

ANIMAL HEALTH SURVEILLANCE

January–March 2003 • Number 2003/1

NSW Agriculture aims for world's best practice in animal disease surveillance. Effective disease surveillance underpins export and domestic trade in livestock products, and our control programs for notifiable diseases (including footrot, anthrax, ovine Johne's disease). This edition of our newsletter features articles on drought-related mortalities and kikuyu poisoning in cattle, ongoing disease control programs, and routine surveillance activities. For more information or to comment or contribute, contact Barbara Moloney, Sarah Robson or Rory Arthur (contact details on back page).

— Barbara Moloney, Technical Specialist
(Disease Surveillance and Risk Management)

QUARTERLY HIGHLIGHTS

DROUGHT-RELATED MORTALITIES

Vitamin A deficiency — Low levels of Vitamin A were detected in the sera of Merino sheep which had been hand-fed in a shed environment for the past three months. Ill-thrift and mortalities were observed in greater numbers for these sheep than in paddock mobs which were also hand-fed during the drought.

Plant poisonings — There are continuing reports of plant poisoning across the State's North-West as recent storms allows some new growth. Unfortunately, some hungry cattle have gorged on pure stands of rapidly-growing species rather than on a more balanced pasture mix. Liverseed grass (*Urochloa panicoides*), button grass (*Dactyloctenium radulans*) and pigweed (*Portulaca* spp) have been implicated in deaths, as have some sorghum species.

Consumption of rosewood cuttings was

also associated with cattle deaths on one property, although the toxic agent in these poisonings was unknown. Nitrate and cyanide toxicities were, however, ruled out in this case.

Lantana poisoning was suspected to have caused the death of nine out of 47 mixed-age cattle in a herd. In these deaths, photosensitisation was evident and was confirmed as secondary to liver damage on histology.

Protein meal toxicity — A group of 35 out of 400 mixed-age beef cattle died following the feeding of lupins for several days. Tests on the lupins, however, did not show high-levels of lupin alkaloids or 'bittersweet'.

Animals were observed dying within several hours of showing neurological disturbance: ataxia progressing to weakness, recumbency and twitching, and then death. The animals in better condition seemed more likely to be affected — presumably these individuals had a greater intake of the lupins.

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With lupins, excess ammonia from the breakdown of protein in the rumen is normally converted in the liver to urea for excretion. In this particular situation, the liver was overloaded and toxic levels of ammonia in the circulation produced the indications of toxicity, which was due to hepatic encephalopathy.

For more information, contact Catherine Taragel, Orange, on (02) 6391 3873.

Soya bean meal toxicity — In February, 10–15 cows from a herd of 33 Angus cows with calves at foot were reported as showing a sudden onset of neurological signs. Two cows subsequently died within the first 12 hours of the onset of these clinical signs.

The herd had been in a paddock with dry pasture and wheat stubbles for four weeks. Four days prior to the deaths, the farmer had commenced supplementary feeding with soyabean meal (4 x 25 kg bags). The herd were fed again the afternoon before the signs were first noticed (6 x 25 kg bags). Clinical signs included staggering, behavioural change (aggression), apparent blindness, and death.

An attempt to move the stricken animals resulted in hyperexcitability. There were no specific findings on post-mortem examination, serology or histopathology. The cows were given hay ad lib once the clinical signs were reported. All but two of the cows recovered within the first 12 hours with the herd moved to another paddock. Two cows continued to show mild staggering, aggressive behaviour and apparent blindness (aimless wandering) for a further 12 hours and then made a full recovery.

It has been reported in Queensland that high protein meals have previously been associated with cattle and sheep deaths. The rapid digestion of the protein in the meal causes excess ammonia production by rumen microbes with ammonia toxicity resulting. Recommendations for graziers are, therefore, to restrict high protein meals to a maximum of 20 per cent of ruminants' diet.

For more information, contact Luzia Rast, District Veterinarian, Gundagai RLPB on (02) 6944 1588.

PESTIVIRUS-LIKE SYNDROME

There has been, during the last quarter, a fatal case of a pestivirus-like syndrome which has affected Friesian dairy calves aged from 4–7 months at Wollongbar Agricultural Institute. Over the past four years, a number of calves from the group of 29 heifer calves have been affected with this condition but survived.

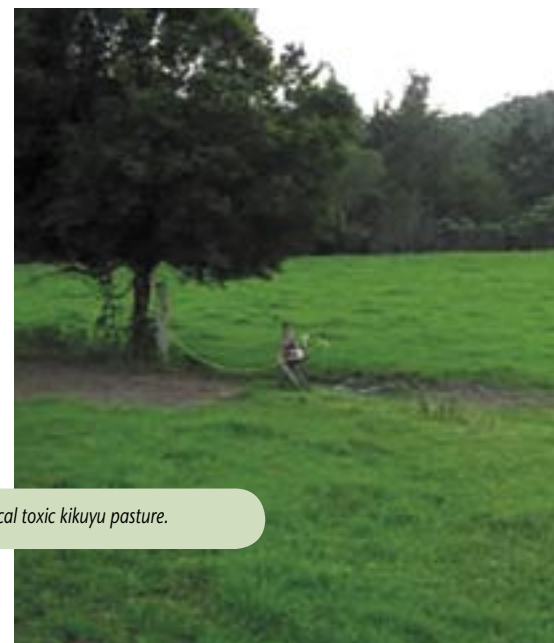
In the year 2002, three calves from a group of 30 from the herd died with several affected calves recovering but remaining ill-thrifty. Clinical signs of this condition include diarrhoea, weight loss, weakness and death.

The condition develops when the group of spring-drop calves from the herd is moved from daily grain-feeding to extensive pasture-grazing (and supplemented with twice-weekly grain pellets).

Necropsy findings in five of the affected calves showed interdigital dermatitis, erosive glossitis/stomatitis, severe fibrinonecrotic oesophagitis, fibrinonecrotic omasitis, reticulitis and rumenitis. Other findings included mild gross atrophy of aggregated lymphoid tissue in the ileum and colon, mild microscopic ileitis and colitis, anaemia and hypoproteinaemia. However, no renal changes were detected.

Neither pestivirus nor IBR infections have so far been identified in these animals. Investigation of a possible viral aetiology is continuing.

For more information, contact: Roger Cook, Wollongbar, on (02) 6626 1333.



The appearance of a typical toxic kikuyu pasture.

KIKUYU TOXICOSIS

Two dairy farms on the Mid-North Coast suffered significant outbreaks of kikuyu toxicosis in March. On one of the dairies which milks 130 cows, 55 animals died over a six-day period with many of their herd-mates developing mastitis and agalactia. The farm ceased milk supply until production quality and quantity again became satisfactory. On the second farm, 20 out of 50 dry cows died.

The outbreaks occurred on pastures that had been regularly-grazed, nitrogen-fertilised and irrigated but that had been spelled about a week longer than usual. The deaths continued in the herd for several days after the cows had been taken off the pastures.

Cows affected early in the outbreaks displayed depression, ptyalism, abdominal distension and dehydration. Necropsy revealed distension of the fore-stomachs and necrosis of their epithelial lining. Those that died later had oedema, congestion and haemorrhage of connective tissues throughout the body, and myocardial and renal



Cattle affected with kikuyu poisoning displaying ptyalism.

degeneration. These changes were presumed to be due to hypovolaemic shock and ischaemia.

Treatment of affected animals with non-steroidal anti-inflammatory agents generally improved the cows' demeanour.

Kikuyu toxicosis was first reported in 1969 in cattle on New Zealand's North Island and has since been reported in NSW, Western Australia, and South Africa, typically in mild-warm, humid, late summer-autumn weather. The toxin that causes the disease is unknown.

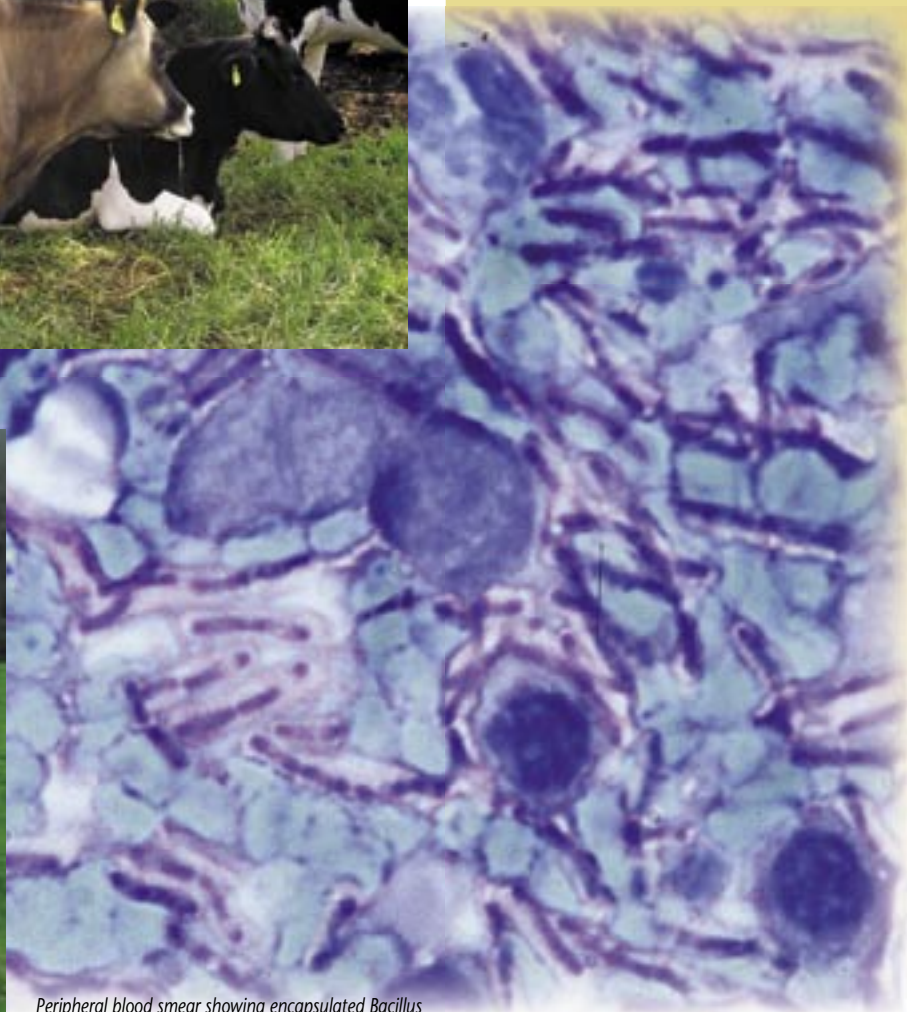
For more information, contact John Boulton, Wollongbar, on (02) 6626 1272

ANTHRAX

Laboratory examination confirmed anthrax as the cause of death of 12 out of 120 mixed-age cows which died over the New Year period from a herd on a Riverina district property. There was no previous history of anthrax on this property but it is located in the known-endemic anthrax area of the State.

There were another 18 other investigations (17 cattle, one sheep) for anthrax during the quarter which were all negative. Alternative diagnoses of these cases included pneumonia, acidosis, trauma, nitrate poisoning, and ammonia toxicity.

For more information, contact Barbara Moloney, Orange, on (02) 6391 3687



Peripheral blood smear showing encapsulated Bacillus anthracis stained with PCMB.





SHEEP INTERNAL PARASITES

Despite much of NSW being drought-affected for most of 2002, worm burdens have been quite variable. They have ranged from low–moderate through to very-high with some cases of clinical parasitism and death.

With good rains received in the north of the State from late summer, *Haemonchus* burdens jumped dramatically with deaths reported on some properties. There has also been a relatively-high prevalence of *Fasciola* egg count-positive properties in fluke-endemic areas (mostly on the Tablelands and nearby Slopes). This high-prevalence could be due to stock grazing 'flukey' areas in seeking the remnants of green pick in dry times.

Fasciola and *Haemonchus* species both have difficulty completing their life cycles in cold conditions. Farmers have therefore been advised to check for the presence of these parasites in their sheep and to treat them, if necessary, in May to reduce carry-over of these parasites through to spring.

For more information, contact Steve Love, Armidale, on (02) 6776 5013.

DISEASE SURVEILLANCE

ARBOVIRUS MONITORING — AKABANE VIRUS

Akabane virus transmission initially occurred last November in the north of the State. Subsequently, transmission of the disease has continued down the coast to the Hunter Valley and the South Coast as far as Nowra, and also on to the Northern Tablelands and Slopes. With transmission of the virus now well outside of the usual endemic regions, it is expected that numerous cases of 'Akabane Disease' will be seen in calves of naive dams that were exposed to Akabane virus during their gestation.

Given the timing of the transmission of the disease this year, cases of arthrogryposis could also be expected on the South Coast from early June with cases of hydranencephaly occurring in later months. There has already been several confirmed cases of infection on the South Coast (Moruya). These infected calves presented with a flaccid paralysis syndrome consistent with encephalopathy due to Akabane infection in the last month or more of gestation. Further sampling of sentinel herds in the south of the State is likely to delineate the limits of the spread.

For more information, contact Debbie Finlaison, Menangle, on (02) 4640 6335.

Figure 1. Detail of liver fluke. (Modified from Dr Joe Boray, NSW Agriculture.)

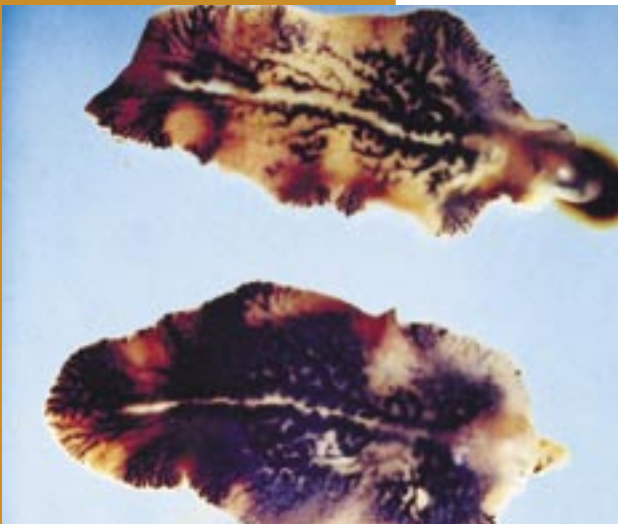


Figure 2. Liver fluke-affected sheep with submandibular oedema. (Dr Joe Boray, NSW Agriculture.)



FOOTROT

The severe drought throughout NSW has assisted footrot eradication programs in places producers have taken the option of destocking infected sheep as part of a disease control program and drought strategy. Currently, more than 80 per cent of NSW is gazetted as Protected Area status for footrot (flock prevalence <1 per cent) while the remaining 20 per cent is Control Area (between 1–10 per cent flock prevalence for footrot). Control Areas mainly involve the intensive sheep-raising regions along the Tablelands and in the south of the State on some of the adjacent Slopes (see map).

In many of these areas, footrot flock prevalence was close to 50 per cent only a decade ago. Now there are no Residual Areas for footrot remaining in NSW. Statistics provided by Rural Lands Protection Boards indicate there are also now less than 300 flocks known to be infected with footrot remaining in NSW. All infected footrot flocks in NSW are currently subject to

regulatory action. This involves quarantine and a requirement to undertake an approved program to achieve eradication. Contractors are often employed to help achieve this outcome.

For more information, contact John Seaman, Orange, on (02) 6391 3248.

NATIONAL BOVINE JOHNE'S DISEASE MARKET ASSURANCE PROGRAM

Table 1: Summary of Status of CattleMAP Herds in NSW

NSW CattleMAP Status	31 March 2003	31 Dec 2002	31 March 2002
MN1	228	264	294
MN2	344	351	335
MN3	313	311	306
Total MN1-MN3	885	926	935
NA (dropped out)	476	395	352
IN (detected by testing in MAP)	46	38	36

At the end of the March 2003 quarter, there were 1483 herds tested under the CattleMAP initiative in NSW consisting of 165,424 cattle. Of these, 862 herds (75,774 cattle) have had two screening tests, 304 herds (16,685 cattle) have had three tests, and 24 herds (782 cattle) have had four negative tests.

There has been a total of 346 reactors from 204 herds during round one testing, 104 reactors from 60 herds during round two testing, and 42 reactors from 19 herds during round three testing. The overall reactor rate still remains



steady at 0.19 per cent of animals tested. Of the 204 round one reactor herds, 28 (1.9 per cent) have been detected as infected, 13 (1.5 per cent) have been detected as infected at or prior to round two testing and five herds (1.6 per cent) have been detected as infected at or prior to their third test.

For more information, contact Tim Jessep, Goulburn, on (02) 4828 6614.

NSW CATTLE RESIDUE TESTING: (January–March 2003)

National Organochlorine Residue Management

(NORM) Program — A total of 51 out of 1740 samples tested under the NORM program had detectable residues. Of these, only one sample had residues greater than the Maximum Residue Limit (MRL) and three others were above half the MRL.

Discrimination at saleyards against cattle from properties that are 'T' Listed continues to be a significant issue in NSW — T-listed properties are those named under the NORM program as having had residues at some stage. Currently, there are 80 NSW PICs/taillags T-listed on the national Endosulfan Residual Property (ERP) database.

Endosulphan Testing — A total of three out of 21 samples of cattle in which the National Vendor Declaration (NVD) suggested actual or possible exposure to endosulphan, were found to have residues. None of these cattle, however, were above half the MRL. These test results are excellent when one considers the number of unacceptable endosulfan residues detected in cattle from cotton-growing areas over the November–February period only 4–5 years ago.

National Antibacterial Residue Monitoring (NARM)

Program — A total of 20 out of 336 sampled cattle were found to have detectable antimicrobial residues in recent testing of the National Antibacterial Residue Monitoring (NARM) Program. Out of these positive results, 19 were cull cows at export abattoirs. Only one was above the MRL and three others were above half the MRL. Bobby calves and cull cows remain a source of unacceptable antimicrobial residues, but the percentage of animals with residues half or greater than the MRL has improved markedly over the past five years.

For more information, contact Graeme Williamson, Wollongbar, on (02) 6626 1370.

NATIONAL TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHY SURVEILLANCE PROGRAM (NTSESP)

In 2003, NSW is required to submit 165 sheep and 87 cattle to the NTSESP. Submissions for the first quarter in are actually ahead of requirements as Table 2 below indicates. The increase in submissions is, in part, a result of recent workshops to promote the scheme at Wagga Wagga at the end of 2002 and at Dubbo in March 2003.

These workshops were well-attended by both private and Rural Lands Protection Board vets. These workshops have also been given wide media coverage which has effectively promoted the NTSESP and its importance to the maintenance of our international beef markets.

Other strategies to promote the scheme have included demonstrations of brain removal for small groups of vets by Roger Cook at Wingham and Kempsey and by Belinda Walker at Tamworth. Large jars suitable for fixing a brain in formalin are also being distributed to vets at every opportunity.

Since the requirement for sheep for this year has actually increased, we cannot afford to be complacent but results, so far, are encouraging.

Roger Cook brushes up on brain-removal techniques.



Table 2 TSE Submissions by Rural Lands Protection Board from January 1, 2003 to 31 March, 2003.

BOARD	District Vet		Abattoir Vet		Private Vet		Total	
	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle
SFVO DUBBO REGION								
DUBBO	1						1	0
NYNGAN						1	0	1
Region Total	1	0	0	0	0	1	1	1
SFVO GOULBURN REGION								
BOMBALA						2	0	2
BRAIDWOOD						1	0	1
GOULBURN					2		2	0
MOSS VALE						2	0	2
SOUTH COAST	2						2	0
Region Total	2	0	0	0	2	5	4	5
SFVO GRAFTON REGION								
ARMIDALE	14	1			9		23	1
CASINO		1					0	1
KEMPSEY		1				1	0	2
NORTHERN NEW ENGLAND	4	3					4	3
TWEED-LISMORE	1						1	0
Region Total	19	6	0	0	9	1	28	7
SFVO GUNNEDAH REGION								
COONABARABRAN	1					1	1	1
COONAMBLE	2						2	0
NARRABRI	4	2					4	2
NORTHERN SLOPES	1						1	0
Region Total	8	2	0	0	0	1	8	3
SFVO MAITLAND REGION								
GLOUCESTER		4		2		1	0	7
HUNTER						1	0	1
Region Total	0	4	0	2	0	2	0	8
SFVO ORANGE REGION								
FORBES		1					0	1
Region Total	0	1	0	0	0	0	0	1
SFVO WAGGA WAGGA REGION								
GUNDAGAI	1	1			1	1	2	2
HUME	1				3	2	4	2
RIVERINA						1	0	1
WAGGA WAGGA						1	0	1
Region Total	2	1	0	0	4	5	6	6
Grand Total	32	14	0	2	15	15	47	31

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 field veterinary officer; or
Regional Veterinary Laboratory.

**For Statewide information, contact NSW
Agriculture's Quality Assurance Program 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.aahc.om.au/nahis/>

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**Copies of NSW Animal Health Surveillance reports are available on the internet at:
<http://www.agric.nsw.au/QA/Newsletter>**



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