

Quarterly report of investigations of suspected exotic diseases

Vesicular diseases ruled out

A veterinary practitioner reported nine cows of a 509-head dairy herd with extensive ulceration under and around the tongue. The cows were being fed maize silage on a feed pad. Clinically affected animals were losing weight, but there was no pyrexia or lameness. Affected cows had shown steady clinical improvement with antibiotic treatment. An AgriQuality veterinarian investigated and ruled out exotic vesicular diseases on the basis of clinical signs and epidemiological history. Corrosive stomatitis was diagnosed, with an unidentified feed or environmental toxin as the most likely cause.

Anthrax ruled out

Eight of a mob of 20 yearling steers died overnight. Anthrax was suspected, but yew (*Taxus*) hedge clippings in the paddock where the animals were grazing pointed to a diagnosis of plant poisoning. The surviving 12 animals were not affected.

Nine sheep were reported dead in a field. The remaining sheep on the farm were inspected and appeared healthy. The deaths appeared to have been in aged ewes that had wandered into a swampy area and became cast.

Exotic disease investigations are managed and reported by MAF's National Centre for Disease Investigation (NCDI). The following is a summary of investigations of suspected exotic disease during the quarter from April to June 2003.

Hydatids in imported ram ruled out

A MAF technical supervisor identified a suspect hydatid liver cyst during necropsy of an aged imported ram showing neurological signs. Samples of affected liver and brain stem were subject to further investigation. The parasitic cyst was identified as *Cysticercus ovis*.

Transmissible spongiform encephalopathy ruled out

The cases reported in this section are the more significant suspected transmissible spongiform encephalopathy investigations for the quarter.

A four-year-old cow with chronic neurological disease was killed and the brain submitted for examination. Focal areas of neuronal necrosis and oedema of the neuropil in the cerebrum confirmed a diagnosis of polioencephalomalacia.

A four-year-old Jersey cow was ataxic before becoming recumbent. There was no response to treatment with metabolic solutions. On postmortem there was inhalation pneumonia. Numerous

degenerate axons were visible in the Purkinje cell layer, and rounded and oval (torpedo formation) axons characteristic of intoxication with lolitrem B or ryegrass staggers.

A three-and-a-half-year-old Jersey cross cow had a five-month history of hypermetria and staggers, which were non-responsive to treatment. Purkinje cells were lost and there was an occasional oval axon (torpedo formation) characteristic of intoxication with lolitrem B.

A five-year-old cow developed chronic neurologic disease. Intramyelinic oedema of undetermined origin was seen on histopathological examination of the white matter of cerebellar peduncle.

Antemortem inspection at a meat processing plant detected mild neurological and nervous signs in a seven-year-old dairy cow. The cow was held overnight and had improved by the next day but was still mildly ataxic. The cow was killed, and brain samples submitted for BSE surveillance. The Prionics western blot test was negative for prions.

A four-year-old red deer hind with chronic illthrift, and a two-year-old red deer hind in poor condition with pneumonia, had their brains removed and submitted for transmissible spongiform encephalopathy surveillance. No lesions were found in the brains.

A five-year-old ewe showed progressive non-responsive neurological disease. The brain was submitted for examination. At the grey-white matter interface of the cerebrum were numerous smooth, round to oval, variable-sized vacuoles. There was no evidence of scrapie. This pattern of vacuolation was suggestive of a hepatic encephalopathy.

A three-year-old Poll Dorset cross ewe was staggering, ataxic, blind and showed head pressing. Meningeal and perivascular inflammation associated with neuropil microabscessation in the brain stem confirmed a diagnosis of listeriosis.

Porcine reproductive and respiratory syndrome ruled out

An interstitial pneumonia with presence of macrophages was reported in four-week-old pigs that were dying within 24 hours of becoming ill. The pigs were reported as having blue mucous membranes on death. Expert herd-health examination and an IDEXX ELISA on 30 pigs from the herd excluded a diagnosis of PRRS. A pure culture of *Erysipelothrix insidiosa* was isolated from the lungs of one pig. Erysipelas had previously and recently been diagnosed in older pigs in the herd and may have been the cause of the mortality event.

EVA and EIA ruled out

Hind limb oedema, pyrexia and depressed appetite were reported in a four-year-old Thoroughbred gelding. No other horses in the establishment were unwell and there was no history of overseas movements. Haematology revealed a mild anaemia and marginal

monocytosis. Blood samples were submitted for the exclusion of equine viral arteritis (EVA), equine infectious anaemia (EIA) and blood parasites. No blood parasites were seen on buffy coat and blood smears. The EVA virus neutralisation and EIA gel diffusion tests were negative on acute and convalescent samples taken four weeks apart. The horse recovered uneventfully.

Oedema in all four lower limbs was reported a two-year-old Thoroughbred mare. No other horses in the establishment were unwell, and there was no history of overseas movements. Blood samples were submitted for the exclusion of EVA, EIA and blood parasites. No blood parasites were seen on buffy coat and blood smears. The EVA virus neutralisation and EIA gel diffusion tests were negative on acute and convalescent samples taken four weeks apart. The horse recovered uneventfully.

Oedema and dermatitis were reported in several horses and donkeys on a property in Northland. Acute phase haematology and blood chemistry in the most severely affected horse and donkey showed increased globulins but little else of significance. Serology in a sample of horses and donkeys was negative for EIA by gel diffusion, EVA by virus neutralisation, and *Babesia equi* and *Theileria caballi* by complement fixation tests. A Northland Regional Council officer subsequently informed the property owner that a dam on the property was heavily infested with alligator weed (*Alternanthera philoxeroides*). This South American aquatic plant can cause liver damage and facial eczema-like dermatitis in livestock, and is designated as a plant pest by several Regional Councils. The property owner had observed her animals grazing alligator weed from the margins of the dam in the weeks before becoming ill. Removing access to the dam, and supportive treatment resulted in full recovery within three weeks.

Lower limb and preputial oedema, pyrexia, lethargy and increased gut sounds were reported in a five-year-old Thoroughbred gelding. No other horses in the establishment were unwell, and there was no history of overseas movements. No blood parasites were seen on buffy coat and blood smears. The EVA virus neutralisation and EIA gel diffusion tests were negative on acute and convalescent samples taken four weeks apart. The horse recovered uneventfully.

A 27-year-old pony was presented with muscle wasting. Haematology showed hyperglobulinaemia, hypoalbuminaemia, lymphopaenia and anaemia. EVA was ruled out by virus neutralisation test, EIA by gel diffusion test, *Babesia caballi* and *Theileria equi* by complement fixation tests. Blood film and buffy coat smear were negative for blood parasites. Exotic diseases were excluded, and animal welfare authorities investigated the case.

Oedema, depression and loss of appetite were reported in a 19-year-old Thoroughbred gelding. No other horses in the establishment were unwell, and there was no history of overseas movements. Routine haematology revealed a mild anaemia and marginal lymphopaenia. No blood parasites were seen on buffy coat and blood smears, and PCR testing for *Babesia* and *Theileria*

DNA was negative. The EVA virus neutralisation and EIA gel diffusion tests were negative on acute and convalescent samples taken four weeks apart. The horse made an uneventful recovery.

Limb oedema, mild diarrhoea, fever and inappetence were reported in a one-year-old Standardbred horse. EVA was ruled out by virus neutralisation, EIA by gel diffusion, and *Babesia caballi* and *Theileria equi* by complement fixation tests. The horse made a full recovery.

Rabies ruled out in imported dog

Rabies was excluded as the cause of the death of a dog recently imported from the UK. The dog had had several serious seizures prior to death. Histological examination of the brain revealed no specific aetiology. Epilepsy was the presumed cause of death.

Brucella canis ruled out

A six-year-old dog was reported with swelling of the epididymis and mild orchitis. A blood sample tested with the *Brucella canis* card agglutination test was negative. Lack of response to treatment necessitated unilateral orchidectomy, with histology revealing a chronic active multifocal epididymitis likely to be a spermatic granuloma secondary to trauma.

A 13-year-old dog presented with a grossly swollen testicle, approximately 10-15 cm in diameter. Fine needle aspirates allowed a cytological diagnosis of suppurative orchitis. Serum tested with the *Brucella canis* card agglutination test was negative.

A three-year-old dog derived from imported parents was presented with a testicular abscess. *Brucella canis* was excluded by a negative card agglutination test.

Ehrlichia canis ruled out

Acute *Ehrlichia canis* was considered a differential diagnosis in a seven-year-old dog imported from the USA two months previously. *Ehrlichia canis* was excluded by clinical findings and negative IFAT.

A healthy neutered male dog undergoing pre-export testing returned a positive result for *Ehrlichia canis* to an indirect immunofluorescence antibody test (IFAT), with an antibody titre of 1:40. A buffy coat blood smear, peripheral blood smear, complete blood count and serum biochemistry provided no evidence of *E. canis* infection. A further blood sample for IFAT testing was collected after doxycycline treatment. This proved negative with a titre of 1:20.

A 14-year-old dog undergoing pre-export testing returned a positive result for *Ehrlichia canis* with an IFAT titre of >1:320. Blood smears, routine haematology and biochemistry gave no evidence of *E. canis* infection, and a PCR test for *Ehrlichia* DNA performed at NCDI was negative.

A dog undergoing pre-export testing returned an *Ehrlichia canis* immunofluorescent antibody titre of 1:320. None of the expected clinical or pathological features of *Ehrlichia* infection were present

(non-regenerative anaemia, thrombocytopaenia, pancytopenia, lymphocytosis, or hyperglobulinaemia). No *Ehrlichia* organisms were seen in leucocytes in peripheral blood smears or buffy coat smears.

Dirofilaria immitis ruled out

A suspected case of human pulmonary dirofilariasis was notified to MAF by the Ministry of Health. Medical and veterinary pathologists were consulted, and eventually concluded that infection with *Dirofilaria* was an unlikely cause of the pathology. A targeted survey of dogs in the area of residence of the human case provided no evidence of endemic infection with *Dirofilaria immitis* (see page 14 for further details).

Newcastle disease/avian influenza ruled out

Ten of 20 backyard poultry died suddenly over a 48-hour period. Entire carcasses were submitted for necropsy and testing. Postmortem examination was unremarkable. Samples were submitted for virus isolation, which was negative for avian influenza and paramyxoviruses after three passages in embryonated chicken eggs. The remainder of the poultry on the property subsequently died although the neighbour's chickens were unaffected. No diagnosis was established.

Infectious bursal disease ruled out

A pathologist reported histopathological lesions suggestive of IBD virus in birds from a farm that had suffered 50% deaths in a single shed of approximately 8000 six- to seven-week-old layer replacement birds. A poultry industry veterinarian had investigated and considered the cause to be thermoregulatory failure resulting from inadequate shed ventilation. Initial serology for IBD, Newcastle disease and *Mycoplasma gallisepticum* on ten survivors, sampled two and 12 days later, were negative. Further investigations involved a farm visit and epidemiological assessment of biosecurity risk. IBDV presence was assessed serologically on a random sample of all epidemiological groups on farm, using a serial ELISA-VNT regime. No evidence of circulating IBD virus could be found by any laboratory testing. Virus isolation and electron microscopy identified an adenovirus in four survivor birds. This finding was considered incidental and the aetiology of the bursal lesions remains uncertain.

Pacheco's disease in parrots ruled out

During an avian health survey conducted on behalf of MAF, blood samples were sent to a USA laboratory to test for avian viruses. A Goffin cockatoo tested positive for Pacheco's disease by virus neutralisation test, with a titre of 1:32. No serum from the original sample was available for repeat testing at NCDI. The property was visited for clinical and epidemiological assessment. The same bird was re-sampled several months later and tested at NCDI by virus neutralisation test, with a negative result. The initial result was believed to have been a false positive.

Avian piroplasms in brown teal investigated

A pathologist reported piroplasm-like structures in a blood smear of a brown teal duck (*Anas chorotis*) collected as part of a surveillance programme conducted by the Department of Conservation. A second pathologist examined the samples and came to the same conclusion. Three months later the same bird and 17 other brown teals were sampled. All were negative for red blood cell inclusions. All of the birds remained healthy. Further investigation of this and other recent reports of suspect haemo-parasites in New Zealand birds was deemed more appropriate within a specifically designed surveillance project, and so the investigation was not taken further.

Exotic bee mites ruled out

Exotic bee mites were ruled out by laboratory examination of bees from a hive with adult bees dying in large numbers. An Orbatid mite was found feeding on the dead bees. Poisoning was the suspected cause of the mortality, as the hive was otherwise healthy with sufficient brood and bees, the queen laying, and about 30 kg of honey.

Risk of varroa mite in the South Island investigated

Bees were noticed robbing honey from a railway wagon on the West Coast of the South Island. The wagon was believed to have delivered drums of honey to the North Island and then returned to the South Island contaminated by leaked honey. Investigation determined that the rail wagon had not left the South Island, and that no honey could therefore have been shipped down from the North Island. There was no risk of varroa entering the South Island on this occasion.

A sample of brood presented by a South Island bee hobbyist had three mites on it. An entomologist identified these as the native New Zealand mite *Melittiphis alvearius*.

Cape bee ruled out

Cape bee (*Apis mellifera capensis*) was suspected in a hive without a queen. Cape bees originate from South Africa. They parasitise a hive through production of female clones, destroying the hive in

the process. Cape bees were ruled out, as the brood contained drones rather than exclusively female clones. Cape bees and African honeybees differ in size from New Zealand honeybees, and can be distinguished using morphometrics. In this case, the bee measurements corresponded to those of New Zealand honeybees.

Lymphocystis confirmed in parore

A Ministry of Fisheries officer in Northland reported tumours on fins and skin of a parore (*Girella tricuspidata*) caught in the Parengarenga Harbour. Further reports of parore with tumours were received from members of the public. Grossly, the lesions were highly suggestive of lymphocystis, an iridoviral disease of ornamental and wild fish. Typical histopathology, and virus particles on electron microscopy, confirmed the diagnosis. Lymphocystis has been diagnosed in New Zealand previously in ornamental fish and in a John Dory (a marine fish). This report constitutes a new host species record for lymphocystis. Anecdotal reports suggest infection in parore may occur at reasonably high prevalence in northern parts of New Zealand.

White spot virus disease in imported frozen black tiger prawns

White spot virus disease (WSVD) was confirmed by PCR and sequencing in raw black tiger shrimps (*Penaeus monodon*) imported frozen from Thailand. The prawns had the distinctive lesions of WSVD on their carapaces.

Exotic tick on human traveller

An American tourist who had spent three weeks in Australia discovered a tick on his person shortly after arriving in New Zealand. The tick was identified as an *Ixodes holocyclus* nymph (paralysis tick). There was no evidence of additional ticks. The tourist was instructed to wash and dry his clothes, and the hostel manager was instructed to ensure the room where the tourist had stayed since arrival was vacuumed and cleaned.

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