

Self-declaration by New Zealand of its status of freedom from Equine Viral Arteritis

Self-declaration submitted to the OIE on xxxx2014, by Dr Matthew Stone, Chief Veterinary Officer, Ministry for Primary Industries, Wellington, New Zealand

History of Equine Viral Arteritis in New Zealand

Equine arteritis virus was first determined to be present in horses in New Zealand in 1988. The release of the virus was considered to have occurred from horses imported from North America. A serological survey carried out in 1989 showed that the virus had been circulating widely in the Standardbred sector with 54% (95% CI, 45-63%) of Standardbreds testing serologically positive. A low level of seropositivity was also detected in the Thoroughbreds, with 3% testing positive using the VNT to antibody for EAV.

Implementation of Control Measures for Equine Viral Arteritis in New Zealand

In 1989, soon after detection of EAV, the disease was made notifiable in New Zealand and an EVA control scheme implemented. The ultimate aim of the scheme was eradication of EAV from the horse population in New Zealand. The main components of the scheme were serological testing of breeding stallions, with additional virus culture of semen where the stallion was serologically positive. The scheme involved a number of controls on the use of carrier stallions and included quarantine of inseminated mares.

An estimate of the seroprevalence in New Zealand was updated in 1990 from the results of additional stallions tested as part of the EVA control scheme. At this time there were 3% (95% CI, 1-5%) of Thoroughbred and 37% (95% CI, 31-43%) of Standardbred stallions seropositive to EVA using the VNT. Low VNT titres were obtained from the Thoroughbred stallions tested versus very high titres from the Standardbreds. All seropositive Thoroughbred stallions were semen tested using virus culture and none were found to be carriers of EAV. There were no seropositive stallions detected from 121 horses of other breeds tested (95% CI, 0-4%). The scheme broke down during the period 1997-1998 when a Standardbred stallion previously confirmed as free of EAV and who had stood at the same stud as a carrier stallion was determined to be semen test-positive. It was determined that the semen from the carrier stallion had been inadvertently used to service mares outside of the required quarantine regime. A trace back of contacts identified only this one additional carrier stallion. Consequentially the scheme was modified by incorporating controls for the use of semen from shedder stallions and vaccination for EVA of stallions standing alongside carrier stallions.

A summary of testing carried out as part of the EVA control scheme in 2002 showed that during the period between 1989 and 2002 despite the breakdown in 1997-1998, the program had been effective, with a declining seroprevalence in the horse population as well as a reduction in the number of known EAV carriers. The number of carrier stallions declined from a maximum of 20 in 1991-2 to three in 2002. In

June 2012 the last EAV carrier stallion was euthanased at the age of 20. No stallion known to be a carrier of EAV remains in New Zealand. Clinical signs of disease have not been observed in horses in New Zealand since EVA was first diagnosed in 1988.

Equine Viral Arteritis monitoring and surveillance

Total serological testing

There were 7157 EVA serological test records available for analysis for the seven year period of interest. Of these data 283 were from stallions tested as part of the EVA scheme, 6598 were from import/export tests and 276 were from transboundary animal disease (TAD) investigations. An additional 48 records from mares used for test mating of seropositive stallions to confirm their carrier status were not included in this analysis.

There were 29 breeds of horses represented in the data. Some of these were not specific breeds but groups of breeds or type of horse i.e. equestrian, sport horse, warmblood and polo pony. The median number of horses within these breed groups was 7 (min 1, max 5369). After categorisation of breeds into three breed categories, the sample size was sufficient to detect a seroprevalence of 1.7% or less for each breed group (Table 1).

Table 1. Summary statistics of the total number of virus neutralisation tests for equine viral arteritis from serum collected from horses grouped into breed categories for the period from January 2005 to November 2011. Serological data analysed included data from horses tested as part of import and export requirements, the New Zealand EVA control scheme and from transboundary animal disease investigations.

Breed category	Number tested	Confidence limits around a zero prevalence
Thoroughbred	5369	0-0.1%
Standardbred	344	0-1.6%
Other (equestrian/sport/recreation)	826	0-0.7%
No breed data	618	0-0.9%
Total	7157	0-0.1%

EVA control scheme

Over an eleven year period the status of 465 stallions were found to be negative as part of the EVA control scheme. The status of stallions was determined to be negative either through serological testing (n = 389) or from negative virus culture of semen where stallions were serologically positive as a result of vaccination (n = 93). After categorisation of the 465 stallions into three breed categories, the sample size was sufficient to detect a seroprevalence of between 3-9% of stallions for the three breed groups (Table 2). The majority of tests for the 'other' category were from the appaloosa (25%, 45/181) and quarter horse breeds (36%, 65/181). From the 'other' category there were 27 breeds of stallions that had been tested as part of the EVA control scheme. As part of the scheme any stallion found to have positive serology was semen tested. The EVA control scheme allowed post service serological testing of previously seronegative mares if a semen sample was unable to be collected from a seropositive stallion to determine his EAV shedder status.

There were 93 (20%, 93/465) stallions semen tested and determined to have a negative virus culture for EAV. Forty six percent (43/93) of these stallions had been semen tested in multiple years. Where breed had been identified, 93% (83/89) of semen samples were from Standardbred stallions, indicating a high rate of vaccination in this breed and the need to use virus culture as a method of exclusion.

Table 2. Summary statistics of stallions grouped into breed categories tested as part of the New Zealand equine viral arteritis control scheme over an 11 year period from 2001 to the end of 2011.

Breed category	Number tested	Confidence limits around a zero prevalence
Thoroughbred	57	0-9%
Standardbred	117	0-5%
Other (equestrian/sport/recreation)	181	0-3%
No breed data	110	0-4%
Total	465	0-1%

TAD investigations

During 2005-2011 there were 84 equine TAD investigations carried out to exclude EVA. Whilst some of the investigations were initiated because of positive serology, the majority were initiated because of suspicious clinical signs or haematological findings in the affected horse/s. For investigations initiated on these grounds more notifications were received from the regional veterinary laboratories (74%, 48/65) compared to private veterinarians (26%, 17/65).

The array of clinical signs apparent in animals where an investigation was undertaken was reviewed. A similar proportion of cases had clinical oedema (55%, 38/69) and anaemia (45%, 31/69) alone, while fourteen (20%, 14/69) had both these changes. A small number were reported with respiratory signs (18%, 9/49) or a history of recent abortion (8%, 6/71). Nineteen horses (30%, 19/64) were recorded as being pyrexia, while thirty seven (54%, 37/68) had inflammatory changes evident on a leucogram. The majority (91%, 70/77) of investigations concerned a single affected horse at a property. Seven investigations were on properties with more than one animal affected. The change in the denominator presented in these figures reflects missing data on the presence of clinical presentation in affected horses from some investigations.

The median age of affected horses was 4 years (Mean = 6.9 years, Range = 4 months - 35 years). The majority of cases investigated were in males (geldings, colts and stallions; 63%, 48/76). Of the 56 horses where breed was recorded, there were 35 Thoroughbreds, 11 Standardbreds, four warmbloods, two Arabians, two Clydesdales, one Appaloosa and one Shetland pony.

Equine viral arteritis was excluded from all investigations undertaken. A definitive diagnosis was reached in a small number of cases (19), with diagnoses including: lymphoma/neoplasia (4), rhabdomyolysis (3), parasitic gastroenteritis (2), pleuropneumonia (2), peritonitis, renal failure, equine herpes virus (EHV 1, 4), testicular arteriolitis, bacterial placentitis, synovitis, acute intra-abdominal blood loss and cystic ovarian disease. The majority of oedema cases were likely to be secondary to a vasculitis with an immunological basis.

Where serological results for EVA initiated the investigation it was determined that these titres were either due to cross reactions or due to vaccination prior to the horse being imported into New Zealand. There were 276 sera tested for EVA as part of these TAD investigations, with no evidence of seropositivity to EAV in any horses investigated.

All importations of horses and equine semen into New Zealand are required to comply with the requirements of the OIE Terrestrial Animal Health Code for EVA (Chapter 12.9).

Vaccination use

Vaccination of horses for EVA for the purposes of export only is allowed in New Zealand. New Zealand regularly imports stallions for breeding purposes and most of these stallions are vaccinated in their country of origin prior to their arrival in New Zealand. Maintenance of vaccination status enables these horses to be re-exported if sold or being shuttled to studs in other countries. Many New Zealand stallions export semen. The import health conditions of the importing countries require records showing maintenance of vaccination for EVA as per the manufacturer's recommendations. For this reason stallions which commenced EVA vaccination for whatever purpose have maintained their vaccination status. The last year horses

were vaccinated for the purposes of disease management was 2003¹. The last shedder stallion died in 2012. From 2007 to 2012 he stood in isolation and transmission of infection was prevented by an audited quarantine regime. Prior to 2007 he stood at stud under quarantine with one other imported stallion. The pre importation vaccination status of that stallion was maintained until the time of his eventual re-export in 2013.

New Zealand declares its EVA free status.

Therefore considering that:

- no new EAV infections have been detected for over a decade.
- for this period ongoing import health controls, surveillance and the EVA control scheme measures have prevented further new cases from occurring and provided a means of detecting evidence of EAV if it was present.
- analysis was carried out on the three surveillance streams and serological test data concluded that exposure of horses to EAV if present was less than 2% within each breed categories
- the New Zealand EVA control scheme has been focused on detecting and isolating carrier stallions responsible for venereal transmission.
- general serology data supported by TAD investigations has been used to show absence of any transmission in the general horse population;
- no vaccination has been undertaken for disease control purposes for 10 years
- and, in accordance with Chapters 1.6 and 12.9 of the *Terrestrial Animal Health Code*

the Delegate of New Zealand to the OIE self-declares on xxxxx2014 that New Zealand is free from Equine Viral Arteritis.

¹ Sands A Flying – Linden Park