Limited surveillance program (Evidence of Absence) along with NSW Department of Primary Industries notifiable disease funding covered the cost of the testing to allow for a complete diagnosis. The benefits of this investigation include exclusion of three notifiable diseases in a NSW pig herd, proof of freedom evidence for the pork industry and a local disease management plan to restore production and improve the health of the pigs for the pig producer.

For further information contact Eliz Braddon, ASF Program Lead, NSW Department of Primary Industries, on 0428 591 107.

Aspergillosis in currawongs

In September 2020, NSW DPI received a report about dead Currawongs at Tocumwal in southern NSW. A local had noticed a Currawong open mouthed breathing and looking quite unwell. The next day it was found dead. One day later, another Currawong was found dead in a similar location on the local's property. Both were sent off to the Elizabeth Macarthur Agricultural Institute (EMAI) for notifiable disease exclusion. The local noted a recent reduction in the number of bird sightings in the area, however, had not observed other bird morbidities or mortalities.

Given the proximity to the Victorian border, where there is currently a large Avian Influenza outbreak occurring, the testing of these birds to exclude Avian Influenza was given a high priority.

Avian Influenza, Newcastle Disease and *Chlamydia psittaci* were all excluded by Polymerase Chain Reaction (PCR) testing. On gross examination, the first bird was noted to be in very poor body condition (1.5/5). Abnormalities were noted in the respiratory system, with multiple multifocal round hard white nodules (2-5mm diameter) randomly throughout both lungs and within the abdominal air sacs. Histopathology revealed fungal hyphae on a section of the lungs that were stained with Periodic acid-Schiff (PAS) stain. A fungal culture of the lung found *Aspergillus fumigatus*.

The second bird also tested negative for Avian Influenza and Newcastle disease. On gross examination the second bird presented the same as the first. In very poor body condition (1.5/5) with bilateral multifocal to coalescing, firm yellow nodules within the lungs and airsacs. Given the similar presentation of the second bird it was thought that this was likely also infected with *Aspergillus fumigatus*.

Clinical disease, known as Aspergillosis, is thought to occur either when there is either an overwhelming environmental spore load or the host is immunocompromised and unable to prevent disease. Acute aspergillosis is thought to occur more commonly in young birds leading to high morbidity and mortality. *A. fumigatus* spores are very small which makes it easier for this fungus to bypass physical barriers in the avian respiratory system.

Laboratory examination also found microfilaria within the blood vessels of the lung. Microfilaria are the juvenile stage of filarial nematodes. Filarioid infections are common in wild birds and are generally considered non-pathogenic, however they can have a negative impact on the fitness of the host birds. Therefore it was unable to be determined whether or not the filarioid infection predisposed to Aspergillosis on this occasion.

While Aspergillosis is not commonly reported in wild birds, it is known to occur.

Co-written by Linda Searle, District Veterinarian, Murray Local Land Services, Deniliquin (03) 5881 9919 and Ofir Schwarzmann, Veterinary Policy & Project Officer – Animal Biosecurity, NSW DPI, Orange (02) 6391 4612.

Foot and Mouth Disease exclusion opportunity

Two 11-month-old beef steers were reported to be "sick", in contrast with the rest of the mob of 56 steers which was performing very well. The mob was grazing an oats fodder crop free of notable weed burden, with access to supplementary cereal hay, and standard mineral lick supplements. The mob had been weaned from their mothers for three months. Two months prior to presentation all individuals in the mob were treated with a 5 in 1 clostridial vaccination, an injectable trace mineral and B12 supplement, and an injectable ivermectin drench.

On examination, the two steers were found to be lethargic and had a lower body condition than their cohort.

One steer was approximately 5% dehydrated, with normal rectal temperature. This animal had ulcerative lesions of the ventral surface of the tongue and of the gingiva of the lower dental arcade, both on the lingual and buccal sides. No lesions were seen on the dorsal surface of the tongue. The tongue was difficult to exteriorise. There was a foul odour of the mouth, fragments of purulent material and blood tinged saliva, and the animal exhibited tooth grinding.

The second steer was mildly pyrexic with a 40.2°C rectal temperature. It had watery, foul-smelling faeces. This animal also had ulcerative lesions of the ventral surface of the tongue (See Figure 1) and gingiva but without a foul smell or purulent material. There were also erosions of the nose pad (See Figure 2).

Neither of the two had lameness or lesions of the feet, nor was there any lameness evident across the mob.

The main differentials were Mucosal Disease or a necrotic stomatitis of bacterial origin such as Necrobacillosis. Exotic vesicular diseases (i.e. Foot and Mouth Disease) were included in the differential but considered of lower likelihood. Localised damage from a caustic substance was also considered possible, but the absence of lesions on the dorsal surface of the tongue was confounding.

The oral lesions were swabbed and transferred to defrosted PBGS transport media. A bacteriology swab was not collected due to the presumption of contamination by normal inhabitants of the oral cavity which could render culture results unreliable. Venous blood was collected in plain clot, EDTA and lithium heparin tubes. A tail hair sample ensuring inclusion of hair follicles, and a faecal sample, was collected from each animal.

Both steers were prescribed a parenteral antibiotic (oxytetracycline) and anti-inflammatory (tolfenamic acid) by a private practitioner. They were treated, separated from the main mob and supplied with water, shade and access to soft pasture grasses. The rest of the mob was removed from the oats crop for the duration of the investigation in case of involvement of plant or physical factors in that paddock. A verbal instruction was given not to move livestock off the property pending exclusion of notifiable diseases.

Swabs and EDTA blood were negative for Foot and Mouth Disease and Vesicular Stomatitis Virus. Both animals tested negative for BVDV persistent infection (PI test) and Mucosal

Figure 1: Ulcerative lesions on the underside of the tongue of an affected steer. Photo by L Baskind.

Figure 2: Erosions of the nosepad of an affected steer. Photo by L Baskind.

Disease was ruled out on this basis. Further investigation of the paddock found no evidence of a caustic agent. This left a presumptive diagnosis of an ulcerative stomatitis of bacterial origin.

The oral lesions were highly suggestive of the well-recognised disease caused by *Fusobacterium necrophorum*, known as Necrobacillosis. However, Necrobacillosis typically affects young calves of a few weeks old and is rare in extensive pasture systems. The aetiological agent was not further investigated in this case.

Both steers responded well to treatment and within 2 days were no longer showing signs of lethargy or anorexia.

This case presented appropriate features for exclusion of FMD. While there had been no livestock introductions to the farm in the past 4 months, personnel movement occurs and there is no decontamination point at the entry-exit to the farm. The farm boundary for several kilometres is a major highway on which livestock truck transport is common, with the closest livestock saleyard just 5km away.

For further information contact Lou Baskind, District Veterinarian, South East Local Land Services, Palerang, on 02 4842 2594.

Footrot in recently introduced sheep

The District Veterinarian at Dubbo was called to a property in the Central West Local Lands Service in July 2020 to inspect rams for ovine brucellosis as there had been a recent straying ram. When she arrived the producer had also yarded some ewes as he was concerned about lameness developing in the flock. Since the drought had broken he had introduced sheep from 3 separate sources.

On inspection of 3 ewes the feet were macerated with an inflamed interdigital space and some under running of the sole.

The producer was advised not to move any sheep and a revisit was organised a week later to perform a thorough inspection of this mob of ewes. DV Dubbo and DV Forbes inspected 100 random ewes' feet. Thirteen per cent were found to have advanced under running of the sole. The environmental condition scores were favourable for pasture and moisture as there had been greater that 50mm/month of rain for the last 4 months and excellent pasture growth during the autumn. However conditions had been unfavourable for temperature as average temperature had been below 10 degree Celsius. A field diagnosis of virulent footrot was made.

Back tracing revealed the source had been introduced in ewes purchased 1 month previously. These had crossed paths with the rams and 2 other mobs and infection was detected in all three groups. The owner has opted to undertake a destocking program instead of an inspect and cull program to eradicate the disease. In future he will have tighter on farm biosecurity when purchasing sheep to minimise the risk of spreading footrot.

For more information contact Belinda Edmonstone, District veterinarian, Central West Local Land Services, Forbes, on 02 6850 1600 or Sarah Maher, District veterinarian, Central West Local Land Services, Dubbo 02 6841 6500.

Figure 2: Score 4 lesions. Sole completely underrun and beginning to involve the hard horn.

Figure 1: Sole is underrun from the heal.

Chronic Mucosal Disease in a Yearling Steer

In July 2020, a lame 15-month-old Hereford steer with severe interdigital lesions that were unresponsive to antibiotic therapy was referred to the District Veterinarian, North West Local Land Services, Tamworth, by the treating private practitioner. The steer was lame in all legs and walking on tip toes with swelling in all legs extending distally from the fetlocks. On closer inspection of the feet, severe erosive lesions of the interdigital cleft were found. Crusty lesions affected the nares (Figure 1). There was no fever, no diarrhea, no drooling and the eyes were clear.

The animal was in light body condition despite an abundance of paddock feed and was described by the producer at a "poor doer" since birth. It was home bred; the dam had been sold due to drought conditions. The cow herd had not been vaccinated against pestivirus. Nineteen other cattle remaining on the property were unaffected.

At autopsy the extent of the foot lesions became apparent. The bulbs of the heels were affected by deep fissures (Figure 2) and there was severe erosion of the interdigital cleft on all feet (Figure 3). Mild crusting was found along the coronary band but was not apparent in all feet.

The result of a Pestivirus Antigen Capture ELISA was positive. Foot and Mouth Disease and Vesicular Stomatitis were excluded in this case.

Of 2 types of pestivirus, or Bovine viral diarrhea virus (BVDV), Type 1 is common in the Australian cattle herd with an estimated herd prevalence of 89%. Non-cytopathic and cytopathic biotypes of BVDV have been isolated. The non-cytopathic biotype is generally responsible for transient infections in naïve cattle, which causes disease when naïve animals are infected during pregnancy. A range of reproductive losses can occur, depending on the time of gestation that the dam is exposed. Foetuses that survive viral exposure prior to development of a competent immune system at around 125 days of gestation develop immunotolerance to the virus and become persistently infected (PI) with BVDV. PI calves are also born to PI dams, although this occurs less commonly. These animals

Figure 1: Erosive lesions around the nares.

Figure 2: Fissures affecting the bulbs of the heels.

Figure 3: Severe erosion of the interdigital fissure.

shed vast quantities of virus continually throughout their life, thus being the major source of infection for other cattle. The prevalence of PI animals is thought to be 0.5-1%.

Mucosal Disease (MD) occurs when a PI calf, exposed to the non-cytopathic biotype of virus in utero, is then exposed to the cytopathic biotype later in life. The cytopathic biotype evolves from the non-cytopathic biotype by maturation in a PI animal. MD can express in an acute or chronic form with high mortality rates. Acutely affected animals generally die within 3 to 7 days. Chronically affected animals may survive for up to 18 months.

Clinical signs of chronic infection include erosive lesions of the oral cavity, lips and nares, often accompanied by inappetence, salivation and a mucopurulent nasal discharge. There may also be ocular discharge and clouding of the cornea. Erosive skin lesions, that fail to heal, can be found affecting the interdigital cleft, the coronary band, prepucial opening, vulva and perineal region. These animals are inappetant and lose weight. They often have a scruffy, coarse hair coat. On post-mortem, erosive lesions may be found in the oesophagus which are pathognomic for the disease.

For further information, please contact Heidi Austin, District Veterinarian, North West Local Land Services, Tamworth on (02) 6764 5900.

Chlamydial abortions in a first cross ewe flock

In July 2020, a property owner from the Pyramul district, north of Bathurst, reported an increasing number of stillborn lambs in 930 mixed age first cross ewes. The ewes, joined to White Suffolk rams were separated into single and twin bearers at scanning, vaccinated with 5:1, drenched with Q drench and commenced lambing on 26 June. The ewes grazed improved and native pastures. There was no history of silage feeding and no obvious exposure to cats.

On 8 July, three near term lambs were necropsied (Figure 1). The first lamb had a dark red liver and lungs. The second was meconium stained with a 'pot-bellied' appearance and mottled pink and red lungs. The liver was enlarged with rounded edges, fibrin tags on diaphragmatic surface and the intestines adhered together with yellow fibrinous strands (Figure 2). The third lamb had firm salmon pink lungs and an enlarged, dark red liver.

On 24 July 2020 another lamb was necropsied, and a placenta submitted for histopathology. This lamb had mottled pink/red lungs and a mildly enlarged, dark red liver. The foetal membranes were dark red with occasional white mottled areas.

Histopathology revealed a fibrinous hepatitis in some lambs and mononuclear placentitis in the placenta. *Chlamydia pecorum* was detected by PCR in samples from all lambs on 8 July and from samples from the lamb submitted on 24 July. *Chlamydia abortus* was not detected, nor were other pathogens.

The owner was advised to separate ewes that have aborted from the remainder and to remove any aborted lambs and afterbirth as soon as possible. Blanket treatment with an oxytetracycline antibiotic was discussed but not undertaken because lambing was well underway by the time the abortions were discovered and the cause diagnosed.

At lamb marking the owner found that 95 of the 916 ewes that were scanned in lamb were 'dry'. He attributed almost all of these to abortions as few normal dead lambs were seen.

Figure 1: Three stillborn lambs presented for necropsy on July 8 (case 1 at the top of the image, case 3 at the bottom).

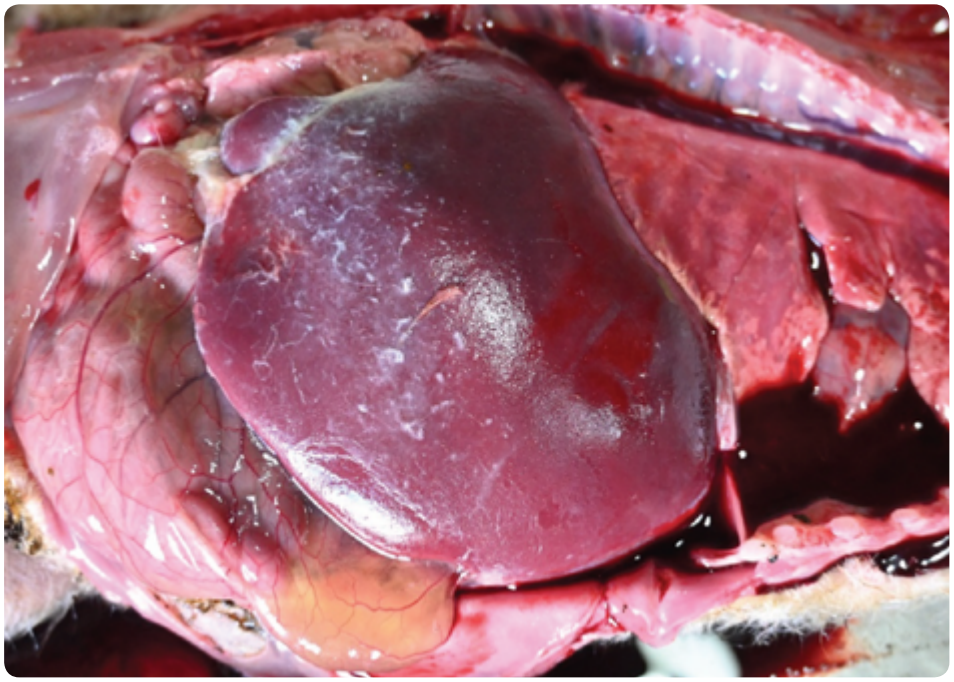

Figure 2: Case 2, enlarged liver with fibrin tags on the diaphragmatic surface.

Chlamydia pecorum, while less pathogenic or infectious than *Chlamydia abortus*, has a similar pathogenesis. As *Chlamydia abortus* is the most important cause of ovine abortions in some countries, is a zoonosis and is exotic, it is important that it is ruled out in any abortion investigation with similar characteristics to *C. abortus*.

For further information contact Bruce Watt, Senior District Veterinarian, Central Tablelands Local Land Services, Bathurst on 02 6333 2303, or Jess Bourke, District Veterinarian, Central Tablelands Local Land Services, Mudgee, on (02) 6378 1700.

Anthrax excluded in case of frothy bloat in Dorper sheep

A District Veterinarian was called to investigate the cause of sudden death in two Dorper/Australian White ewes in the Central Tablelands in August 2020.

The ewes had been in the lambing paddock for a month, and many had lambs at foot. They had been vaccinated with 5in1 and drenched with moxidectin before moving to the lambing paddock. The paddock contained a mixture of pasture species, including clover.

The ewes appeared to have died suddenly. Both had a stable white/blood tinged foam present at the nose, and some blood coming from other orifices. Subjectively, the carcases had bloated quickly in the interval since death.

Following a negative Anthrax ICT test, post-mortem examinations were performed. The carcase of the first ewe subjectively appeared congested cranially and blanched caudally. A very prominent bloat line was visible in the oesophagus. Haemorrhages in the tracheal mucosa, multifocal small white lesions in the heart, and more rapid than expected autolysis of liver and kidney, and an involuting uterus were less prominent features of the examination.

Figure 1: Cranial congestion of the oesophagus. Oesophagus opened to show the mucosal layer.

Figure 2: Cranial congestion of the oesophagus.

The second ewe had moderate anterior congestion and anterior blanching. A bloat line was visible in the oesophagus and mucosal haemorrhages were present in the trachea. The uterus was involuting and the remainder of the post-mortem was unremarkable.

Differential diagnoses included bloat and clostridial disease, with metabolic diseases (hypocalcaemia, hypomagnesaemia, ketosis) considered to be less likely differentials. At this point, anthrax was thought to be unlikely based on the negative ICT, location of the property outside the "anthrax belt" and normal spleen size.

Laboratory testing of aqueous humor showed normal calcium levels, normal beta hydroxybutyrate and normal nitrate/nitrite levels. Magnesium levels were mildly elevated, as were ammonia levels. As these both increase after death, they are unlikely to be significant.

Histopathology of the brain showed no significant lesions.

After ruling out other differentials, a diagnosis of bloat was made.

Moving the stock to a "safer" paddock was not an option as there were no "safer" paddocks available and moving sheep during lambing would likely lead to mismothering. Bloat blocks were offered. No further deaths occurred.

This case highlights that while frothy bloat is sheep is uncommon, it should be considered as a differential in particularly good seasons.

For further information contact Jess Bourke, District Veterinarian, Central Tablelands Local Land Services, Mudgee, on (02) 6378 1700.

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.

For statewide information, contact the Department of Primary Industries Biosecurity and Food Safety unit on 1800 684 244.

If you would like more specific information about diseases occurring in your part of the state, contact your Local Land Services District Veterinarian or the Department of Primary Industries Senior Veterinary Officer for your region, or go to: *www.lls.nsw.gov.au*

For more information on national disease status, check the National Animal Health Information System (NAHIS) via the internet at: *www.animalhealthaustralia.com.au*

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:

www.dpi.nsw.gov.au/about-us/publications/animal-health-surveillance

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Information contributed by staff of NSW Department of Primary Industries and Local Land Service

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