



New South Wales



ANIMAL HEALTH SURVEILLANCE

October – December 2000

Number 2000/4

LIVESTOCK AND PASTORAL CONDITIONS

Seasonal Conditions

Once again, the rural industries of the State have been disastrously affected by the unpredictability of the climate.

Record rainfall in much of the northern half of the State has caused major flooding and water damage to the winter grain crops at the critical harvest stage. Further south, water damage has reduced yield and grain quality to a varying extent.

In the north, the flooding and water-logging caused major losses to the summer crops, again at a critical time as it is too late for replanting some crops such as cotton. Overall preliminary estimates put crop damage at around \$500 million. In addition to crop losses, considerable damage to community and landholder infrastructure has occurred and sheep producers face major expenses in managing the risk from blowflies.

With the continued outlook for a higher probability of above average rainfall for the three months, producers need to carefully plan land-use strategies and stock management issues to reduce the risk from further rainfall.

Floods

The record rainfall in the North-West Slopes and Plains has caused major local flooding and moderate to major flooding levels in all of the northern rivers from the Bogan River north. Relief efforts have assisted landholders in mustering and removal of livestock from flood areas, feeding isolated stock and moving plant and equipment for fly control. Assistance has been provided to 154,000 sheep, 49,200 cattle, 500 goats and 490 beehives in response to 251 requests for assistance.

Bushfires

The widespread rainfall has reduced any immediate risk from bushfires. However, when summer conditions prevail, the huge bulk of vegetation including many unharvested crops will be a major hazard. Landholders are urged to ensure that all precautions are in place before the vegetation dries out.

Plague Locusts

The cool, wet conditions over November have delayed the development of locust nymphs in many areas and made survey and control programs difficult. The principal focus of activity is in the Riverina and the far South-West where spraying of nymph bands has continued using a range of control agents, depending on location and environmental concerns.

Fenitrothion, pirpronil and also metarhizium, the biological control agent, are all contributing to an integrated pest management package to provide maximum control with minimal impact. Effective control has occurred over nearly 15,000 sq kilometres in western and south-western New South Wales this spring.

Locust swarms are now appearing in most areas and, given the excellent seasonal conditions, provide the potential for further expansion in the next generation. Landholders are urged to control locust bands by ground control whenever they are sighted and report any presence of plague locusts to the Rural Lands Protection Board or the Australian Plague Locust Commission.

QUARTERLY HIGHLIGHTS

Anthrax

One anthrax incident was confirmed during the quarter on a property at Bourke, in the west of the State. This property had a history of anthrax some years ago, but had not vaccinated stock for several years. A total of about 60 sheep died out of 2,800 on the property. Losses ceased following vaccination of the remaining stock.

This makes a total of two anthrax incidents confirmed in NSW during 2000, both in sheep and both in known anthrax areas. Anthrax was also excluded as the cause of death in 19 other investigations during the year, 5 in sheep and 11 in cattle and 3 in horses.

Exotic disease exclusions

The "Think The Worst First" campaign resulted in a number of reports from veterinarians and owners that required exotic disease exclusion. The Department encourages such reports because it is better to have a large number of false alarms than it is to miss a genuine case.

Foot and mouth disease was excluded as the cause of ulcerative lesions on the muzzle and tongue of an 18-month-old heifer in the north-west of the state. Samples submitted to the Australian Animal Health Laboratory at Geelong were negative in an FMDV ELISA. Pestivirus was suspected as the cause of these lesions, but was not confirmed.

Newcastle disease and avian influenza were excluded as the cause of death of chickens in several incidents during the quarter.

DNA consistent with porcine circovirus type 2 was identified in samples collected during an ill-thrift investigation in pigs during the quarter. The disease syndrome investigated differs clinically and pathologically from post-weaning multi-systemic syndrome reported in association with this virus overseas, and investigations are continuing to determine the significance of this finding.

Bovine abortion storm

In October about 60 cows in a mob of 150 aborted over 2-3 weeks. Cows were in the last trimester of pregnancy and were being grazed along a travelling stock route in the northwest of the State. Five cows tested serologically all had titres of 3200 to *Leptospira pomona*, which is consistent with recent infection. Titres to *L. hardjo* were negative (1 cow), 200 (1 cow), 800 (2 cows), and 1600 (1 cow). They were serologically negative for *Brucella abortus*. One near full term aborted foetus were also analysed. Histologically this calf had a mild non-suppurative interstitial nephritis (consistent with but not specific for leptospirosis), there were no significant isolates on bacterial culture, and there was no elevation of IgG in pericardial fluid.

The source of the infection was probably feral pigs that were numerous in the area. The cattle were unvaccinated and were yarded each night, which would have facilitated transmission of infection between cows. The laboratory results illustrate the value of maternal serology for diagnosis of *L. pomona* abortions.

Drench resistance

Drench resistance testing during early summer has revealed suspect Macrocytic Lactone resistance from southern New South Wales involving *Ostertagia* sp. This is the first example of this type of resistance in New South Wales; previous cases having involved barber's pole worm (*Haemonchus* sp) in the New England district.

A small-scale targeted survey for ML resistance throughout New South Wales is planned, with intensive follow-up of suspect cases.

Contact Steve Love, Armidale on (02) 6776 5013.

DISEASE CONTROL AND ADVISORY PROGRAMS

Bovine Johne's Disease Market Assurance Program

Generally there has been a steady increase in the number of herds enrolling in the MAP since the scheme started in mid-1996. There has been an apparent drop-off in the last 3 months – probably due to dairy deregulation, zoning and the proposed beef survey. Once some of these issues have settled down it is expected that the MAP uptake will get back on track.

Over 1100 herds have now enrolled in the MAP. Whilst about 200 of these have subsequently withdrawn (a lot because they sold out) there are now 248 herds that have reached MN3 status. A further 356 herds are MN1 and 313 are MN2 at 31 December 2000. A total of 144,955 cattle in 1229 herds have been tested, many two or three times, and 29 infected herds have now been identified by MAP testing

Number of herds with a status under the CattleMAP

MAP Herd Status	This Quarter	Last Quarter	At 30 June 1999
MN1	356	360	376
MN2	313	317	213
MN3	248	236	0
NA	194	179	61
TOTAL	1092	1092	650

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Australian Sheep Johne's Disease Market Assurance Program

The following table summarises status in the SheepMap in New South Wales as at the end of December 2000.

Zone	MN1	MN2	Total
Control	220	66	286
Residual	44	9	53
TOTAL	264	75	339

For the period from January to December 2000, there have been 65 new flocks enter the MAP; 65 progressed status from MN1 To MN2; 164 remained at MN1 either via a maintenance test or annual veterinary audit; and five at MN2 via maintenance test for audit. A total of 29 flocks were also removed from the MAP. The latter figure includes eight flocks found to be infected. These figures indicate a steady increase in the number of MAP flocks over the last 12 months and a steady progression of flocks achieving MN2 status.

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Enzootic Bovine Leucosis.

During the year, three rounds of bulk milk test (BMT) were completed for each dairy herd in the State. The BMT monitoring test detected three newly infected dairy herds. The herds had no history of EBL infection and introduction of recently purchased infected animal(s) was responsible for the BMT positive readings. Inconclusive BMT reactions occurred in three other herds. Individual animal testing of these herds detected a single infected lactating cow in a group of 603 milkers in one herd. The second herd was tested with all clear negative results and the third herd is still under veterinary investigation.

At the end of 2000 there were 13 EBL Infected and 10 Provisionally Clear herds out of the total of 1532 dairy herds in NSW. All the Infected and Provisionally Clear herds are under quarantine and are being managed through to a Tested Negative status by the end of 2001.

Milk processors and suppliers in NSW will maintain an ongoing quality assurance program after EBL is eradicated from NSW to reassure purchasers that NSW dairy products remain EBL free. The program is based on bulk milk vat sample testing 3 times per year.

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The NSW *Salmonella enteritidis* Free- Monitoring and Accreditation Scheme

The incidence of *Salmonella enteritidis* (SE) infections in humans has risen dramatically in recent years in the USA, UK, and several regions in eastern and western Europe. SE in chickens causes a silent systemic infection that can be detected by both bacteriological and serological techniques.

It has been found that in naturally infected commercial layers 0.02% of eggs laid by the flocks were contaminated with SE. To detect SE in eggs with this incidence would require a very large sample of eggs.

The NSW SE Accreditation scheme was introduced in 1997 to detect SE in commercial flocks at an early stage of the infection before the problem becomes widespread and impacts on the public as well as the industry. Active monitoring can also offer competitive advantage in the global market. Testing relies on monthly or tri-monthly environmental testing by drag swabs, a method that is reliable and sensitive as a primary screening method.

The scheme covers 50% of commercial layer farms and 95% of elite breeding flocks in NSW. Participants are also required to meet basic biosecurity and egg storage standards in order to gain accreditation.

Since the inception of the scheme SE has never been detected in any of the participating flocks.

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Cattle Tick Control Program

The New South Wales cattle tick control program includes a program of two cattle tick examinations of all cattle on every property within the Cattle Tick Protected Area of north-eastern New South Wales, as well as examination of suspect herds outside this area. Surveillance is also undertaken at saleyards and abattoirs in the vicinity of the Cattle Tick Protected Area (CTPA).

During 2000, about 1150 herds were inspected as part of the program. These inspections plus other surveillance activities detected 80 cattle tick infestations. Investigations revealed that most infestations were inter-related and 20 were "single tick" infestations.

During the last quarter the Tweed section of the CTPA was released from the CTPA. There were 800 cattle properties in this area.

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Ovine brucellosis

As of the end of 2000 there were about 1200 flocks enrolled in the Ovine Brucellosis Accreditation Scheme in New South Wales. The majority of these are Merino studs. A small number of flocks voluntarily left the scheme during the year, usually because their enterprise had ceased operating.

A survey of ovine brucellosis in the southwest area of the state established that the disease has a prevalence of about 15% in commercial flocks, including some flocks that had previously eradicated the disease. The issues of extensive management and rams crossing boundary fences provide a challenge to disease control in the western areas.

Ovine Footrot

New South Wales is continuing to make progress with the Footrot Strategic Plan as an industry-based approach to control and eradicate virulent footrot throughout the State. Over 98% of New South Wales has now reached Control or Protected Area status for footrot, with only small portions of the Gundagai, Hume and Young Rural Lands Protection Boards still having Residual Areas.

As at the end of 2000, there were approximately 400 flocks in quarantine in the Control or Protected Areas, plus another 200 known infected flocks in the Residual Areas. The total of 600 infected flocks is a significant reduction from over 6,000 infected flocks 10 years ago.

The NSW Footrot Steering Committee meets 6 monthly to review progress of the Strategic Plan and set priorities for future direction of the program. Targets set include the whole State moving to Control or Protected Area status by end of 2001, and then to Protected Area status by end of 2005.

DISEASE SURVEILLANCE

National Transmissible Spongiform Encephalopathy Surveillance Program (NTSESP)

The National Transmissible Spongiform Encephalopathy Surveillance Program (NTSESP) has been in progress since late 1998 running under a business plan administered by Animal Health Australia(AHA).

Each state must report on a certain number of sheep and cattle brains, based on a proportion of the total sheep and cattle population in that state. NSW is required to submit 100 cattle brains and 153 sheep's brains. The table below shows that the cattle target was achieved, but the sheep numbers were slightly short of the targeted number. Fortunately, more than the required sheep numbers were submitted by some other states, so the national target was still achieved.

NUMBER OF BRAINS SUBMITTED TO NTSESP FOR 2000

SPECIES SUBMITTER	Bovine	Ovine
Abattoir	6	15
District Veterinarian	63	85
Private Veterinarian	135	45
TOTAL	204	145

The distribution of brain submissions shows that private veterinarians see more cattle cases, whereas government veterinarians (DVs from RLPBs) see more sheep. This probably reflects the relative value of sheep and cattle – owners are more likely to be prepared to pay a vet to look at cattle because they are more valuable.

NUMBER OF BRAINS SUBMITTED TO NTSESP 1/9/2000 TO 31/12/2000

SPECIES SUBMITTER	Bovine	Ovine
Abattoir	2	1
District Veterinarian	14	50
Private Veterinarian	69	17
TOTAL	85	68

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Ovine Johne's Disease Surveillance

By the end of December 2000 a total of 598 infected flocks had now been identified in NSW since 1980, with 505 (1.6% of the State's flocks) still having an IN status. Of the 505 current known infected flocks, 309 (61%) are in the Residual Zone. About 9% (309/3388) of flocks in the Residual Zone are known to be infected, compared to <0.6% (166/27287) in the Control Zone, and <2.5% (30/1200) in the Residual/Control Zone. 33 new infected flocks were reported during the October to December period.

The table below summarises the current status situation in NSW.

ZONE	Flocks*	Current Status				Total
		IN	SU	US	NA	
Control	27,287	166	315	606	903	2,274
Residual	3,388	309	333	1,070	171	1,919
R/C	1,200	30	67	126	100	340
Total	31,875	505	715	1,792	1,174	4,523

* Total flock numbers in Control, Residual and Residual/Control zones are approximate only

For the 3 months to 31 December 2000 a total of 3,003 lines totalling 899,630 sheep were examined by abattoir surveillance for ovine Johne's disease. Of the 3,003 lines examined, 350 lines have had samples sent to the laboratory for examination and 191 of these lines were histologically positive for ovine Johne's disease. About 28% of lines from the residual zone were positive, compared to only 3.5% of lines from the control zone.

Contact: Evan Sergeant, Orange on (02) 6391 3687

Deaths associated with *Haemophilus somnus* infection

Nine deaths occurred over a 3-4 week period in a group of 300 steers. The animals were heavily stocked on a 100-acre property and were strip grazed. They were inspected every 3-4 days and most affected animals were found dead. One sick steer with a temperature of over 40° C responded to antibiotic treatment. One recently dead steer was autopsied. Myocardial haemorrhage was the only significant lesion seen grossly. Histologically there was severe myocardial infarction and suppurative myocarditis with the presence of bacterial colonies. Bacterial emboli and associated focal inflammatory lesions were also seen in skeletal muscle and kidney. *Haemophilus somnus* was cultured from heart and liver, confirming a diagnosis of *H somnus* septicaemia.

H somnus commonly resides in the urogenital tract of male and female cattle and may also be isolated from the respiratory tract of healthy animals. There are both virulent and non-virulent biotypes. It is a pulmonary pathogen associated with a variety of types of pneumonias. The mechanisms by which it invades the bloodstream are not

known, but it is possible that organisms in aerosolized urine invade via the respiratory tract. The disease occurs most commonly in feedlot cattle in North America after they have been commingled from different sources. The high stocking rate in this case may therefore have been a risk factor for development of the disease. During the septicaemic phase vasculitis and thrombosis may occur, the cerebral vessels being particularly susceptible (thrombotic meningoencephalitis (TME)). Brain was not examined in this case. A major manifestation of the disease in some parts of North America is myocardial localisation following asymptomatic septicaemia. Infarction or abscess formation may result, affected cattle may die suddenly or show clinical signs of cardiac failure.

White muscle disease in calves

Two calves, aged 6-8 months, from different properties in the central tablelands area died suddenly. Extensive areas of calcification were seen in the myocardium of both calves and severe myocardial necrosis and mineralisation were confirmed histologically. The lesions were consistent with a nutritional myopathy due to selenium/vitamin E deficiency. One property was reported to have had cases of white muscle disease in the past.

Diseases in housed/grain-fed sheep

Several deaths occurred in a group of young rams which were kept shedded and fed an oats/lucerne mixture as well as a compounded meal. Affected rams became acutely ill and died within 24 hours. Autopsy findings included severe jaundice, tan-yellow liver, dark-coloured kidneys and haemoglobinuria. Histopathology confirmed hepatocyte necrosis and haemoglobinuria consistent with chronic copper toxicity. Liver copper concentration was 287 mg/kg (>100 consistent with toxicity) and kidney copper concentration was 21 mg/kg (>16 consistent with toxicity). The lucerne/oats mixture had a normal copper concentration (11 mg/kg) and a low molybdenum concentration (<0.5 mg/kg). The compounded meal had a very high copper concentration (284 mg/kg) and a low molybdenum concentration (<0.5 mg/kg). In the body there is an antagonistic relationship between copper and molybdenum. A lack of molybdenum in the diet (<1-2 mg/kg) can cause copper poisoning despite normal dietary copper levels (8-12 mg/kg).

A valuable stud ram on a concentrate diet developed signs of abdominal discomfort and was found to have a blockage of the urethral process. Urine flow was restored by amputation of the urethral process. The ram was severely azotaemic - blood urea 35.3 mmol/l (normal 2.9-7.1), and creatinine 641 umol/l (normal 62-265). This was probably a case of urolithiasis associated with feeding a concentrate diet. Cereal grains are low in calcium and high in phosphorus - this can lead to the formation of phosphate calculi.

A group of 150 nine-month-old sheep were housed in an indoor feedlot managed for fine wool production. A few sheep became dull and inappetent for 24 hours, progressing to recumbency, paddling and death within 48 hours. Histopathology confirmed a diagnosis of polioencephalomalacia. This condition occurs more commonly in young animals in feedlot situations than on pasture. Causes include thiamine inadequacy and sulphur toxicity.

Increase in Strangles Cases

There has been a significant increase in the number of reports of the disease Strangles (caused by *Streptococcus equi*), particularly in the thoroughbred studs in the Hunter Valley. Most cases have occurred in visiting mares or young stock. The infected groups have been held in isolation and treated. These cases have the potential to restrict the return of the very valuable 'shuttle stallions' back to the Northern Hemisphere in December.

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American foul brood

AFB is a notifiable disease in NSW. Compensation is payable to beekeepers for destruction or irradiation of material under certain conditions. The only recommended treatment for AFB infected material is burning or irradiation. Apiaries are not placed under quarantine.

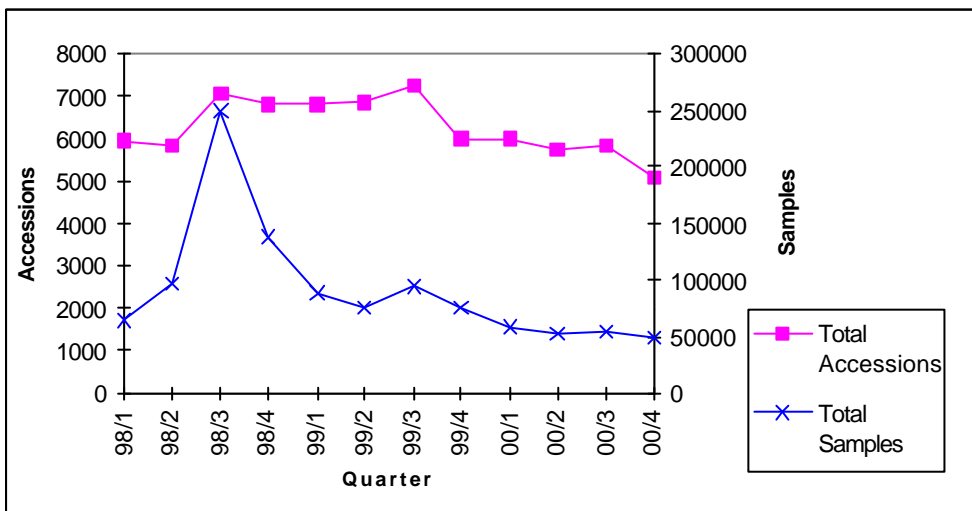
NSW Agriculture has 3 labs which are used to test smears or comb samples. There are 20 Inspectors who can investigate positive lab results. Directions are issued to beekeepers to burn or irradiate the infected hives. Beekeepers with a current infection are required to reinspect their hives within 6-8 weeks and to notify inspectors of the results.

For the 1999/2000 financial year, 200 registered beekeepers had outbreaks of AFB, representing 5.5% of registered beekeepers. For the same period, 1401 hives were recorded as being infected, representing 0.5% of registered beehives. This is a slight increase on the previous year.

Laboratory submissions

The graph below shows the throughput of laboratory submissions and the number of samples processed. The peak in sample numbers during 1998 was associated with a high level of activity for the OJD interim surveillance program.

Contact: Evan Sergeant, Orange on (02) 6391 3687



Getting Information on the Occurrence of Animal Diseases

This surveillance report can only convey a very limited amount of information about the occurrence and distribution of livestock diseases in New South Wales. If you would like more specific information about diseases occurring in your part of the State, contact your local Rural Lands Protection Board district veterinarian; Departmental 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 out the National Animal Health Information System (NAHIS) via the the Internet at:

<http://www.brs.gov.au/aphb/aha>

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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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