

ANIMAL HEALTH SURVEILLANCE

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

Recent emergency animal disease exclusions

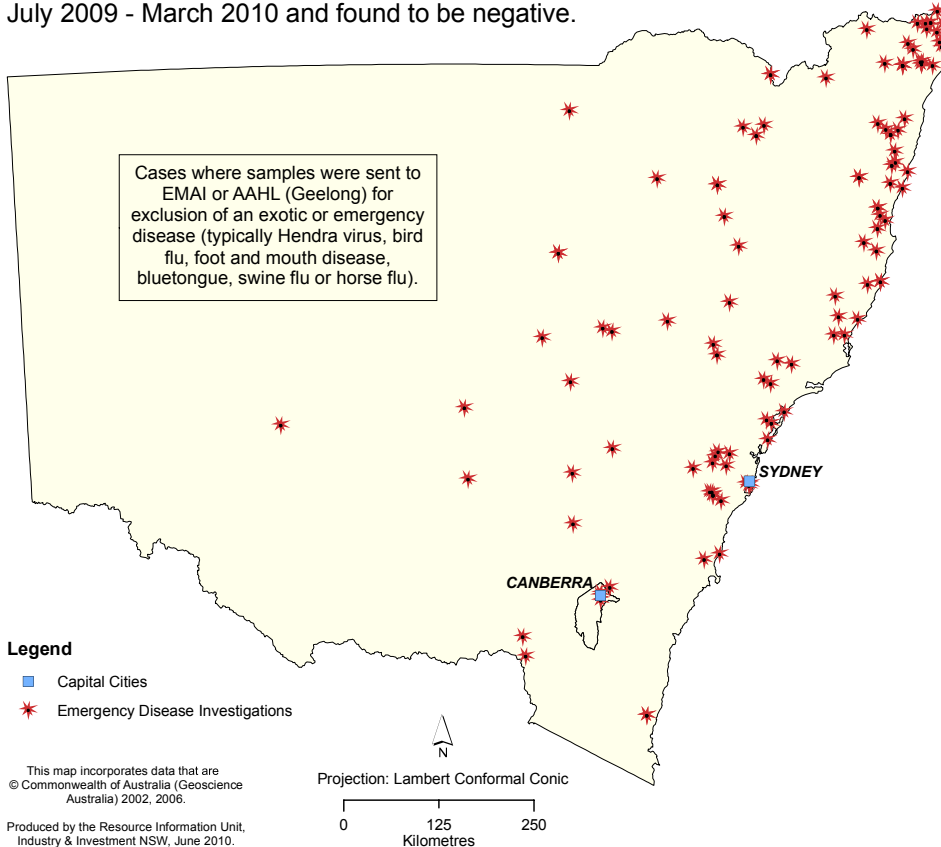
Most staff and LHPA Directors are not aware of the large number of exotic disease exclusions that are done as part of NSW's disease surveillance program. Hundreds of people every year across NSW, including private veterinarians, contact government veterinarians if they see something unusual in their stock, as the accompanying map illustrates. They are playing their part in protecting our State's \$8.5-billion

agriculture industry and ensuring it remains productive and profitable.

Sometimes diagnosis is extremely difficult. The sea squirt detected in Twofold Bay (reported in the last issue of *Animal Health Surveillance*) was confirmed by national and international experts *not* to be *Didemnum vexillum*, and it was also confirmed not to be an invasive species.

For further information, contact Rory Arthur, Manager Animal Biosecurity Surveillance and Epidemiology, I&I NSW, Orange, on (02) 6391 3608.

Suspected Emergency Animal Diseases Investigated in NSW, July 2009 - March 2010 and found to be negative.



In this issue!

Recent emergency animal disease exclusions	1
Ovine Johne's disease still on the rise	2
Suspect poisoning by marshmallow	2
Riverina pig producers cooperate in disease surveillance	3
Sudden deaths from chemical poisoning	3
Buffalo flies found in the Brewarrina area	3
Benign theileriosis	3
Resistance to cattle drenches on the rise?	4
Tick fever excluded	4
Suspected ergot toxicity in dairy cows	4
Kikuyu poisoning	5
Severe pneumonia in cattle	5
Surveillance detects swill feeding	5
Kangaroo deaths and blindness	5
Floods and parasitic disease	6
Enterotoxaemia in lambs	7
Malignant lymphoma in a goat	7
Foot and mouth disease (FMD) exclusion	7

Ovine Johne's disease still on the rise

Two recent cases are a timely reminder that ovine Johne's disease (OJD) is still a major cause of death in sheep, particularly in flocks located in the high prevalence areas.

In one case, the owner noticed ill-thrift and deaths in a flock of 2000 homebred Merino ewes. About 30 ewes were sick when examined by the District Veterinarian and 14 had died over a period of a few months. They had lost weight, with or without scouring, until they had reached a point of recumbency or death, despite management by drenching or extra feeding.

In the second case, the owner purchased cross-bred ewes from an ovine Johne's disease (OJD) high prevalence area. In the mob of 200 ewes, five had been noticed sick or found dead in the 3 weeks before veterinary examination. The ewes were lambing or had lambs at foot at the time of the deaths.

The Elizabeth Macarthur Agricultural Institute (EMA) State veterinary laboratory confirmed OJD as the cause of death in both cases from examination of samples of the ileocaecal valve, ileum and mesenteric lymph nodes.

The District Veterinarian advised the owners to vaccinate in their flocks to help control the disease in future.

Neither of these properties had reported any history of OJD, but both were located in the high prevalence area. None of the sheep was vaccinated. No Sheep Health Statement was obtained for the purchased mob; such a statement would have indicated the OJD risk status of the sheep.

For further information, contact **Eliz Braddon, Senior District Veterinarian, Lachlan LHPA, on (02) 6382 1255.**

Suspect poisoning by marshmallow

In the Riverina LHPA, 30 dry dairy cows were moved from a feed pad into a small paddock containing a prolific mixed growth of ryegrass and marshmallow (small-flowered mallow, *Malva parviflora*). Within 12 hours, nine were dead and another two were ataxic.



Marshmallow is suspected of being toxic in some circumstances.
Photo: Dan Salmon

One of the two ataxic cows appeared blind. It did not avoid people in the yards. It had no eye preservation reflex but it had an observable pupillary reflex. Both cows recovered uneventfully within 12 hours of being removed from the paddock.

On autopsy of two of the nine dead cows 3 hours post mortem, the only observed change was ecchymoses of the epicardium of the right atrium.



Lymphatic cording and oedematous omental fat are typical of ovine Johne's disease. Photo: E Braddon

The blood of both animals was not distinctly brown. The mucous membranes were not muddy.

The rumens were well filled with macerated green plant material.

Aqueous humour and serum samples were negative to a dipstick test for nitrites.

The sera had 50 to 100 mg/L nitrate; the reference level is less than 10 mg/L.

The feed troughs in the feed pad had inadvertently been allowed to run out of feed, so it is likely that the cattle were hungry when moved and were therefore more likely to eat excessive amounts of any plant. The marshmallow had obviously been grazed heavily.

Dairy effluent had spilled onto the paddock several months previously, so that the nitrogen levels in the soil would have been elevated.

Anecdotally, marshmallow has been suspected of causing livestock deaths, most likely due to nitrate poisoning, but this is not documented in veterinary textbooks.

Suspected cases have almost invariably occurred when hungry animals have been put into heavily manured stockyards with a prolific growth of marshmallow. However, marshmallow sometimes grows prolifically over vast areas of the Riverina with no reported fatalities in extensively grazing livestock.

Riverina pig producers cooperate in disease surveillance

Eleven pig producers living within a 250 km radius of Wagga Wagga are participating in a collaborative disease surveillance project that helps train veterinary students.

The project is an initiative of staff of I&I NSW and the Veterinary School at Charles Sturt University. The staff have formed the Riverina Pig Farmers Veterinary Advisory Group. It conducts disease surveillance on local pig farms and advises producers on pig health, welfare, reproduction, growth performance and quality assurance.

The herd size of the piggeries ranges from 50 to 1000 sows. Each farm visit includes post-mortem examinations and disease diagnoses on sick and dead pigs.

Students write a farm report under the supervision of advisory group staff and the piggery owner's consulting veterinarian, and the prevalence and distribution of various diseases are shared between industry and government.

For further information, contact Dr Trish Holyoake, Technical Specialist Pigs, I&I NSW Wagga Wagga, on (02) 6938 1993.

Sudden deaths from chemical poisoning

Nine of sixteen Angus bulls died near an old rubbish tip on a property in north-western NSW.

The District Veterinarian saw nine mixed-aged bulls in lateral recumbency and advanced decomposition, aggregated around the rubbish tip in one corner of a paddock. The tip site was large and not covered. It contained many old rusting and leaking chemical drums, old machinery parts (including lead-acid batteries), and old arsenic sheep-dip containers. Arsenic-based sheep dips were phased out in the 1980s. Soil samples were collected for chemical analysis.

Post-mortem examination of the bulls for chemical residue sampling was not conducted, because decomposition was advanced. Although the risk of anthrax was considered very low, samples for PCR testing were collected and sent to the EMAI laboratory. The test results were negative. The remaining bulls and 58 in-contact cows were all in apparent good health, and arrangements were made to have them yarded and sampled to exclude lead poisoning.

Blood lead levels were normal. Soil sampling revealed that arsenic was present at low levels, so arsenic poisoning was suspected as the cause of the losses.

The owner was required to permanently fence off the tip site with a stock-proof fence, and the carcasses and tip contents have all been covered by earth. The site of the tip has been documented to permanently identify the area and give some long-term assurance that food products from this farm will not be affected by residue contamination from the site.

The economic losses in this case included the direct loss of the nine bulls and their subsequent replacement, the cost of earthworks to cover the carcasses and tip remnants, and the costs of permanently fencing the area. These costs are compounded by the subsequent costs of testing the surviving cohort.



Cattle deaths from suspected arsenic toxicity. Photo: L Martin

For further information, contact Lisa Martin, District Veterinarian, New England LHPA, on 02 6736 1355.

Buffalo flies found in the Brewarrina area

The Senior Ranger for the Darling LHPA was contacted by a producer on a north-western NSW property near Weilmoringle. The producer had noticed small flies on his cattle. The flies appeared to be causing some irritation.

Not having seen these flies before, the producer sought professional help. EMAI entomologists identified them as *Haematobia irritans exigua*, known as buffalo flies.

Buffalo flies are certainly not very common in this normally dry western area, which has cold winters. In this case a hot, rainy summer had helped the flies to spread and survive. LHPA staff commended the owner for 'spotting the unusual and notifying'.



Buffalo flies. Photo: K Greentree

For further information, contact Kylie Greentree, Veterinary Officer I&I NSW, Bourke, on (02) 6872 2077.

Benign theileriosis

The project to encourage laboratory submissions of suspected benign theileriosis cases to EMAI resulted in 169 accessions from May 2009 to 15 June 2010. The project has now been completed.

The project better defined the incidence and clinical and laboratory findings of benign theileriosis, as well as some features of the epidemiology. Results will be collated and presented at various meetings and in the *Australian Veterinary Journal*. Thanks to all who contributed cases for detailed study.

As from 1 July 2010, submissions for theileria testing will be charged as normal animal health submissions.

For further information, contact Graham Bailey, Veterinary Research Officer, I&I NSW, Orange, on (02) 6391 3870.

Resistance to cattle drenches on the rise?

Disease surveillance is detecting signs that Australian cattle producers are facing a problem of declining drench efficacy.

I&I NSW staff have previously noted occasional reports of benzimidazole ('BZ' or 'white') drench resistance in *Trichostrongylus axei* (stomach hair worm), which is not a major worm species in this country. However, there are increasing field reports of suspected drench resistance in more common worms. Queensland parasitologist Dr Maxine Lyndal-Murphy and colleagues have reported the failure of macrocyclic lactone ('ML', 'mectin') drenches against subtropical small intestinal worms (*Cooperia* species) in cattle, and possibly against barber's pole worm (*Haemonchus placei*) as well.

District veterinarians are encouraging producers to start testing the efficacy of their drenches sooner rather than later. By the time it becomes obvious that drenches are not working effectively on a property, the economic loss through reduced productivity has already been significant.

From time to time, a 'DrenchCheck' worm egg count should be done on around 10 cattle after a routine drench of the mob. The count should be compared with worm egg counts done on the day the mob is drenched to allow calculation of the percentage reduction in worm egg counts after treatment. The reduction should be over 95%.

As a general rule, the post-treatment counts are done 14 days after the drench. It helps to get a worm type or larval culture done as well as the egg counts to determine what species of worms are present.

For further information, contact Steve Love, State Coordinator Internal Parasites, I&I NSW, Armidale, on (02) 6738 8519.

Tick fever excluded

In April 2010, tick fever was suspected in a herd of cows in Eungella (near Murwillumbah) by inspectors investigating a cattle tick infestation. In the preceding week 10 cows had died and a number of live cattle had developed rapid respiration. A North Coast LHPA District Veterinarian undertook an investigation to exclude tick fever.

Approximately 15 cows were identified as appearing unwell and in very poor body condition. Of these, five cows with increased respiratory rate were examined in detail. All had temperatures above 40°C and were covered

in large numbers of cattle ticks (*Boophilus microplus*) and bush ticks (*Haemaphysalis longicornis*). None of the cows had red urine, but blood was detected on a urine dipstick in one cow. Four of the cows had pale mucous membranes and one cow had jaundiced mucous membranes.

In the laboratory no *Babesia* or *Anaplasma* organisms were detected in any blood smears. Clinical signs and other laboratory findings indicated that, rather than tick fever, the problems were caused by tick worry and anaemia predisposing to respiratory disease.



Severe tick infestation. Photo: M Ball

For further information contact Matt Ball, Senior District Veterinarian, North Coast LHPA, on (02) 6621 2317.

Suspected ergot toxicity in dairy cows

A herd of dairy cattle on the North Coast of NSW suffered suspected ergot toxicity from corn silage that may have been contaminated with fungi. The persistently wet season on the far North Coast had made the production of dry silage extremely difficult.

The cows were actively seeking shade, and about 10 were showing quite severe signs of heat stress within a few days after a change of feed to corn silage.

Affected cows showed fever, increased respiratory rates, mouth breathing and salivation. Some were panting and had distended jugular and facial veins. Blood samples were taken and all the cows were showered with cold water. After 10 to 15 minutes of showering, some improvement in their temperament was observed.

A provisional diagnosis of ergot poisoning was made and the cows were denied access to the corn silage. The problem was resolved. Laboratory examination of blood samples ruled out infectious causes of fever and respiratory disease.



A distended jugular vein from suspected ergot alkaloid-induced vasoconstriction. Photo: K Newby

For further information contact Keith Newby, District Veterinarian, North Coast LHPA, on (02) 6642 3699.

Kikuyu poisoning

Kikuyu toxicity caused cattle mortalities in the Casino district. Ten died after showing signs of thick drooling saliva, ataxia and 'sham' drinking (i.e. the cattle wanted to drink but were not able to). At death, their noses were pointing into the ground.

Post-mortem examination of one cow revealed a grossly overfull rumen with excess fluid and feed. This led to compression of the lungs, marked pulmonary oedema and congestion, stable froth and mucosal haemorrhages in the lower airways, and marked distention of the heart and thoracic blood vessels, with severe haemorrhages in the heart muscle and pericardium.

The toxic principle in kikuyu poisoning is derived from an endophyte that occurs occasionally in kikuyu in response to moist conditions and a flush of growth. It has been associated with the application of poultry manure, as had occurred in this case.

Treatment involved moving the cattle to safer pastures. Because toxin levels are highest in the stem, the cattle were moved from paddock to paddock so that they did not have to graze the lower stems of the kikuyu.

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

Severe pneumonia in cattle

Surveillance detected two classic cases of bacterial pneumonia during the quarter.

Near Moree, a group of 120 Angus steers aged between 7 and 10 months were weaned into a yard and fed on grassy lucerne hay plus a proprietary weaner feed. The days were warm and nights were mild, but a few days later there was a severe cold snap that dropped the night temperature dramatically. Within a few days the owner noticed that about 20 of the weaners were depressed and reluctant to feed, and some were coughing, especially after moving. One died during the night. Another was very sick 2 days later.

Clinical examination of the worst-affected steer showed it to have a high temperature (42°C), rapid breathing and nasal discharge. On auscultation of the lungs, severe rales were heard.

A diagnosis of pneumonia exacerbated by cold stress was made and the owner treated all animals showing signs with oxytetracycline at 1 mg/10 kg live weight. The most severely affected weaner died the following day and was autopsied immediately.

Post-mortem findings were typical of pneumonia: the dorsal parts of the lungs were reasonably normal but the ventral parts of the lobes were severely consolidated. There was also a severe diffuse fibrino-purulent exudate in all levels of the airways and a thick layer of fibrin covered the lungs. Fibrin and fluid were present around the heart.

Lung tissue and culture swabs were sent to EMAI and this confirmed the diagnosis of pneumonia. *Mannheimia haemolytica* and *Pasteurella multocida* were isolated.

Near Narrabri, of 700 weaner cattle aged 9 months of age, 64 died over a 3-week period from a severe, diffuse, subacute, fibrinosuppurative, haemorrhagic and necrotising pleuropneumonia caused by *M. haemolytica*.

The weaners were stunted because of the drought conditions. They were yarded, weaned, and then placed in one large mob on oats. Approximately 16% of the mob showed respiratory signs, which included coughing and increased respiratory rate. Some animals progressed to death in a matter of hours after showing clinical signs.

Deaths ceased shortly after veterinary examination and the herd recovered without treatment over a period of weeks.



Bacterial pneumonia. Note lung consolidation and fibrin exudate. Photo: Allan Baker

For further information, contact Bob McKinnon, Senior District Veterinarian, Central North LHPA, on (02) 6762 2900 and Allan Baker, District Veterinarian, North West LHPA, on (02) 6752 8012.

Surveillance detects swill feeding

Through its excellent relationship with an RSPCA inspector, the Wagga Wagga office of the Hume LHPA recently detected a case of swill feeding.

A visit to a property under investigation for suspected animal welfare breaches resulted in an owner being fined \$550 for 'allowing a pig to gain access to a prohibited substance'. The prohibited subject in question was a goat carcase. It was obvious to staff that the goat had been deliberately fed to the pigs. The owner's explanation was that the boar had been escaping from its pen and dragging back goat carcasses!

All cases of swill feeding are treated as serious breaches of the legislation. In this case, in the context of his communications subject at university, a student analysed the communication style of the inspectors involved. The report is available on request.

For further information, contact Tony Morton, District Veterinarian, Hume LHPA, on 6923 0903.

Kangaroo deaths and blindness

Kangaroo deaths were reported within about 100 km of Tibooburra, including in Sturt National Park (NP), in early March 2010. The animals affected were red kangaroos (mainly larger adult males and females). Those examined showed degrees of blindness

without external eye lesions; subcutaneous haemorrhages; severe changes around and in most limb joints; and congestion and some oedema about these joints, along the long bones, and across the rib cage. Investigators estimated that the epidemic had spread up to western Queensland and might have affected 200 to 600 animals. It lasted from mid-February to March, 2010 and followed a series of heavy summer rains, from November 2009 to February 2010. Pasture availability was excellent, with good diversity of herbage and grasses. There were large numbers of biting insects following the heavy rains. Most were mosquitoes but there were some reports of sandflies.

Kangaroo populations were much lower than seen in a major die-off of kangaroos in 1998. Water was not a limiting factor, although affected animals tended to be close to the few permanent waters in Sturt NP. Heavy rains had left many smaller ephemeral waters in the area.

Although a good range of fresh and fixed samples was submitted, the aetiological agent has not yet been confirmed. It is possible that sampling of animals with choroiditis occurred too late to isolate a virus.

The environmental conditions this year were similar to those before the deaths in kangaroos in the 1990 and 1998 die-offs, with a difference being heavy winter and early spring rain in 1998.



Haemorrhages around the hock joint of a kangaroo. Photo: G Curran

For further information, contact Greg Curran, Regional Veterinary Officer, I&I NSW, Broken Hill, on (08) 8088 9336 or Tiggy Grillo, Australian Wildlife Health Network, on (02) 9978 4788.

Floods and parasitic disease

Sheep deaths from severe intestinal parasite burdens are not usually the problem one first thinks of when predicting post-flood health

issues. However, so far this year many sheep enterprises in the western part of the North West LHPA have reported severe haemonchosis, with both clinical signs and deaths. These problems resulted from substantial rains over the Christmas – New Year period, with good follow-up falls through late summer. Problems were particularly apparent in the Walgett – Lightning Ridge area, where flooding also resulted in sheep being held for extended periods at much higher than average stocking rates.



Submandibular oedema, sign of a high worm burden. Photo: Libby Read

A typical case investigated was when 100 of 1500 six-month-old Border Leicester – Merino cross lambs died over a week early in the quarter. The mob had been drenched in January with abamectin but had been returned to the same paddock because of flooding.

The investigation found many lambs with submandibular oedema, lethargy and pale mucous membranes. Many of the lambs were also in less than store condition, despite abundant feed. An autopsy of an affected lamb found anaemia and a mass of *Haemonchus* (barber's pole worm) in the abomasum.



Masses of barber's pole worms caused sheep deaths. Photo: Libby Read

For further information, contact Libby Read, District Veterinarian North-West LHPA, on (02) 6792 2533.

Enterotoxaemia in lambs

With the increasing percentage of meat breeds, rather than pure Merinos, in the Narrabri district, enterotoxaemia is being regularly diagnosed. Of the following two cases, the first is typical, whereas the second illustrates enterotoxaemia in very young lambs.

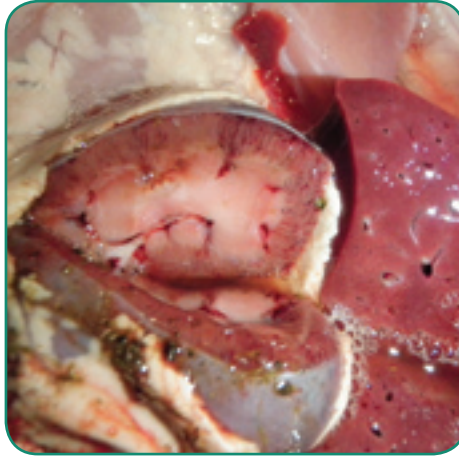
Seven lambs from a mob of 70 second-cross Dorset lambs died on a Narrabri district property. The weaned lambs had been grazing a paddock of fodder oats for several weeks. They also had access to a self-feeder containing oats and to an adjacent area of dry standing feed. After being yarded for sale of the fattest lambs, two lambs died overnight. Two more died that morning within a few hours of showing signs.

Affected lambs were all in lateral recumbency. There were signs in the dirt of paddling before death. A small amount of foam was present around the mouths, along with evidence of slight diarrhoea. Autopsies confirmed enterotoxaemia with glucosuria and excess pericardial fluid.

The mob had not been vaccinated against enterotoxaemia, as the owner had traditionally run only Merinos and had never previously experienced enterotoxaemia outbreaks. Following the diagnosis the mob was vaccinated and moved to a paddock of dry standing feed. Three more died over the next 5 days.

The second case was in a flock of 25 fat-tailed Damara ewes. The mob was grazing dry standing native pasture of poor quality. This was supplemented with chick peas. However, feed conditions had only recently deteriorated after substantial summer rains. As a result the ewes were in very fat condition and ewes with lambs had very large udders.

The flock was closely observed and not vaccinated. Of 12 lambs born over the preceding 3 weeks, three died after a few hours; they showed nervous signs, including staggering and terminal convulsions. The last one was observed in lateral recumbency with opisthotonos. The lamb also showed repeated lifting of the head and swaying caudally, with slight trembling. There was no response to Ca-Mg-glucose solution or thiamine. At post-mortem examination, the urine was strongly glucose positive. Excess pericardial fluid was present. The kidneys showed signs of autolysis in advance of other internal organs, especially when compared with the liver (see photo).



Unlike the liver, which appears normal, the pulpy kidney has lost its structure. Photo: Shaun Slattery

Vaccination of lambs at a few days of age and of heavily pregnant ewes prevented further cases.

For further information, contact Shaun Slattery, Senior District Veterinarian North-West LHPA, on (02) 6792 2533.

Malignant lymphoma in a goat

A 5-year-old boer goat doe had persistent fever that did not respond to antibiotics and anti-inflammatory treatment. At autopsy, all lymph nodes showed gross enlargement, including a node that had grown to twice the size of the kidney and had a necrotic centre. The spleen was also enlarged to approximately twice its normal size. Laboratory diagnosis confirmed the diagnosis of malignant lymphoma.



Swollen lymph nodes along the backbone. Photo: Ted Irwin

For further information, contact Ted Irwin, District Veterinarian, North West LHPA, on (02) 6729 1528.

Foot and mouth disease (FMD) exclusion

In March 2010 the North Coast LHPA investigated illness, death and stillbirths in 20 free-range pigs kept for weed control. Two sows had died in the month, a number of stillbirths had been found, and two weaners were sick with lethargy and inappetance. One weaner pig was available for euthanasia and necropsy. This pig bled copiously during blood collection and had red ears, dark-coloured faeces and a large swelling under the jaw. A 4-mm flap of skin was lifted off the snout; there was a red ulcer underneath. A 4-mm ulcer was also found in the coronary-band area of a front leg. The tonsils appeared discoloured. The stomach lining was ulcerated and the intestines contained dark-coloured fluid.

Laboratory testing produced negative results for exotic diseases such as FMD, swine vesicular disease and vesicular stomatitis. *Bacillus anthracis* was not detected. Myriad fungi were noted in the skin and tonsil slides. A mycelial fungus called *Geotrichum* was isolated from the tonsils. This fungus is found in soil, milk and vegetables and is an opportunistic pathogen in immunocompromised animals or humans.



Foot and mouth disease was excluded in this free-range piggery. Photo: Matt Ball

For further information contact Matt Ball, Senior District Veterinarian, North Coast LHPA, on (02) 6621 2317.

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'.

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

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (July 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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LHPA

Safeguarding Agriculture in NSW