

ANIMAL HEALTH SURVEILLANCE

Information contributed by staff of the Livestock Health and Pest Authorities and Industry & Investment NSW

Surveillance for avian influenza and Newcastle disease in poultry

Between July and September 2010 the Animal Biosecurity Unit funded 20 laboratory investigations of poultry diseases to exclude avian influenza and Newcastle disease (Table 1). During that period, highly pathogenic avian

influenza was reported in Indonesia, Vietnam and Egypt, and Newcastle disease occurred in Canada, Israel, USA, Japan, Mongolia, Peru and Honduras.

Samples were submitted from all the major poultry raising areas (see Map 1).

**For further information contact
Rory Arthur, I&I NSW Orange,
on (02) 6391 3608.**

Table 1. Avian influenza (AI) and Newcastle disease (ND) investigations, July to September 2010, in NSW

Disease	Syndrome	Enterprise	Poultry type	Housing	Number at risk	Result
AI, ND	Respiratory	Commercial	Chickens	Unknown	200	Negative
AI	Respiratory	Commercial	Chickens	Shed	>1000	Negative
AI, ND	Sudden death	Backyard	Chickens	Free range	21	Negative
AI	Not recorded	Commercial	Chickens	Shed	>1000	Negative
AI	Not recorded	Commercial	Chickens	Shed	29 000	Negative
AI	Respiratory	Commercial	Chickens	Shed	45 000	Negative
AI	Respiratory	Backyard	Chickens	Free range	200	Negative
AI	Ill thrift and weight loss	Backyard	Geese	Free range	1	Negative
AI, ND	Not recorded	Commercial	Chickens	Unknown	>1000	Negative
AI, ND	Nervous	Commercial	Chickens	Shed	30 000	Negative
AI, ND	Sudden death	Commercial	Chickens	Unknown	300	Negative
AI, ND	Not recorded	Commercial	Chickens	Unknown	>1000	Negative
AI, ND	Not recorded	Commercial	Chickens	Shed	40 000	Negative
AI	Not recorded	Commercial	Chickens	Shed	30 000	Negative
AI, ND	Sudden death	Commercial	Chickens	Unknown	250	Negative
AI, ND	Not recorded	Commercial	Chickens	Shed	>1000	Negative
AI	Production drop	Commercial	Chickens	Shed	8000	Negative
AI, ND	Sudden death	Commercial	Quails	Shed	14 000	Negative
AI, ND	Respiratory	Commercial	Chickens	Shed	35 000	Negative
AI, ND	Production drop	Commercial	Chickens	Shed	54 000	Negative

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Map 1. Approximate locations of disease investigations of poultry where emergency diseases were excluded



Undiagnosed reproductive failure in a pig herd

An outbreak of reproductive failure characterised by higher-than-normal rates of piglet mummification was investigated in a large, well-managed pig herd during the quarter. During the year, the percentage of mummies was above the industry target (less than 2%), with figures ranging from 2.6% of the total born in May to a high of 6.3% in July. Stillbirth and abortion rates were considered to be within the normal ranges (less than 6% and 1%, respectively) for the same months. Piglet viability did not seem to be affected. Pre-weaning mortality was lower than in preceding years, and there was no clinical evidence of an increase in the proportion of weak-born or deformed piglets. There were no clinical abnormalities in breeding sows. There was no obvious effect of parity on the proportion of mummies per litter. Farrowing rates have been unaffected. The farmer vaccinates selected gilts with

a commercial porcine parvovirus vaccine before mating.

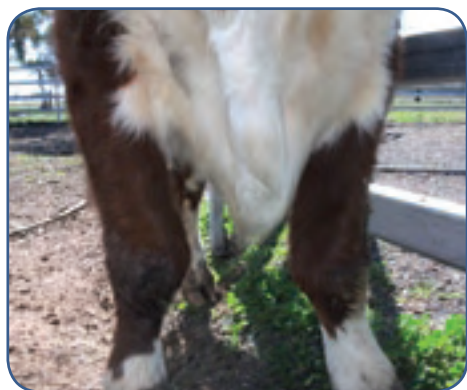
Piglets from an affected litter were necropsied, and one mummified piglet with arthrogryposis was identified. PCR testing of submitted piglets for porcine parvovirus and Bungowannah virus was negative. The cause of the mummification and arthrogryposis has not yet been determined, and further testing is currently under way.

For further information, contact Trish Harvey-Holyoake, I&I NSW Wagga Wagga, on (02) 6938 1993.

Joint swelling and myocardial infarcts in a steer

A small group of 20 steers was purchased into a feedlot operation in the Tamworth region. Within 1 month of arriving, six of the 20 steers had developed joint swelling. One steer had severely swollen joints and gradually deteriorated over a few days until it was euthanased. On gross post-mortem examination necrosis

of the papillary muscles of the heart was identified. *Haemophilus somnus* infection was considered most likely on clinical and necropsy findings.



Joint swelling in a steer with Haemophilus somnus infection Photo: Bob McKinnon



Necrosis of the papillary muscles of the heart in a steer with suspected H. somnus infection. Photo: Bob McKinnon

**For further information contact
Bob McKinnon, Central North LHPA,
on (02) 6762 2900.**

Cysticercus bovis detected in cattle

A very rare case of beef measles, caused by *Cysticercus bovis*, the larval stage of the human tapeworm *Taenia saginata*, was detected during meat inspection at the Tamworth abattoir. Traceback through the National Livestock Identification System revealed that a feedlot near Tamworth was the source of the infected cattle.

From this feedlot, 122 cattle were sent to slaughter and 73 were found to be infected, with small white cysts in the heart and skeletal muscles. All carcasses with widespread lesions were condemned.

Those with localised lesions were trimmed and frozen, and the affected carcass parts were condemned in accordance with Australian requirements.

The formulated ration fed at the feedlot consisted of bread, hay and imported copra meal. The size of the cysts (2 to 3 cm in diameter) suggested that the infectious event took place in late April or early May 2010. A thorough investigation of likely sources of contamination found that there was no possibility of contact with human sewage. The only imported ingredient in the ration was the copra meal, so by a process of elimination it was considered to be the most likely source of contamination with *T. saginata* eggs.

The copra meal was excluded from the ration, and all feed bins were cleaned and then sterilised with a flamethrower. The property is being monitored to determine the effectiveness of these control measures.

Outbreaks of *C. bovis* are very rare in Australia, and isolated detections are also uncommon.



Cysticercus bovis cysts in the heart muscle. Photo: Bob McKinnon

**For further information contact
Bob McKinnon, Central North LHPA,
on (02) 6762 2900.**

Lead poisoning exclusion— suspected rock fern poisoning

On a property in the Mudgee district, three beef weaners died from a mob of

22 steers that may have had access to batteries in an old rubbish tip. Samples from one of the dead animals showed traces of lead in the contents of the reticulum, but no lead was detected in a kidney sample. The entire mob of cohorts was bled and six samples from those with the lowest body condition were submitted for lead testing. These were negative, and the cattle were cleared of any risk of being chemically affected.

Rock fern (*Cheilanthes sieberi*) was observed on the property and was thick in patches. There had been a proliferation of rock fern in the Mudgee district following drought-breaking rains, and it had been confirmed as the cause of death on another property. Rock fern was suspected as the cause of these deaths once lead poisoning was excluded.

**For further information contact
David Gardner, Central North LHPA,
on (02) 6372 1866.**

Australian bat lyssavirus exclusions

Although there have apparently been hundreds of potential human exposures to Australian bat lyssavirus (ABLV), only two cases of infection have been described in Australia to date. Humans can be infected when bitten or scratched by an infected bat.

ABLV has not been recognised in domestic animals in Australia. However, in overseas countries, lyssaviruses can naturally infect (and cause rabies-like disease in) a broad spectrum of domestic mammal species. A conservative approach is therefore taken by veterinarians and owners when an infected bat has bitten or scratched a dog. In some cases, as occurred in September 2010 in NSW, the ABLV status of the bat is unknown, and to be on the safe side it is I&I NSW policy to assume that the bat is infected. Post-exposure vaccination with a rabies vaccine will effectively eliminate the risk of the dog acquiring an infection, provided that the antibody response is adequate. Because rabies vaccine is manufactured in a

multi-dose vial, vaccination is expensive, but it is usually considered worthwhile by dog owners.

Laboratory testing of bats that have shown clinical signs or have scratched humans or animals is funded by I&I NSW and the Australian Animal Health Laboratory in Geelong. During the July–September quarter four suspect cases were excluded (see Map 2).

**For further information contact
Rory Arthur, I&I NSW Orange, on
(02) 6391 3608.**

Botulism in pasture-fed cattle

On a farm in the Casino district three of 40 beef cattle died over a 10-day period. There was no supplementary feeding of the herd. Two of the animals were reported to be ‘paralysed’ before death. When the herd was examined by the district veterinarian, another affected cow was available for clinical examination and necropsy. The cow had flaccid paralysis and was in lateral

recumbency. The tongue was easily pulled out and remained out. At necropsy, the lower oesophagus had a bolus of feed in it and the heart was very flaccid. There was no suspect animal material in the rumen.

A diagnosis of botulism was made on the basis of the clinical and necropsy findings. The source of the toxin was not determined. Four dams in the paddock were examined, but one had heavy reed growth that prevented full inspection. The property was located at the base of an escarpment with numerous soaks. Pasture was in short supply and the cattle were in poor condition. Bone chewing was considered a possible cause. The recommendations to the farmer were to shift paddocks and introduce vaccination.

Botulism is reported occasionally in NSW, and in cattle it is most often associated with supplementary feeding of contaminated material. In extensive cattle enterprises it can be

Map 2. Approximate sources of Australian bat lyssavirus exclusions, July–September 2010



associated with bone chewing due to phosphorus or protein deficiency. Another source of toxin could be stagnant water. Losses from botulism can be very high, with mortalities of more than 40% reported.

**For further information contact
Phil Kemsley, North Coast LHPA, on
(02) 6662 3166.**

Urinary tract disease in feedlot lambs

Severe urinary system disease occurred in three wethers in a group of 100 mixed-sex crossbred lambs at a feedlot in the Mudgee district. They were eating barley and sorghum grain mixed with 1% lime, and they had ad lib access to pasture hay and limited access to a paddock of grazing oats.

Two wethers had died and another was very sick when the district veterinarian examined the flock. This represents an attack rate of approximately 6% of wethers affected.

The sick lamb was euthanased. Necropsy revealed kidney stones in the urethra, with a total blockage near the tip of the penis and more stones in the bladder and kidneys. Both kidneys were severely swollen and distorted and adhered to the capsule by fibrin tags. A greenish-yellow suppurative exudate indicated the presence of acute ascending pyelonephritis. The laboratory cultured *Arcanobacterium pyogenes* from the lesions.

The urethral stones were 2 to 6 mm in diameter and were composed of calcium oxalate (75%) and magnesium ammonium phosphate (struvite) (25%). The owner was advised to add salt to the ration at the rate of 0.25% to 1.5%, and to increase the lime from 1% to 1.5 to 2% to help reduce the likelihood of the barley causing struvite crystals to form in the kidneys. Following the change in the ration no further problems were reported.



Pyelonephritis in a kidney. Photo: Dave Gardner

**For further information contact
David Gardner, Central North LHPA,
on (02) 6372 1866.**

Hendra virus exclusion

Hendra virus exclusions are common on the North Coast of the State, with 47 negative results since early 2009. Frequently the causes of these acute respiratory or neurological illnesses are not determined, because to minimise the risk to human health samples are taken only for Hendra virus exclusion. In this case, investigation of cohort animals and a limited necropsy examination enabled a possible diagnosis for some of the disease signs that were seen.

A 6-year-old mare in a group of nine horses located near Lismore was found dead. In the days before death she had had a slight cough and nasal discharge and slight swelling of the submandibular lymph nodes. She was thought to have aborted in the previous fortnight. Three other horses also had slight serous nasal discharges. Flying foxes were reported to visit the horse property.

At necropsy, the bloated carcass was in lateral recumbency with no evidence of struggle before death. There was white froth and a dark-red, bloody discharge coming from both nostrils. There was a palpable increase in the size of the submandibular lymph nodes, and a copious dark-brown vulval discharge was observed. The submandibular lymph nodes were sampled but no body cavities were opened.

Hendra virus N gene and P gene Taqman[®] assays were negative in blood samples from a sick horse and in nasal and oral swabs from the dead horse. Hendra virus PCR testing was also negative on the lymph node sample. Hendra virus antibody testing was negative in two of the sick horses. Histopathology of the lymph node revealed hyperplasia, lymphocytolysis, congestion and haemorrhage.

Nasal and oral swabs from the dead horse were weakly positive on a PCR test for equine herpes virus (EHV)-4 and negative for EHV-1.

EHV-4 is recognised as a major cause of acute respiratory disease in horses. It was probably the cause of the respiratory signs in this group of horses, but on its own it would not have caused the mare's death. It is likely that the death was from sepsis, perhaps associated with a bacterial infection of the uterus.

**For further information contact
Matt Ball, North Coast LHPA, on
(02) 6621 2928.**

Anthrax exclusions

There were no reported positive anthrax incidents during the quarter; this was the second consecutive 2010 quarter without cases.

On 12 occasions anthrax was excluded as the cause of death in livestock. Five of these involved sheep, and in one of these investigations there was a diagnosis of hepatic abscess, bronchopneumonia and high nematode egg count in a single, aged ewe. Seven investigations involved cattle, and an alternative diagnosis of sporadic bovine encephalomyelitis was made in one case. Anthrax was also excluded in another cattle investigation in which elevated kidney lead levels were found; the cohorts of the affected animals have been withheld from sale for the prescribed period.

**For further information contact
Barbara Moloney, I&I NSW Orange,
on (02) 6391 3687.**

TSE surveillance on imported cattle in NSW

The Imported Animal Quarantine and Surveillance Scheme (IAQSS) has nearly reached its conclusion in NSW, with only one imported (and rather old) cow remaining in this State following the recent destruction of 12 imported cattle. There were 86 imported cattle in NSW when the IACQSS commenced in 2003.

The IAQSS is one part of a multi-faceted approach within the National TSE (transmissible spongiform encephalopathy) Surveillance Program (NTSESP) to enhance market confidence that Australian animals and animal products are free from bovine

spongiform encephalopathy (BSE), otherwise known as mad cow disease. The NTSESP and IAQSS are managed by Animal Health Australia on behalf of State and national governments and many stakeholders in the Australian livestock industry.

The scheme was established to specifically address the risk posed to the Australian livestock industry by animals that had been imported from countries found to have had cases of BSE in their indigenous cattle. At that time, NSW had 86 cattle from Europe, Japan, the USA and Canada. These animals had been imported to Australia for breeding purposes.

Table 2. TSE submissions by district: July–September 2010

District	District vet		Abattoir vet		Private vet		TOTAL	
	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep	Cattle
Armidale		3						3
Bombala	2						2	
Braidwood		1						1
Central Tablelands	4	12					4	12
Cooma	1						1	
Coonabarabran	1						1	
Dubbo	8	1					8	1
Forbes	1						1	
Gundagai	1						1	
Hay	1						1	
Hume		1			7	9	7	10
Moss Vale						1		1
Mudgee-Merriwa	2	4					2	4
Narrabri	1						1	
Northern New England	6	1			1	13	7	14
Northern Slopes		1				1		2
Riverina	2						2	
South Coast	1						1	
Tamworth	1				1		2	
Tweed Lismore		1						1
Wagga Wagga	9						9	
Young	2					1	2	1

To ensure that these cattle were permanently excluded from the food chain, IAQSS required them to have full lifetime traceability and to be monitored extensively. As well as the whereabouts and movements of these animals being monitored via the NLIS database, every property on which imported cattle resided was visited and inspected once a year. In addition, every 6 months the owners of these cattle were contacted to confirm that the stock were still resident on the property and were in good health.

To encourage the disposal of imported cattle in an effort to minimise risk, incentives were offered in recent years to owners to have these animals slaughtered and buried. Slaughtered cattle had their

brains removed before burial, and the brains were examined for TSEs.

The good news is that the brains from these animals have all proven to be negative for TSE.

The NTSESP also provides subsidies to producers for the investigation of sheep or cattle showing neurological signs. When a brain is submitted from cattle that are over 30 months old, the producer is eligible for a subsidy of \$300; brains from sheep attract a subsidy of \$50.

Submissions for the most recent quarter are shown in Table 2.

**For further information contact
Dermot McNerney, I&I NSW Dareton,
on 03 5019 8411.**

Emergency disease exclusion in horses

The Animal Biosecurity Unit funded the exclusion of four emergency diseases of horses during the quarter: contagious equine metritis, Hendra virus, equine influenza and vesicular stomatitis. Samples were submitted from widely dispersed areas of the State (Map 3).

**For further information contact
Rory Arthur, I&I NSW Orange,
on (02) 6391 3608.**

Map 3. Approximate locations of exotic and emergency disease exclusions in horses



Getting information on animal diseases

This surveillance report can convey only a very limited amount of information about the occurrence and distribution of livestock diseases in New South Wales. If you would like more specific information about diseases occurring in your part of the State, contact your local Livestock Health and Pest Authorities District Veterinarian or Departmental Regional Veterinary Officer.

For Statewide information, contact I&I NSW Animal and Plant Biosecurity Branch in Orange on (02) 6391 3237 or fax (02) 6361 9976.

For more information on national disease status, check the National Animal Health Information System (NAHIS) via the internet at:
<http://www.animalhealthaustralia.com.au/status/nahis.cfm>

This is a report under the Animal Disease Surveillance Operational Plan, Project 8, 'Reporting for Animal Disease Status in NSW'.

Prepared by Rory Arthur, Animal and Plant Biosecurity Branch,
Industry & Investment NSW, Kite St, Orange 2800.
Phone 02 6391 3806

E-mail: rory.arthur@industry.nsw.gov.au

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

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The information contained in this publication is based on knowledge and understanding at the time of writing (December 2010). 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 Industry & Investment NSW or the user's independent adviser.

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