

NEW SOUTH WALES

ANIMAL HEALTH SURVEILLANCE

October 2021–March 2022 » Issue 2022/1

Contents

African Swine Fever excluded from piglet mortality	2
Anthrax exclusions Oct 2021 to March 2022	3
Anthrax exclusion in sheep	4
Foot and mouth disease exclusion in 1st cross sheep	5
Lumpy skin disease exclusion in beef cattle	6
Lumpy skin disease exclusion in cattle	7
Getting information on animal diseases	8



Background to the NSW DPI-Local Land Services animal disease and pest surveillance program

The NSW DPI is obliged under the *Biosecurity Act 2015* to detect and manage notifiable animal disease outbreaks. This obligation is met by government veterinary officers being required to investigate potential notifiable disease outbreaks and unusual diseases that may be new, emerging or difficult to diagnose. They also conduct targeted surveillance projects, inspections of stock at saleyards and monitoring of compliance programs.

The desired outcome is the early detection of notifiable diseases, including exotics, and thus minimisation of negative impacts, and accurate, verifiable data on the animal disease and pest status of NSW. Reports are collated at the state level, for subsequent official reporting to the National Animal Health Information System (NAHIS), which is managed by Animal Health Australia. The NSW surveillance program is supported by Laboratory Services at Elizabeth Macarthur Agricultural Institute (EMA) and by research staff who design and improve diagnostic tests and, working with field veterinarians, investigate the epidemiology of diseases that may have significant biosecurity impacts.

African Swine Fever excluded from piglet mortality

In late September 2021, the District Vet was contacted about piglet mortality in south-western NSW.

Thirty-five Berkshire 10-week-old piglets were recently purchased from a nearby property and were introduced to the farm 6 days prior to the clinical signs occurring. They were placed into a quarantine paddock upon arrival.

One piglet was noticed to be lethargic and passing watery, bloody diarrhoea. The piglet was isolated and treated with penicillin but died the next day. A post mortem revealed severe inflammation and ulceration of the caecum and colon. The small intestine and rectum looked normal. No worms were observed. Externally, the piglet had lice and mange. Samples were collected and sent to the lab following the process outlined in the primefact <https://www.dpi.nsw.gov.au/biosecurity/animal/info-vets/african-swine-fever/asf-investigation> to exclude African Swine Fever.

African Swine Fever (ASF) is an exotic disease which can

cause diarrhoea and death in pigs. This disease has spread to many Asian countries in the last few years, including some geographically close to Australia. As well as biosecurity restrictions to prevent the disease from entering the country, it is important to have surveillance programs to test for exotic diseases in animals showing similar clinical signs. This case also reinforces the importance of on property biosecurity plans.

Further deaths and illness occurred whilst awaiting laboratory results so advice from a specialist pig veterinarian was sought. The group was treated with injectable ivermectin and a couple with blood in the faeces were also treated with the antibiotic tylosin. The newly sick piglets died despite treatment. Two piglets with rectal prolapses were euthanased for samples in early October. Again, lesions were found in the caecum and colon, although at this time the ulcerated patches looked necrotic rather than haemorrhagic. There were no

Continued on page 3



Figure 1: Necrotic plaques in large intestine of euthanased piglet



Figure 2: Lice and mange found on the deceased piglet

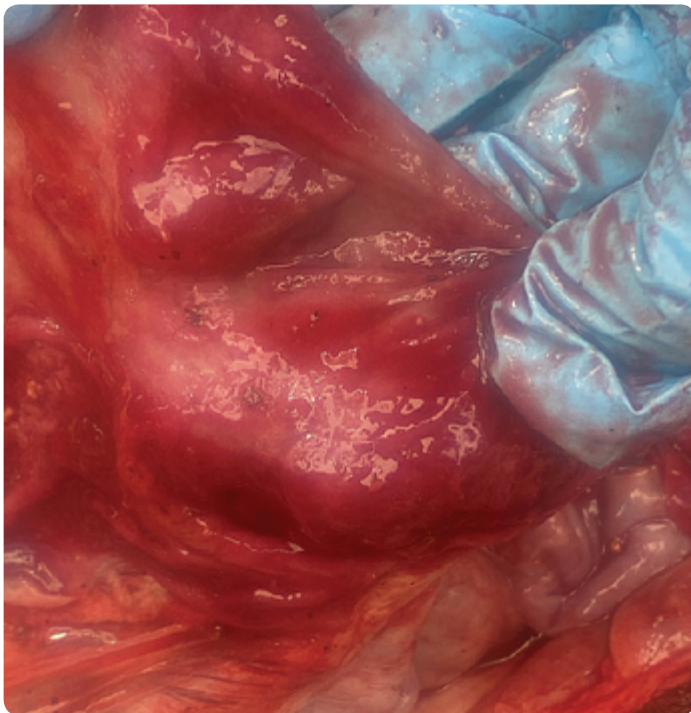


Figure 3: Haemorrhagic lesions found in large intestine of first dead piglet

Continued from page 2

signs of gastric ulceration. In discussion with the consulting pig specialist, blood, fresh and fixed tissue as well as swabs of the gastrointestinal system were collected for testing, including circovirus, *Salmonella*, *Brachyspira* and less likely *Lawsonia intracellularis*, as well as excluding additional exotic diseases, classical swine fever (CSF) and transmissible gastroenteritis. From the range of samples sent to the Elizabeth Macarthur Agricultural Institute (EMAI) a subset was taken and forwarded to the Australian Centre for Disease Preparedness (ACDP). These were tested for important exotic pig diseases including ASF, CSF, porcine epidemic diarrhoea virus, and transmissible gastroenteritis virus, which all returned a negative result. The samples were also found to be negative for pestivirus.

The samples were positive for porcine circovirus 2 (PCV2) and *Salmonella typhimurium*. Although the owner had purchased the piglets believing them to be vaccinated against PCV2, this was later found not to be the case.

Salmonella alone causes severe enteric disease in many species, including pigs. It is likely that, in this case, coinfection with PCV2 increased the morbidity and mortality of the piglets.

For more information contact Linda Searle, District Veterinarian, Murray Local Land Services, Deniliquin on 0427 629 740

Anthrax exclusions Oct 2021 to March 2022

There were no diagnoses of anthrax during the two quarters.

There were a total of 75 mortality investigations during the six month period where anthrax was ruled out as the cause of death. Thirty-five of these involved cattle where alternate diagnoses included lactic acidosis, Theileriosis, bloat, pneumonia and toxicities including urea and plant poisonings (*Cestrum parqui* and *Peridium esculentum*).

There were 38 sheep mortality investigations where alternate diagnoses included lactic acidosis, intestinal

parasites, clostridial infections and hypocalcaemia. One investigation involved pigs where Glassers disease was diagnosed and one horse where there was no alternate diagnosis. The ICT was used with negative results in 59 investigations and the other 16 were negative on laboratory testing alone.

Anthrax exclusion in sheep

Anthrax was excluded from a mob of crossbred wether lambs following sudden death at a property in the Murray region during October and November 2021.

The producer called their local District Veterinarian after they had lost 16 lambs out of 290 over the previous six weeks.

The lambs were grazing a lush, mature lucerne and clover paddock. They were also being supplementary fed barley via feeders and ad lib hay. A commercial salt, lime and molasses lick was also provided ad lib. The lambs were up to date with clostridial vaccination and drenching.

No clinical signs were noticed in the sheep prior to death, however the producer said that the deaths seemed to occur following cloudy/overcast days.

At the initial visit, 3 carcasses were presented with abdominal distention. One carcass was examined by post-mortem (PM), the other two were too autolysed. An anthrax Immunochromatographic test (ICT) was conducted on blood collected from the cut surface of the base of the ear. Once the ear was cut, the blood significantly pooled at the base of the ear and had delayed clotting (Photo 2). The anthrax ICT test was negative.

On PM, both lungs were congested, the mucosa of the intestines, rumen, abomasum, and reticulum was severely erythematous and haemorrhagic in places, there was increased vascularisation of the mesentery, the kidneys appeared swollen, and the liver appeared enlarged. No other abnormalities were detected grossly. Urine dipstick was normal except for 1+ glucose.

Laboratory analysis of aqueous humour ruled out nitrate/nitrite toxicity, hypocalcaemia, hypomagnesaemia, ketosis, and acidosis (D-Lactate). No further testing was completed on the tissue samples due to possible autolysis.

Following the initial visit, the lambs were moved to a new paddock

containing clover and ryegrass and no further deaths were observed. After around 3 weeks, the lambs were returned to the original lucerne paddock where the deaths started occurring again.

A second farm visit was conducted following further deaths five days after being back on the lucerne paddock. A negative Anthrax ICT was again obtained prior to conducting a PM on one carcass. The PM findings at the second visit were consistent with that of the first visit, including delayed blood clotting. Additionally, a soft spleen was observed on this post-mortem. Fixed samples of the rumen, small intestine, large intestine, kidneys, and liver were submitted for histology. Histology revealed acute, multifocal, moderate mucosal haemorrhage of the small intestines, and congestion of the rumen, liver, and large intestinal samples. There was multifocal autolysis of the cortical tubules of the kidney. Bloods were submitted to confirm the exclusion of anthrax. The polychrome methylene blue stain on the blood sample was negative for anthrax.

During the second farm visit, the producer mentioned that he had noticed that the lambs had been browsing several garden plants, over the house fence from the paddock. Samples of the garden plants which appeared to have been ingested were sent to the Royal Botanic Gardens, Sydney for identification. The plants were identified as *Punica granatum* (Pomegranate), *Banksia rose*, a *Prunus* spp. tree, and a succulent from the Crassulaceae family. *Prunus* spp. and plants from the Crassulaceae family can contain toxic principles, including cyanogenic glycosides. Whilst no laboratory diagnosis was made, it is suspected that the deaths may have been due to a toxicity associated with the ingestion of one of the garden plants. Exclusion fencing was put in place to limit access of the lambs to the garden plants, and no further deaths occurred.

For further information, contact Katelyn Braine, District Veterinarian, Murray Local Land Services, Deniliquin on 03 5881 9900.

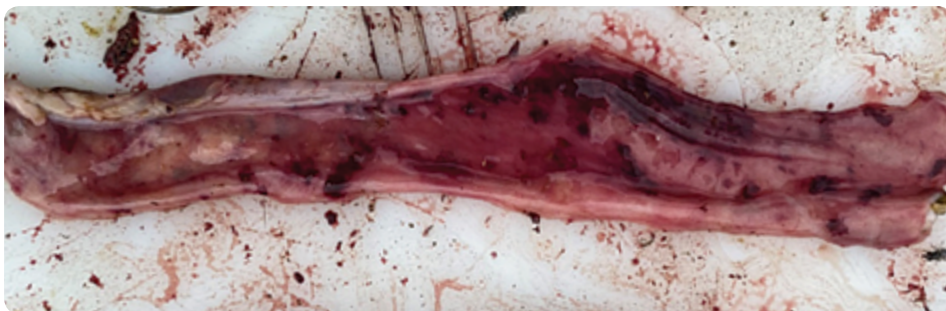


Figure 1: Mucosal haemorrhage of the small intestine



Figure 2: Excessive pooling of blood from cut surface of ear with delayed clotting

Foot and mouth disease exclusion in 1st cross sheep

In late spring of 2021, a mob of approximately 100, 7-month-old 1st cross sheep were being yarded for transport. These sheep were part of a mob used to manage grass in an orchard. The owner had been busy with harvest and hadn't checked the sheep for approximately one week. The sheep were found to have marked facial swelling and what the owner described as 'blisters'.

The same property previously farmed pigs for home consumption and had been managed under the *Biosecurity Act 2015* for breaches of prohibited pig feeding during previous routine audits. The property was identified as compliant during the most recent swill feeding audit. The property utilises an itinerant labour force during harvest, which was underway at the time of the event. The diverse background of harvest workers and variation in their awareness of their general biosecurity duty emphasises the need for continual education to ensure workers do not inadvertently give contaminated feed to pigs.

A property visit was conducted. There was marked new growth returning following slashing in between the orchard trees. A mix of native and introduced grasses was observed, with some legumes and forbs present. No known toxic or photosensitising species were noted.

The sheep presented with two separate syndromes. Approximately 5% presented with marked pitting oedema of the face and swelling of the pinna, and moderate crusting of the nose, ears, and mouth. Some crusts had dislodged and showed a raw, slightly sunken appearance, with or without bleeding. Rectal temperatures ranged from 39.9-40.2°C in this group, however the sheep were yarded a few hours prior to examination, in a yard without shade, possibly indicating heat stress rather than pyrexia. Thirteen per cent had minor facial swelling and crusting in addition to a mild shifting lameness, with macerated tissues in the interdigital space. No abnormalities were detected in the rest of the mob. Considering

the previously resolved breaches of prohibited pig feeding, and the employment of itinerant workers at the time, the interdigital lesions, and raw ulcers (at the time considered possible broken blisters) were suggestive, but not pathognomonic, of FMD. The oedema, facial swelling and crusting are not clinical signs suggestive of FMD, being assessed as likely photosensitivity.

The severely affected animals were blood sampled (jugular venipuncture, EDTA and serum samples) for foot and mouth disease (FMD) exclusion. Whilst awaiting results, supportive treatment with shade and nonsteroidal anti-inflammatory drugs was initiated. The planned movement to the sale yards was postponed until test results were available.

The next day, the owner reported the swelling had gone down significantly in the worst affected animals. The samples were tested via polymerase chain reaction (PCR) at Elizabeth Macarthur Agricultural Institute (EMAI) for FMD. Samples were also sent to the Australian Centre for Disease Preparedness for FMD and vesicular stomatitis Virus (VSV) exclusion. Negative results were obtained through Virus Isolation, Reverse Transcriptase PCR, Competitive enzyme linked immunosorbent assay (ELISA) and Serum Neutralisation tests. Given the response to treatment and negative test results, a diagnosis of secondary photosensitivity was made. The interdigital lesions were diagnosed as Ovine Interdigital Dermatitis. The sheep recovered within a fortnight and were sold. Three weeks later, subsequent inspection of the remaining sheep revealed no sign of photosensitivity nor any signs potentially consistent with FMD.

FMD in sheep is usually a mild or sub-clinical disease, with signs including mild lameness, oral and interdigital vesicular lesions, and pyrexia. Severely affected sheep can have an acute, severe lameness. In the 2001 UK FMD outbreak the disease was often only revealed by close examination of every sheep in the

flock. The typically mild presentation in sheep means FMD may remain undiagnosed in flocks for a significant period, risking inadvertent spread of the disease through stock movements and vectors. Importantly, pigs are most likely to contract the virus from contaminated feed and are important viral amplifiers, shedding large numbers of viral particles via aerosols. Hence pigs are extremely important in the spread of the disease. Feeding of food scraps or waste that contains, or has come into contact with, ruminant meat to pigs, or "swill feeding," is banned in all states of Australia. Feeding of contaminated feed is considered the most likely method of introduction of FMD into Australia.

By comparison, secondary or hepatogenous photosensitisation is a relatively common disease of livestock grazing pasture in certain environmental conditions and/or containing particular plant species. Under these circumstances, agents may be ingested that cause hepatocellular and/or biliary tree damage sufficient to obstruct the normal passage of bile. This is problematic as chlorophyll in plants is metabolised in the animal to phylloerythrin, a light-sensitive compound normally excreted in bile. When the liver is damaged, phylloerythrin excretion is reduced allowing systemic circulation and accumulation in tissues. In non-pigmented skin exposed to UV, the accumulated phylloerythrin releases free radicals causing tissue inflammation and necrosis. Many different plants, and feed contaminants including fungi, have been associated with the development of secondary photosensitisation in livestock. Liver enzymes (particularly GGT) can be analysed to confirm the diagnosis of secondary photosensitisation; however, the owner did not want to pursue further diagnostics following symptom resolution.

For more information contact Rhys Powell, District Veterinarian, Central Tablelands Local Land Services, Orange on 0428 710 002.

Lumpy skin disease exclusion in beef cattle

Lumpy skin disease was excluded in a small beef cattle herd on the North Coast of New South Wales in March 2022. The owner of the beef cattle herd had noticed unusual lumps, especially around the head and neck in about 8-10 head of their 70-cow herd (see Figures 1 and 2). The owner also reported that they had experienced heavy buffalo fly infestation this season and the region had experienced well above average rainfall over the summer and autumn period.

A report of the unusual skin lesions (along with images of the lesions) was made to the North Coast Local Land Services government veterinarian. Investigation by the government veterinarian revealed that affected cattle had skin lesions varying in size from 4-5mm to 30mm in diameter. Lesions were raised, with scabs covering the surface. A full thickness biopsy (fresh and formalin fixed), samples of fresh scab material and blood (in plain, EDTA and lithium heparin containers) was collected from some of the affected cattle and samples were sent to the NSW Animal and Plant Health Laboratories (APHL, formerly SVDL). Figures 3 and 4 demonstrate the raised scab forming lesions found on a number of cattle.

Laboratory testing at APHL including negative stain electron microscopy, histopathology and PCR were all negative for Lumpy skin disease. Laboratory samples were also forwarded to the Australian Centre for Disease Preparedness, which excluded Lumpy skin disease with molecular diagnostics (using the Capripoxvirus - TaqMan Assay) and serology (Capripox double antigen multispecies ELISA for the detection of antibodies).



Figure 1: Characteristic skin lesions found on beef cattle

From histopathology no dermatophilus bacteria were seen within the tissues examined and *Staphylococcus hyicus* was isolated from culture of the fresh tissue and scab samples. Histopathology also revealed an eosinophilic dermatitis described as subacute, moderate eosinophilic, superficial to mid dermal, perivascular to interstitial dermatitis with inflammatory crusting, likely to be a reaction to biting insects.

Both buffalo fly and bush ticks (*Haemophysalis* sp.) were evident on cattle at the time of examination.

For further information, contact Ian Poe, District Veterinarian, North Coast Local Land Services, Kempsey on 0429 987 255.



Figure 2: Characteristic skin lesions found on beef cattle



Figure 3: Raised scab forming lesions

Lumpy skin disease exclusion in cattle

In mid-March, lumpy skin disease was excluded on a property in the Coonamble district, following development of multifocal pyogranulomatous lesions in Angus heifers.

A producer near the Macquarie Marshes reported skin lesions affecting 6 animals out of a herd of 200 heifers. The property had received elevated seasonal rainfall, making stock observations difficult due to restricted access, and there was a significant elevation in mosquito burdens. All animals in the herd were up to date with 7 in 1 vaccinations and anthelmintic treatments.

The 6 clinically affected animals were noticeably poorer in body condition compared to the rest of the herd. The single heifer examined was the most significantly affected. She had a body condition score of 1.5/5, temperature at the top end of normal (39.5 °C), and multifocal fibrous lumps with obvious necrotic/purulent cores and alopecia were noted in the hindlimbs, perineum, brisket, and left flank regions. The lumps were of varying sizes 2x2 cm to 5x5 cm. The animal exhibited mild hypersalivation but no nasal or ocular discharge. Gait and mentation were normal.

Differential diagnosis, in addition to lumpy skin disease at the time of examination were bacterial lesions caused by *actinobacillus* or *actinomyces* spp., or hypersensitivity reactions to insect bites.

A biopsy of the fibrotic lump (fixed and in PBS), tail hair sample, and blood samples were collected from the heifer. Lumpy skin disease was excluded following a negative Capripoxvirus Taqman assay result on serum EDTA and skin samples (outsourced to the Australian Centre for Disease Preparedness (ACDP)). Histopathology found chronic, severe, multifocal to coalescing nodular pyogranulomatous dermatitis, with intermittent observation of aseptate hyphae with irregular branching inside the nodular lesions. The hair sample was negative for persistently infected bovine viral diarrhoea virus (PI-BVDV).

The investigation concluded that the skin lesions are most probably infectious, and causative agents could include atypical bacteria such as with *Actinomyces* sp, *Nocardia* spp, or *Mycobacteria* spp; and *Pythium insidiosum*, due to the fungal elements visualised within the lesions. *Pythium insidiosum* is associated with increased exposure to grazing paddocks in flooded areas and a high burden of biting insects.

The affected heifers improved over a period of two weeks without medical treatment, with a change of paddock, better nutrition and some dry weather.

For more information contact Jillian Kelly, District Veterinarian, Central West Local Land Services, Coonamble on 0428 334 459.



Figures 1-3: Multifocal pyogranulomatous skin lesions of varying sizes on an Angus heifer

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.

For statewide information, contact the Department of Primary Industries Biosecurity and Food Safety unit on 1800 684 244.

If you would like more specific information about diseases occurring in your part of the state, contact your Local Land Services District Veterinarian or the Department of Primary Industries Senior Veterinary Officer for your region, or go to: www.lls.nsw.gov.au

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

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

Content Co-ordinator:

Rachel Gordon, Animal Biosecurity
Department of Primary Industries
Prince Street ORANGE
NSW 2800
M: 0417 118 676
E: rachel.gordon@dpi.nsw.gov.au

Copies of NSW Animal Health Surveillance reports are available on the internet at:

www.dpi.nsw.gov.au/about-us/publications/animal-health-surveillance

Cover image: © NSW DPI Image Library

© State of New South Wales through Regional NSW [2022]. You may copy, distribute, display, download and otherwise freely deal with this publication for any purpose, provided that you attribute the NSW Department of Primary Industries as the owner. However, you must obtain permission if you wish to charge others for access to the publication (other than at cost); include the publication in advertising or a product for sale; modify the publication; or republish the publication on a website. You may freely link to the publication on a departmental website.

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (April, 2022) and may not be accurate, current or complete. The State of New South Wales (including the NSW Department of Primary Industries), the author and the publisher take no responsibility, and will accept no liability, for the accuracy, currency, reliability or correctness of any information included in the document (including material provided by third parties). Readers should make their own inquiries and rely on their own advice when making decisions related to material contained in this publication.

The product trade names in this publication are supplied on the understanding that no preference between equivalent products is intended and that the inclusion of a product name does not imply endorsement by the department over any equivalent product from another manufacturer.

Information contributed by staff of NSW Department of Primary Industries and Local Land Services

www.dpi.nsw.gov.au

www.lls.nsw.gov.au

