

NEW SOUTH WALES ANIMAL HEALTH SURVEILLANCE

April - June 2005 • Number 2005/2

Hendra virus exclusion

A 10-month-old Thoroughbred filly was found dead in June on a Tweed-Lismore property. It was one of a group of 12 horses that had been hand-fed the previous evening, and all had appeared normal. Post-mortem findings included cyanosis of the mucous membranes, frothy nasal discharge, and frothy, slightly blood-tinged discharge in the trachea and bronchi. As gross pulmonary pathology was suggestive of Hendra virus, samples that were collected for histopathology and sent to a local laboratory were forwarded to AAHL to rule out Hendra virus.

Flying foxes are thought to be natural reservoirs of Hendra virus. All previous cases of transmission to horses have occurred during the flying fox breeding season. In this case the nearest bat colony to the property was approximately 10 km away, and it was not bat breeding season; Hendra virus was therefore not high on the list of differential diagnoses. The 11 remaining horses were examined, but no signs of illness were detected, apart from a slight clear nasal discharge in one animal. Hendra virus was excluded on the basis of epidemiology, pathology and laboratory findings. There was no evidence to suggest snake bite or poisoning, and the cause of death remains undiagnosed.

For further information contact DV Buster Neilson, Tweed Lismore RLPB, on (02) 6621 2317.

Vesicular stomatitis exclusion

A horse owner on the North Coast noticed unusual ulcers on the tongue, lips and gums of a 6-year-old gelding and contacted her local veterinarian. There were three other horses on the property, none of which had oral lesions. All horses had been to a show 2 weeks previously. The practitioner reported the case by using the Emergency Animal Disease Watch Hotline. Samples were sent to AAHL and vesicular stomatitis was excluded. The oral lesions resolved within 1 month. No diagnosis was made. Although this case was uneventful, it demonstrates the exotic disease vigilance of our veterinarians.

For further information contact DV Allan Glassop, Gloucester RLPB, on (02) 6553 4233.

Diarrhoea and death in sheep— coccidiosis

A property in the Riverina RLPB district experienced a recurrence of severe dysentery in 6-month-old Merino weaners after recent transport from Queensland (see report in October – December 2004 NSW Surveillance). In this second incident, 120 of 300 weaners died in just over a week. The mortality curves for each incident relative to the time of arrival on the property were almost identical.

In this issue!

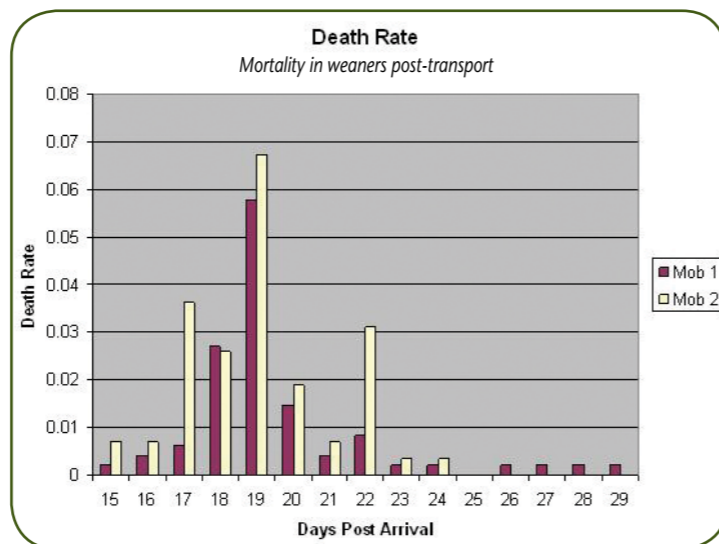
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NSW DEPARTMENT OF
PRIMARY INDUSTRIES



Haemorrhagic typhlitis in affected lamb.



Post-mortem findings were similar to those found on the previous investigation and consisted of haemorrhagic inflammation of the gastrointestinal tract, with frank blood in the intestinal lumen. The caecum was most severely affected. Histopathology revealed necrotic enteritis secondary to severe coccidiosis in three out of three animals. Profuse growth of *Campylobacter jejuni* and *Clostridium perfringens* was isolated on caecal culture.

The similarities in histories, mortality patterns, clinical expression and gross pathology indicate a high probability that the aetiology of the two incidents was the same. Differences in organisms seen in the laboratory results from the two incidents suggested a multifactorial cause.

For further information contact DV Dan Salmon, Riverina RLPB, on (03) 5881 1055.

Vitamin E deficiency in feedlot sheep and goats

Prolonged severe drought conditions led to many opportunity feedlots being set up in the Narrandera RLP District. In two such cases where stock had had no access to green feed for over 6 months, vitamin E deficiency was diagnosed clinically and through laboratory testing. One of these cases, which involved Angora goats of various ages, also initially involved hypovitaminosis A.

In the case involving Angoras, the mortality rate approached 10% over a 3-month period. Clinical signs varied considerably, but were mostly neurological and musculoskeletal and were seen in homebred adults and kids but not in bought-in sheep. Recumbency was a common feature in the majority of affected goats; other signs seen in some goats were collapse with opisthotonos and frothing from the mouth, slowed proprioceptive reflex, stiff gait, flaccid paresis progressing to hyperaesthesia, and haematuria. The majority of affected goats examined were in good body condition, although one or two had lost condition with progression of the deficiency. Diagnosis was confounded by the mixture of clinical signs and by the fact that the owner had already treated the goats with a vitamin A, D and

E injection. The level of supplementation provided by the injection was not sufficient to overcome the deficiency, and further supplementation with an oral drench was required to resolve the outbreak. Serum calcium levels were found to be low in some of the affected goats, despite the addition of 1.5% calcium to the grain ration. This also raised the question of a possible vitamin D deficiency (which is known to occur in camelids), but this could not be resolved through available tests.

In the second case, involving feedlot-fed first-cross lambs, deaths occurred following the movement of the lambs from a paddock into the feedlot and was thought to be principally due to hypocalcaemia, which was confirmed by blood tests and response to treatment with injectable calcium borogluconate. However, because of the owner's concerns about poor growth rates in response to supplementary feed, the lambs were also tested for vitamin E and were found to be deficient. These lambs were not treated with a commercially available supplement because of the onset of rain and consequent availability of green pick, which was chosen as the most economical option for vitamin E supplementation.

For further information contact Gabe Morrice, DV Narrandera RLPB, on (02) 6959 2322.

Hepatopathy and iron toxicity in Merino and first-cross ewes

A mob of late pregnant Merino and Border Leicester – Merino first-cross ewes experienced ongoing deaths reaching 25% of the mob and a morbidity rate of nearly 100% after prolonged drought feeding (over the past 5 years) of oats and oaten hay. The oats were trail-fed in a paddock situation and trough water was supplied from a pipeline supplying a large area. Other mobs on the same property being fed the same ration were not affected. Pyrrolizidine alkaloid-containing plants are known to occur on the property, but these sheep were not thought to have had access to them for over 12 months owing to the drought.

The entire mob showed a listlessness not observed in the other sheep on the property. The majority of affected ewes experienced severe weight loss, and were depressed and recumbent before death. Blood samples taken from five recumbent sheep revealed excessive iron accumulation, as well as anaemia, low serum protein levels and lymphopaenia. Only one animal was tested for vitamin E, and it proved to be deficient. Post-mortem examinations on six affected ewes revealed excessive accumulation of straw-coloured fluid in the abdominal, thoracic and pericardial cavities; the majority had firm, shrunken livers and swollen, dark spleens. Histopathology on the most severely affected ewe revealed chronic hepatopathy, probably from pyrrolizidine alkaloids, and massive iron accumulation (confirmed using Perle's stain) in the liver and spleen.

The possible causes of the excessive iron accumulation were a genetic predisposition (the animal equivalent of idiopathic human haemochromatosis, which seemed unlikely given that some crossbred sheep were affected and this mob was no different in breeding to other unaffected mobs) and an excess dietary intake with resultant overload of the normally strong iron-absorption homeostatic mechanisms. The second possibility was much more likely and could be related to the long-term trail-feeding of oats on the red (and hence high iron-content) soil of the area. The question of why this mob was affected—and not others on the same property and in the same area being fed in a similar fashion—could not be resolved. The onset of a late break to the season with resultant green pick led to an abrupt end to the clinical signs and mortalities.

For further information contact Gabe Morrice, DV Narrandera RLPB, on (02) 6959 2322.

Eperythrozoonosis in Merino weaners

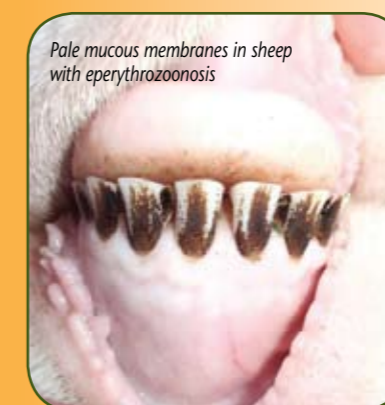
Severe ill thrift and mortalities have occurred in a situation of abundant feed in several Merino weaner mobs in the north-west of the State. Low-quality dry standing pasture and eperythrozoonosis (*Mycoplasma ovis*) are suspected as the cause.



Low quality dry standing pasture

Mobs on travelling stock routes (TSRs) were most severely affected. In one case, 150 of 5000 twelve-month-old weaners died, and in another case 50 of 2000 six-month-old lambs died. In these cases the drovers reported a syndrome of sheep being increasingly reluctant to move, with some becoming recumbent and unable to rise and eventually dying. However, an equal number of weaners were found dead in the break (from travelling) overnight.

Internal parasites were eliminated as contributing to the ill thrift. In a number of cases, including the TSR cases, the history was consistent with eperythrozoonosis being a significant contributing factor. Examined sheep had pale mucous membranes and minimal fat cover. Blood sampling showed that the weaners had hematocrits at the low end of normal.



Pale mucous membranes in sheep with eperythrozoonosis

Post-mortem examination of recumbent weaners in one case revealed an absence of fat reserves, as well as muscle wasting and significant ascites.

The two animals examined by post mortem had PCVs of 0.32 and 0.26 (normal 0.27–0.45). Histopathology found changes in the spleen and kidneys consistent with eperythrozoonosis.

The north-west of the State experienced unusual pastoral conditions in the first half of 2005. Flood causing rains late in December 2004 produced a large body of summer grasses on the black soil plains. However, nil rainfall from the end of January until mid-May meant that this increasingly dry pasture, while still abundant in quantity, had increasingly lower protein levels and hence lower digestibility. This pasture was unsuitable for weaners. Weaners have higher protein requirements than adult sheep and lack the experience to be effective selective grazers.

Owing to nutritional stress, management operations that may have exposed mobs to *M. ovis* (e.g. crutching, shearing, mulesing, marking) probably affected mobs more severely than usual, in terms of both number affected and severity of effect. Interestingly, in one suspect case, none of the management operations usually associated with *M. ovis* had been carried out, but the mob had been injected with an anthelmintic–vaccine combination 5 weeks previously.

The requirement to travel an average of 10 kilometres a day (a common management strategy for TSRs during high-demand periods) may have contributed to the mortalities in mobs on TSRs. Weak weaners did not have the vigour to graze while walking, and at the end of the day were too weak to graze, with starvation and death resulting.

For further information contact DV Shaun Slattery, Narrabri RLPB, on (02) 6792 2533.



Absence of fat reserves in affected weaner

Oxalate toxicity in cattle

Oxalate nephropathy was diagnosed during an investigation of 13 sudden deaths in 7- to 9-year-old pregnant Shorthorn cows in a herd of 9000 from a property in the Nyngan district in May. The cows had been grazing for 3 weeks on a short, sparse pasture including roly-poly, saltbush and native gum grass, without supplementary feeding. Twelve cows were found dead near water, and the 13th collapsed and died the following day after being moved to an adjacent paddock. Post-mortem examination of two cows showed a yellow swollen liver in one, and possible liver changes in the other. Of the surviving animals, one was found sick, showing weakness, lethargy, jaundice and photosensitisation. Anthrax, blue-green algae and nitrate poisoning were excluded.

Blood samples taken from the sick cow showed mild elevation of liver enzymes and a severe increase in serum bilirubin levels, marked azotemia consistent with renal failure, and high serum fibrinogen and hyperglobulinaemia, indicative of an inflammatory response. Histopathology of the cow with gross liver changes showed renal tubular necrosis with oxalate crystals in the renal tubules. Apart from bile accumulation, the liver changes were mild. In the other cow there was no significant hepatic or renal pathology. Thus one cow died from renal failure caused by oxalate nephropathy. The cause of death in the other cow was not established. The sick cow, which showed renal azotaemia, was presumably suffering from oxalate nephropathy, as well as concurrent jaundice and photosensitisation suggestive of hepatopathy. Although, under normal circumstances, poisonings don't occur in animals grazing on pastures containing saltbush or roly-poly, these plants can contain sufficient oxalate to cause nephrosis if eaten by hungry animals, either in large quantities over a short period or in lesser amounts over a long period.



For more information contact Erika Bunker, NSW DPI Regional Veterinary Laboratory Orange, on (02) 6391 3809.

Marked jaundice of conjunctiva observed in cow found sick



Affected heifers in feedlot



Severe tracheitis with diphtheritic membrane

Viral respiratory disease in feedlot heifers

Two heifers died and most of the mob of 150 mainly Shorthorn heifers showed signs of respiratory disease. The recently purchased yearling heifers had been on feed in an opportunity feedlot south of Condobolin for 1 month when the outbreak started. Many cattle were coughing. Those examined were febrile, with rapid respiration, profuse salivation, a mucous nasal discharge and serous lacrimal discharge. The main post-mortem finding was a tracheitis with marked inflammation and a patchy diphtheritic membrane. There was very little lung involvement.

No bacteria were cultured from the lung tissue, and infectious bovine rhinotracheitis (IBR) virus isolation was negative. When first tested, one heifer was serologically positive for bovine respiratory syncytial virus (BRSV), two were positive for IBR virus and four were positive for PI3 virus. At the second test, all heifers had seroconverted to BRSV; the IBR tests remained unchanged and one additional heifer had seroconverted to PI3 virus. BRSV is regarded as a benign respiratory pathogen. Pestivirus involvement could be ruled out, although tests to date have been negative.

For more information contact DV Bruce Watt, Condobolin RLPB, on (02) 6895 2152.

WITH NSW DPI

A network of Senior Field Veterinary Officers (SFVOs) and Veterinary Officers (VOs) within NSW DPI previously provided the official field veterinary service for NSW DPI.

The role of the SFVO has changed since the position was originally created. As an example, these officers are now required to play a greater role in regulatory activities than was originally proposed. In addition, the reporting procedures for RLPB District Veterinarians (DVs) have also changed in that DVs now report to their Directors. Because of these changes, a new Field Veterinary structure within NSW DPI has been introduced to meet the animal health challenges of the future.

New positions to replace the SFVOs and VOs, known respectively as Senior Regional Animal Health Managers (SRAHMs) and Regional Animal Health Leaders (RAHLs), have been created and in most cases filled. New position descriptions have been prepared to reflect the changed nature of these roles. The new system officially commenced on 25 July.

In eastern NSW (outside the Western Division), four SRAHMs and three RAHLs

MANAGEMENT

now provide the new service. The SRAHMs are located at Tamworth, Wagga, EMAI and Orange. The RAHLs are located at Wollongbar, Dubbo and Wagga.

For the Western Division of NSW there will be one SRAHM position and two RAHL positions. This will allow management of the Western Division as a distinct region. The SRAHM for the Western Division is located at Broken Hill and the RAHLs for the Western Division are located at Dareton and Bourke.

The boundaries for the new regions have also been altered to better reflect the new Animal Health Regions within the Rural Lands Protection Board system. This will allow the new Managers and Leaders within DPI to work more closely with the new regional structure of RLPBs. The boundaries and locations of officers are shown in the map below.

Officers in the RAHL positions report to the SRAHM. Although areas have been nominated for RAHLs, the SRAHMs and RAHLs will work together to create a field veterinary team at the regional level. Animal health planning at Board and Regional levels will be a key priority for these positions. Key areas of activity will include

surveillance and reporting; exotic disease preparedness and response; certifications; national, State and local disease control programs; and regulatory activities.

Six of the 10 positions have now been filled and are operational. In addition, Charlotte Cavanagh has accepted the RAHL position at Bourke. Charlotte is currently in private practice in Cootamundra and will begin duties in Bourke on 5 December 2005.

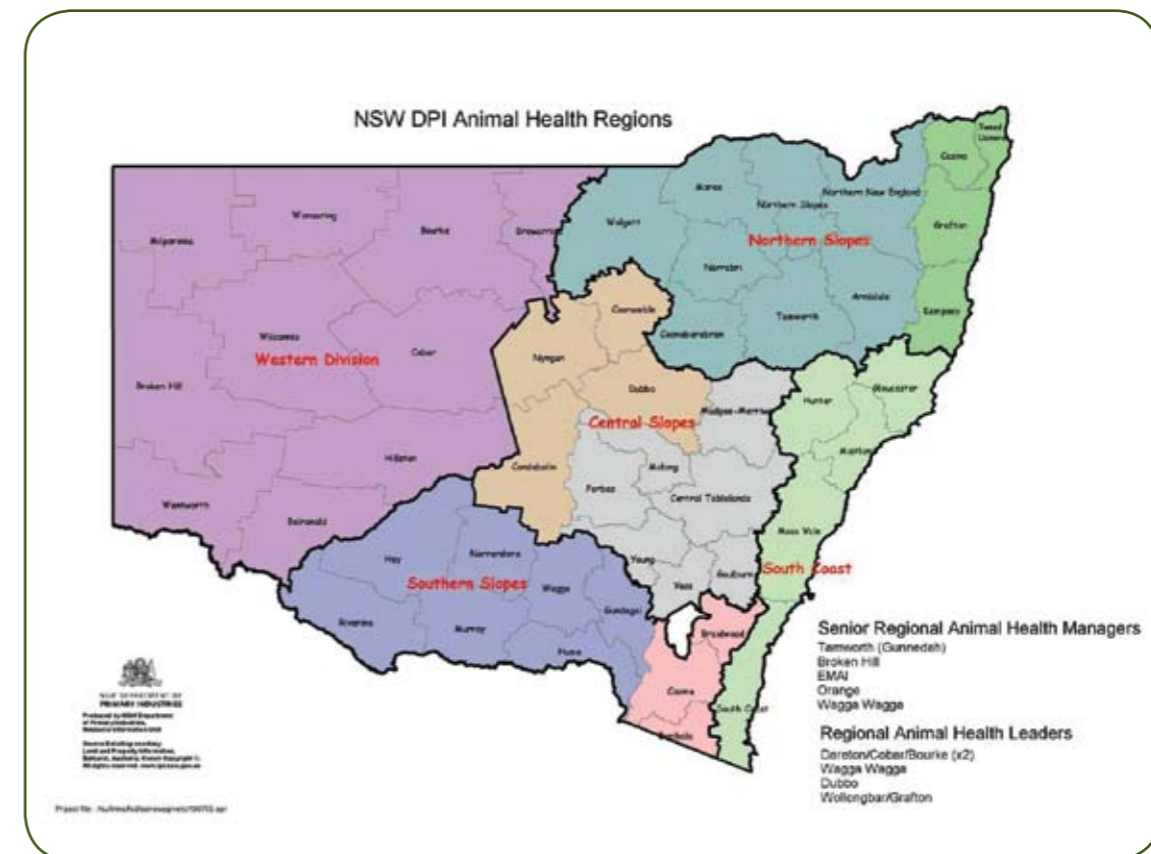
Luzia Rast, currently the District Veterinarian at Gundagai, has accepted the SRAHM position at Wagga. Luzia will begin duties in Wagga on 3 January 2006.

The positions currently filled are as follows:

- SRAHM Central Slopes (based at Orange): Julie Bolam
- SRAHM Northern Slopes (based at Gunnedah and then Tamworth): Belinda Walker
- SRAHM South Coast (based at EMAI): Diane Ryan
- SRAHM Western Division (based at Broken Hill): Greg Curran
- SRAHM Southern Slopes (based at Wagga): Sarah Robson will continue to act in this position until Luzia Rast commences duty.
- RAHL (based at Wagga): Sarah Robson (when Luzia Rast commences)
- RAHL (based at Dareton): Samantha Yorke
- RAHL (based at Bourke): Charlotte Cavanagh (after 5 December)
- RAHL Wollongbar: currently on offer to applicant
- RAHL Dubbo: currently on offer to applicant

This new structure within NSW DPI will work closely with District Veterinarians and Rural Lands Protection Boards to help ensure a top-class animal health service for NSW.

If you have any inquires regarding this new structure, please contact Ian Roth, Manager Field Veterinary Services and Product Integrity, ph 6391 3577.



NOTIFIABLE DISEASES

Tick fever

During April, tick fever was diagnosed at two locations. In the northern Casino district there are five cattle tick-infested herds. One of these had 13 head lost from a mob of 42 heifers over several months (there are 800 head in total on the property). An initial diagnosis of tick fever was made on the basis of the presence of ticks, clinical signs and response to imidocarb treatment. Serological testing subsequently confirmed the presence of *Babesia bigemina* and *Anaplasma*. Most NSW tick fever cases are caused by *Babesia bovis*. The serological test showed that the group was immune to *B. bigemina* but still susceptible to *Anaplasma*. There are risks of further tick fever transmission until the cattle tick populations in the area are eradicated. Tick fever vaccination, which is vigorously opposed by local cattle owners, would offer a means of protecting against tick fever while the cattle ticks were being eradicated.

In the northern Tweed–Lismore district there is a group of nine cattle tick-infested properties. Tick fever caused by *B. bovis* and *Anaplasma* was diagnosed by post-mortem tests and serology on the cattle on two of these properties. Losses were five from 19 and three from 70. Cattle tick eradication programs are under way, and susceptible stock in infected herds have been treated. Treated stock will become susceptible again as the effect of the treatment wears off, and cattle in other herds remain at risk until the cattle ticks are eradicated.

For further information contact Peter McGregor, NSW DPI Wollongbar, on (02) 6626 1334.

Strangles

There were three cases of strangles reported during the quarter. A single animal was affected in two of the cases (one being a horse in race training and the other a yearling) and two weanlings were affected in the third case, with one of the weanlings requiring euthanasia. In each instance the affected animal was isolated from other horses and treated with antibiotics, with no further cases reported.

EHV1

There were two cases of equine herpesvirus 1 abortion reported during the quarter, with a single mare affected in both cases. An isolation protocol, as recommended in the Australian Equine Veterinary Association's guidelines, was followed. The affected mare was isolated, and any in-contact mares will be isolated in small groups until they foal.

For further information on horse disease incidents contact Sarah Robson, NSW DPI Wagga Wagga, on (02) 6938 1995.

Avian tuberculosis in pigs

Inspectors at an abattoir in northern NSW detected tuberculosis lesions in the mesenteric lymph nodes of 20-week-old pigs. Of the consignment of 200 pigs 60% to 75% were affected. Up to four pigs also had lesions in the lymph nodes of the head. Samples were collected and sent to RVL Wollongbar and RVL Menangle, and mycobacterial lymphadenitis was confirmed. *Mycobacterium avium* was cultured from the first lymph node submission. Culture results for the remaining laboratory submission are still pending. The pigs were traced to two contract growers for one company. Over the next 7 days similarly affected pigs were identified at slaughter; 10% to 20% of 199 pigs were affected in one consignment and 50% of 203 pigs affected in another. In a subsequent consignment only one out of 104 pigs was affected. These pigs were from a younger batch. The district veterinarian and ranger from Armidale RLPB inspected the contract grower sites and found no obvious problems, with all pigs in good health and adequately housed. Inspection of the company farm led to identification of a possible source of infection. Grain contaminated with dead birds had been processed into pig feed, then used on the home farm and distributed to the contract grower sites. Another possible source identified was the water supply on the home farm, which is drawn untreated from dams where there are significant populations of wild birds (mainly ducks).

All pigs (breeders, weaners and growers) are housed in 'deep litter' systems, and there is concern that mycobacteria from the infection source or infected pigs could survive in the damp conditions in the sheds, leading to a further round of infection when a new batch of pigs is introduced.

As sheds are emptied they are being thoroughly cleaned, dried and decontaminated before being restocked, and investigations are under way to source and install a suitable water treatment plant. RLPB staff are continuing to monitor the situation.

For further information contact DV John MacFarlane or Ranger Geoffrey Green, Armidale RLPB, on 02 6772 2366.

DISEASE CONTROL PROGRAMS

Bovine Johne's disease Market Assurance Program

At the end of the July 2005 quarter there were 652 herds enrolled in the Cattle Market Assurance Program (MAP). Of these, 148 herds were of MN1 status, 209 were of MN2 status and 295 herds were of MN3 status.

The enterprise breakdown of these herds is shown in Table 1. During the quarter, 18 MAP herds left the scheme and dropped to NA status. There were no breakdowns of MAP herds to Infected during the quarter.

Table 1. Cattle MAP herds by enterprise

Enterprise	Total herds (% of total)	Stud (% of enterprise type)	Commercial (% of enterprise type)
Beef	454 (69.63%)	381 (83.92%)	110 (24.23%)
Dairy	180 (27.61%)	115 (63.89%)	78 (43.33%)
Mixed	18 (2.76%)	6 (33.33%)	12 (66.76%)
Total	652	502 (77.0%)	200 (30.67%)

For more information contact Yuni Yunamu, Veterinary Officer, Goulburn, (02) 4828 6628.

Bees

American foul brood (*Paenibacillus larvae*) infection has been reported in 120 hives at 11 separate locations. Small hive beetle (*Aethina tumida*) has been reported at seven separate locations.

For further information contact Mick Rankmore, Regulatory Specialist Apiaries, NSW DPI, on (02) 6741 8374.

Transmissible spongiform encephalopathy

For details on transmissible spongiform encephalopathy (TSE) submissions for the quarter see Table 2.

Table 2. TSE surveillance notifications by Rural Lands Protection Board (RLPB), 1/4/2005 to 30/6/2005

RLPB	DV* sheep	DV cattle	Abattoir sheep	Abattoir cattle	Private vet sheep	Private vet cattle	Total sheep	Total cattle
Casino		1				1		2
Central Tablelands		1			1	1	1	2
Cooma	1	1					1	1
Coonabarabran	1	2					1	2
Coonamble	2					1	2	1
Dubbo					1	1	1	1
Forbes		1						1
Gloucester						1		1
Grafton				1				1
Hume	1				4	3	5	3
Hunter		1						1
Maitland	1						1	
Murray	1	1				4	1	5
Narrabri		6						6
Narrandera	1						1	
Northern New England	4	1					4	1
Northern Slopes		2						2
Riverina	1					2	1	2
South Coast		1						1
Tamworth		1						1
Tweed Lismore		1						1
Wagga Wagga	3						3	
Totals	29	24	0	1	7	14	36	39

*RLPB District Veterinarian

For more information on TSE surveillance, contact Sally Spence, Technical Specialist (Farm Product Integrity), on (02) 6391 3630.

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (June 2005). 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 New South Wales Department of Primary Industries or the user's independent adviser.

Getting Information on Animal Diseases

This surveillance report can only convey 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 Rural Lands Protection Board District Veterinarian, Department Senior Regional Animal Health

Manager, Regional Health Leader, or Regional Veterinary Laboratory.

For Statewide information, contact NSW DPI's Animal & 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>

Prepared by:

Barbara Moloney

**Technical Specialist, Disease Surveillance and Risk Management
Locked Bag 21, Orange NSW 2800**

**Phone (02) 6391 3687 or fax (02) 6361 9976
e-mail: barbara.moloney@dpi.nsw.gov.au**

and

Sarah Robson

**Regional Animal Health Leader, Wagga Wagga Agricultural Institute,
Wagga Wagga NSW 2650**

**Phone (02) 6938 1967 or fax (02) 6938 1995
e-mail: sarah.robson@dpi.nsw.gov.au**

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

