NEW SOUTH WALES

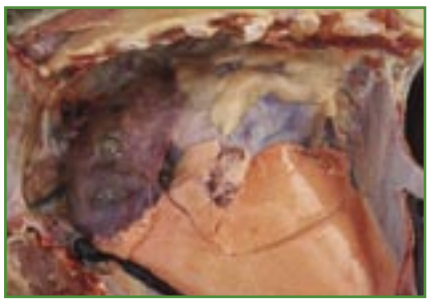
ANIMAL HEALTH SURVEILLANCE

April-June 2004 • Number 2004/2

QUARTERLY HIGHLIGHTS

Mannheimia haemolytica infection in sheep (Pasteurellosis)

VO Wagga investigated a case of acute bronchopneumonia in a mob of 4-to 5-month-old crossbred weaners this quarter. The mortality rate was approximately 3%. Severe necrotising fibrinopurulent bronchopneumonia affecting the cranial lung lobes was a consistent post-mortem finding. *Mannheimia haemolytica* was isolated on culture of lung tissue.



Caption: Post mortem appearance of lungs.

Pasteurella pneumonia tends to occur in 5- to 8-month-old lambs, and outbreaks are frequently associated with changes in climate and management. Attack rates up to 40% occur, with a population mortality of up to 5%. Apparently systemic pasteurellosis follows stress coupled with a move to better feed. In the case investigated, a combination of cold weather, the stress of weaning, moving onto a young cereal crop and crowding and stress during crutching was thought to have provoked a subclinical pneumonia to become severe and systemic and spread through the mob. This investigation was also complicated by the presence of cases of acute and chronic enterotoxaemia, despite a correct vaccination program, and nutrition-related scours.

Atypical pasteurellosis was investigated by DV Wagga Wagga. Sudden deaths were occurring in a mob of crossbred lambs 3 weeks after marking. The lambs were hand fed, and both ewes and lambs were in good condition. Post-mortem findings included haemorrhages throughout the lungs, congested kidneys, peritonitis and inflammation of the omentum. The abomasal mucosa was very congested and oedematous, with congestion extending into the intestine. *Mannheimia haemolytica* was isolated as the primary pathogen cultured from the liver, kidney and abomasum.

Metabolic disease in ewes

Pregnancy toxaemia, ketosis and hypocalcaemia in late pregnant and lactating ewes have been very common this quarter in southern NSW. Much of the region has only short green pick available, and this is not sufficient to meet the energy and calcium demands of twin-bearing ewes. Although many flocks are receiving adequate supplementary feed, the onset of cold, wet weather has meant that ewes have gone off feed and are chasing green pick. In some cases energy levels in rations had to be increased to prevent further losses.

For further information contact Sarah Robson, VO Wagga Wagga, NSW Department of Primary Industries on (02) 6938 1967, or Tony Morton, DV Wagga Wagga, RLPB on (02) 6921 3034.

In this issue!

NSW DEPARTMENT OF PRIMARY INDUSTRIES

Vets get back onto properties

With the deregulation of the OJD (ovine Johne's disease) program, District Vets in OJD-prevalent areas have reported a marked increase in requests for disease investigations. This is welcome news and will allow more efficient disease surveillance in these areas.

Nervous conditions in horses

Two cases investigated during May each involved a 2-year-old Thoroughbred filly in work. There was no contact between the two, one in Scone and one in Sydney. Both fillies showed sudden onset of neurological signs with pyrexia. One became recumbent and was euthanased. The other had abnormal gait and became blind. However, the owners persisted with treatment and after 2 months the animal can see again. Laboratory examinations undertaken to check for exposure to arboviruses were inconclusive. Negative results were obtained in tests for Ross River Virus, MVE (Murray Valley encephalitis), Kunjin and EHV (equine herpesvirus).

Another neurological case in March involved a 6-month-old Arab weanling on which the University of Sydney conducted an autopsy. Histopathological examination in May was reminiscent of *Neospora* infection in ruminants. Material sent to Dr John Ellis of the University of Technology identified the PCR (polymerase chain reaction) product of an organism in the subfamily Toxoplasmatidae. Further work is being done to check for molecular evidence of infection by *Neospora hughesi,* a protozoan infection recently recovered from neurological cases in American horses.

For further information contact Rod Hoare, Technical Specialist (Equine Health), EMAI Camden on 02 4640 6308.

PLANT AND OTHER POISONINGS

Phalaris poisoning

DV Hume investigated six cases of phalaris poisoning in sheep this quarter. Approximately 20 to 50 sheep were lost in each case. All presented as sudden deaths with lateral recumbency. Opisthotonos was observed in affected animals on one property. In most instances poisoning followed a recent paddock change. Phalaris stands had been eaten, although none of the paddocks appeared to be phalaris dominant or 'high risk'. Surprisingly, phalaris poisoning rather than nitrate poisoning has been the most common problem coming out of the long dry spell.

Large losses from phalaris poisoning occurred in the Young district, where 140 out of 1200 merino wethers died 24 to 48 hours after being moved onto a phalaris paddock. Clinical signs included aimless wandering, extended neck, frothing at the mouth, nystagmus, facial twitch, recumbency, paddling and opisthotonos.

Recent research by Chris Bourke (Orange Agricultural Institute, NSW Department of Primary industries) indicates that what was previously thought to be a PE (polioencephalomalacia)-like syndrome of phalaris toxicity is in fact peracute ammonia toxicity; therefore, elevated ammonia levels in the aqueous humor are highly correlated with phalaris poisoning. Full details of this research will be published in the *Australian Veterinary Journal* very soon.

Aqueous humor was submitted in three of the cases investigated by DV Hume. High ammonia levels in the aqueous humor (levels ranged from 1769 µM to 4682 µM, with the normal range being 0–200 µM) supported the diagnosis of phalaris poisoning. Nitrate or nitrite poisoning, polioencephalomalacia and focal symmetrical encephalitis were ruled out.

For further information contact Steve Whittaker, DV Hume RLPB, on (02) 6040 4210.

Blue-green algae (*Anabaena circinalis*) toxicity

Twenty-two of 60 mixed-age cattle from the Narrandera district died with minimal premonitory signs. Paddock inspection showed that the cattle had been drinking from a lagoon with a low level of dark green water. Microscopic examination of the lagoon water confirmed the presence of Anabaena circinalis. Histopathology showed liver lesions (periportal necrosis) consistent with peracute hepatotoxin multiorgan dysfunction, such as would occur with blue-green algae toxicity. Deaths ceased once the water source for the cattle was changed.

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

St George disease (*Pimelea* poisoning) of cattle in north-west NSW

There has been widespread *Pimelea* poisoning of cattle in north-west NSW. Submandibular oedema and oedema in the brisket area as a result of right-sided heart failure ('big head') has been the most common clinical sign in the cases investigated. with diarrhoea seen in one animal.

Submandibular and brisket oedema

This heifer was introduced to the property 12 months previously. Anecdotal evidence suggests that introduced cattle have a higher risk of *Pimelea* poisoning.

Paddock specimen of Pimelea

Dry Pimelea can be seen as the slightly taller and redder plants in this mix of dry grasses. Pimelea is unpalatable, and stock will tend to avoid eating these plants unless there is nothing else available. There is an increased risk of ingestion when the plant dries off and the foetid smell and presumably foul taste of the green Pimelea has gone. The dry plant remains toxic. Cattle can be affected after eating or inhaling dried fragments of the plant.

Cut specimen of Pimelea

The risk of Pimelea poisoning is expected to continue while the weather remains dry. Greg Curran, VO Broken Hill, is investigating treatment possibilities for affected cattle.

For further information contact Greg Curran, VO Broken Hill, NSW Department of Primary Industries, on (08) 8087 1222.

Suspected phosphine toxicity in sheep

DV Dubbo investigated a suspect poisoning of sheep where 32 ewes and six lambs out of a mob of 400 died suddenly. The mob was fed oats daily. The oats were kept in a silo that had been fumigated with phostoxin a month previously. Post-mortem examination revealed congestion and oedema of the lungs in all carcasses examined and petechial haemorrhages on the heart of one animal. Anthrax was ruled out before post-mortem examination. Clostridial disease was considered unlikely, as the sheep were vaccinated. No other poison sources were found. Air and moisture are required for the breakdown of phosphine, and the very dry conditions were thought to be responsible for faulty gas discharge. It is reported that acute phosphine poisoning causes congestion and oedema of the lungs and heart failure.

For further information contact Clive Roberts, DV Dubbo RLPB, on (02) 6882 2133.

Leatherjacket die-off

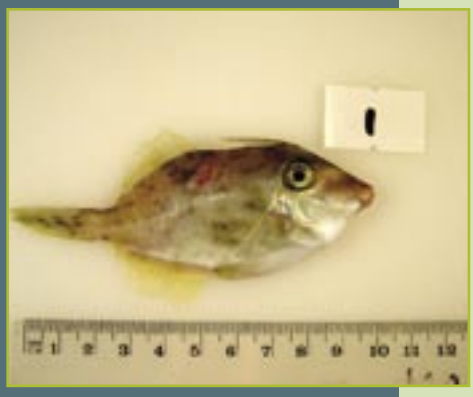
Dead and dying juvenile threadfin leatherjackets (*Paramonacanthus filicauda*) have been examined by NSW Department of Primary Industries staff, Dr Richard Callinan of, Wollongbar and Dr Tony Ross of Menangle. The fish were 10 to 12 cm long and weighed 12 to 19 grams. They had bilaterally abraded dorsal skin between the dorsal and tail fins and ragged fins. Moribund fish were alive but swimming inverted. Some had bright red mottling on the lower jaw.

Fish collected dead had heavy skin infestations of copepod parasites, but those collected alive did not. *Vibrio* spp. of bacteria were cultured from the affected skin and livers of moribund fish. However, there was no histological inflammatory response in the liver. This suggests that the skin lesions that led to muscle necrosis, probable osmotic deregulation and death were colonised by *Vibrio* spp. that spread to the liver as a terminal event. Other findings included empty gastrointestinal tracts, enteric helminths and fatty livers. In some fish species fatty liver is normal and in others it is a sign of catabolism from starvation and disease. Efforts are being made to examine livers from unaffected live threadfin leatherjackets to determine the significance of fatty liver in the affected fish. In some fish there were pathological changes to the gills, heart and gut of unknown significance; these are being further investigated.

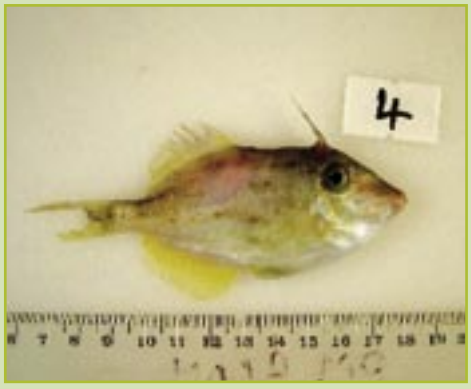
The natural habitat of this species is predominantly tropical sandy bays and river mouths of northern and eastern Australia, down to Moreton Bay in Queensland. Occasionally 'bumper' breeding seasons result in very large numbers of juvenile threadfin leatherjackets moving out into deeper water and being swept south by the strong eastern ocean currents. Although these fish are omnivorous, the food supply in the deep water column is thought to be poor. The fish are thin and become debilitated either then or when they head inshore to find that the already-colonised shallow habitats cannot support them in their hundreds of thousands.

Survival rates in normal seasons are only around 5%, and predation usually ensures that few are washed up on beaches. Dr John Beumer of the Queensland Fisheries Service reported similar large die-offs of the east coast of Fraser Island in March 2003 and again in March 2004. He described reports of similar repeated die-offs in leatherjackets (*Pervagor spilosma*) off the Hawaiian coast. Although the possibility of a highly contagious disease cannot be entirely ruled out, it is likely that the recent observation of leatherjackets washing up on Sydney's beaches was the latest in a series of occasional natural events culminating in the deaths of hundreds of thousands of a species of tropical leatherjacket. The Australian Museum's website has more information.

For more information contact Dr Tony Ross, Veterinary Pathologist, NSW Department of Primary Industries, on (02) 4640 6312.

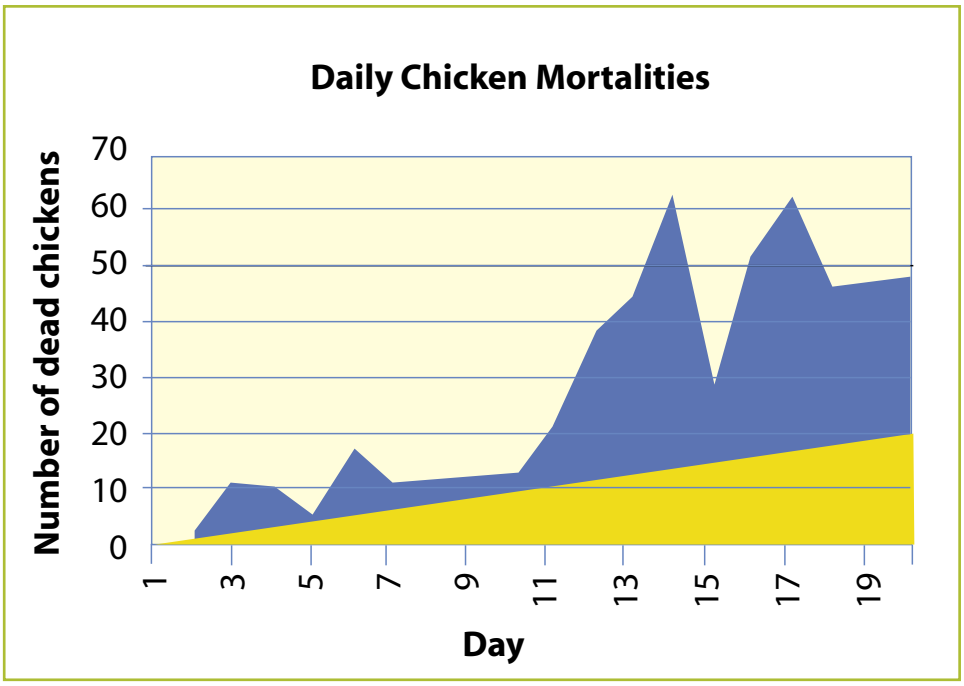


Ulcer on the dorsal skin beneath the dorsal fin of a leatherjacket (Paramonacanthus filicauda) caught in the surf on the Central Coast of NSW in June 2004.



Ragged tail and dorsal fins and a large area of erythema and loss of pigmentation on the dorsal skin of a leatherjacket

Erythema and erosion of the skin of the lower lip of a leatherjacket



Fowl cholera (septicaemic pasteurellosis)

A rapid rise in the daily mortality rate in four sheds of broiler chickens on a poultry farm in the Grafton RLPB district raised the alarm for exotic disease. More than 25% of chickens aged between 6 and 8 weeks of age in a flock of 1600 died over a period of about 3 weeks. Initial samples did not indicate a definitive diagnosis, so further samples (24 blood samples and some more dead chickens) were collected on-farm to eliminate avian influenza and Newcastle disease as possible causes of the outbreak.

Exotic disease was ruled out and a diagnosis of fowl cholera was made. This disease is a bacterial infection (*Pasteurella multocida* ssp. *multocida*) that causes respiratory problems, nervous signs and enteritis. Losses can be decreased by medicating the birds with antibiotics. It is interesting in this case that the chickens were 'antibiotic free' and partly free range so to as command a premium price. The owner was calculating whether to treat the remaining birds or accept further severe losses.

For further information contact Ian Harradine, DV Grafton RLPB, on (02) 6642 3699

NOTIFIABLE DISEASES

Sudden deaths in cattle in the Western Division

Two weeks after the sudden death of two Hereford cattle in south-western NSW, the discovery of six rapidly bloating, decomposing carcases in an adjacent area of the same paddock prompted the farmer to call NSW Department of Primary Industries with grave concern. The cattle had died within 12 hours of each other and presented with varying degrees of haemorrhagic discharge from several body orifices. With daily (and sometimes twice daily) observation after the first deaths, the producer was sure there were no clinical signs prior to death. The dead cattle were of mixed sex and age. Agronomists ruled out toxicity, the water was potable, and the history of the area indicated no recorded anthrax incidents for over 50 years. However, this area was once an old stock route, and the presence of short stubble provided ideal access to spores and bacteria and the opportunity for damage to the oral mucosa.

Examination was carried out about 24 hours post mortem. The bodies were burned and in-contact cattle vaccinated soon after examination. However, smears made from unclotted blood from the distal extremities and tail veins, cultures of aqueous humor, and the new rapid immunochromatographic test proved negative for anthrax. A lack of further deaths prevented a full post-mortem examination and the main differentials considered were:

- clostridial enterotoxaemia (*Clostridium perfringens* type D)
- *Bacillus anthracis* (localised in the gastrointestinal system)
- other clostridial infections.

Five (or seven)-in-one vaccination was recommended, and the producer was advised to contact the NSW Department of Primary Industries immediately if he suspected a sudden, unexplained death.

For further information contact Samantha Yorke, VO Dareton, NSW Department of Primary Industries, on (03) 5027 4409

Dead animal showing bloody discharges

Anthrax

There was one confirmed and one suspected case of anthrax during the quarter. The confirmed case occurred in the Condobolin district, where cattle began dying in late March. Anthrax was confirmed by laboratory examination of peripheral blood smears on 19 April. Investigation had not been sought earlier, because anthrax had not been diagnosed on the property in the previous 60 years, and its diagnosis was considered unlikely. By 26 April, a total of 10 out of 157 beef cattle had died.

The suspected case occurred in the Wentworth district. (See the previous item on 'Sudden deaths in cattle in the Western Division'.)

In both cases, NSW Department of Primary Industries policy for anthrax was applied. Properties were placed in quarantine, carcasses were burned, sites disinfected, and in-contact animals were vaccinated. A number of movements had occurred from the former property, but there was no evidence of spread of infection.

During the quarter there were six other investigations of sudden deaths that excluded anthrax. Two were in sheep, and the alternative diagnoses included suspect nitrate toxicity and pasteurellosis. Four were in beef cattle, and the alternative diagnoses included clostridial myositis and enterotoxaemia.

For further information contact Barbara Moloney, Technical Specialist (Disease Surveillance & Risk Management), Orange Head Office, on 02 6391 3687.

Notifiable diseases of birds

Infectious laryngotracheitis (ILT) was confirmed in one of 10 post mortems of backyard poultry from the Armidale district during April. Of the flock of 53, about 50% had died and 40% were ill. The birds had reportedly been vaccinated for ILT about 2 weeks previously. Other birds had shown signs of poor growth and emaciation from causes other than ILT. ILT was also confirmed in a backyard flock from Kyogle during June.

Chlamydiosis was confirmed by electron microscopic examination of liver sections from an aviary parrot. This adult bird had suffered acute death following a history of deaths of young birds in the aviary. Chlamydiosis was also confirmed by IFAT (immunofluorescence testing) of conjunctival smears of 10-week-old layers that were exhibiting conjunctivitis.

For further information contact George Arzey, SVO (Avian Health), EMAI Camden, on 02 4640 6402.

Cattle tick (*Boophilus microplus*)

Eighteen cattle tick infestations were reported for the quarter, bringing the total for the year to 36. This represents a 25% reduction in the number of infestations reported compared with the same period last year.

DISEASE SURVEILLANCE AND CONTROL PROGRAMS

Bovine Johne's disease Market Assurance Program (Cattle MAP)

At the end of the June 2004 quarter, there were 775 herds enrolled in the Cattle MAP. Of these, 190 herds were MN1 status, 278 were MN2 status and 307 herds were MN3 status.

The enterprise breakdown of these herds is shown in Table 1. During the quarter, 27 MAP herds left the scheme and dropped to NA status. There were no breakdowns of MAP herds to Infected status during the quarter.

Table 1. Cattle MAP herds by enterprise

Enterprise	Total herds	Stud	Commercial
Beef	543 (70.1%)	408 (75.1%)	135 (24.9%)
Dairy	205 (26.5%)	121 (59.0%)	84 (41.0%)
Mixed	27 (3.5%)	7 (25.9%)	20 (74.1%)
Total	775 (100%)	536 (69.2%)	239 (30.8%)

For more information contact Yuni Yunamu, VO Goulburn, NSW Department of Primary Industries, on (02) 4828 6628.

National Granuloma Submission Program in NSW, April to June 2004

Sixty-six granulomas have been submitted from eight abattoirs in NSW this quarter. Twenty were submitted in April, 27 in May and 19 in June. This compares satisfactorily with the same period for 2003, when 64 granulomas were submitted.

Of the 66, 25 were diagnosed as 'Actino', three as 'abscesses', three arising from a parasitic infestation, 24 as tumours, one caused by Rhodococcus sp., and 10 from various other causes such as lingual ulcers (5), a cystic anomaly, and a congenital vascular abnormality of the myocardium in an adult cow.

No TB has been detected in the samples, and no samples have been forwarded to the TB reference laboratory in WA.

Export abattoirs at Orange, Mudgee and Forbes remain closed. The domestic works at Woy Woy closed at the end of May and will not reopen. Inspectors from the Woy Woy works had been

regular submitters of granulomas, achieving outstanding submission rates in the first year of NGSP2 of one granuloma per 97 eligible (two-tooth or above) cattle killed. The domestic works at Wilberforce has closed temporarily.

For further information contact Keith Newby, VO Grafton, NSW Department of Primary Industries, on (02) 6640 1664.

Enzootic bovine leukosis (EBL)

The March 2004 Bulk Milk Testing (BMT) round was completed with all negative EBL results:

Negative BMT	1066	(87.8%) herds
Not sampled (seasonal, off supply etc.)	148	(12.2%) herds
TOTAL	1214	(100%) herds

For further information contact Richard Zelski, VO Tocal, NSW Department of Primary Industries, on (02) 4939 8959.

National Transmissible Spongiform Encephalopathy Program (NTSEP) submissions

Year-to-date regional figures on the collection of specimens for the NTSESP program to 30 June 2004

SFVO Region	RLPB	Bovine			Ovine				Grand Total
		Govt	Priv	Total	Abat	Govt	Priv	Total	
Dubbo	Dubbo			0	3			3	3
Goulburn	Braidwood	1		1				0	1
	Cooma			0		3		3	3
	Moss Vale	1	1	2		2		2	4
Grafton	Armidale	5		5		17	1	18	23
	Northern New England	4		4		4	2	6	10
	Gloucester	1	1	2				0	2
	Maitland	3		3				0	3
	Kempsey	1		1				0	1
	Tweed Lismore	1		1				0	1
Gunnedah	Coonabarabran	1		1		1		1	2
	Northern Slopes	1		1		1		1	2
	Narrabri	3		3		2		2	5
	Tamworth		3	3		1		1	4
	Walgett	3		3		3		3	6
Orange	Central tablelands		2	2			1	1	3
	Condobolin			0		1		1	1
	Molong			0		1		1	1
	Young			0		1		1	1
Wagga Wagga	Hume		5	5		4	6	10	15
	Riverina	1	6	7				0	7
	Gundagai	1		1				0	1
	Murray		1	1				0	1
	Riverina		3	3				0	3
	Narrandera	1		1		2		2	3
	Wagga Wagga		1	1		9		9	10
	Grand Total	28	23	51	3	52	10	65	116

Govt = submissions from government veterinarians
Priv. = submissions from private veterinarians
Abat. = submissions from abattoirs

For further information contact Glen Edmunds, SFVO Gunnedah, NSW Department of Primary Industries, on (02) 6741 8393.

Note: The NSW Department of Primary Industries came into being on 1 July 2004. In this newsletter we refer to the staff from NSW Agriculture and NSW Fisheries and their work and policies as belonging to the new organisation.

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (March 2004). 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 Agriculture 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 occurence 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.gov/au/QA/Newsletter

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