



Suspect African horse sickness outbreak - Melkbosstrand JdG

Introduction

A horse on a thoroughbred holding (Farm #1 – See Figure 2) in the Melkbosstrand region of the Western Cape Province was euthanased on Monday 20 May 2013. This was as a result of clinical signs which had developed over a number of weeks and which included colic, rapid loss in condition and depression. These signs came to a head on 20 May and the owner decided to euthanase the animal, which was recumbent at that time. Contact with state veterinary officials was made by the owner of the property on Wednesday 22 May and a veterinarian visited the affected property on that day. Blood samples were taken from the carcass as well as all other horses on the property. Results from the 18 horses sampled showed three positive results indicating the presence of RNA of African horse sickness virus (AHSV). The horse which was euthanased was one of those that were positive.

Initial case results in detail

The test performed on the 18 samples from the 22 May 2013 was a real-time PCR (q-RT-PCR) assay performed by the Equine Research Centre at the University of Pretoria. The Ct values of the three tests fell between 33 and 34. While this falls within the positive cut-off, it is a result which would not be considered a classic case of African horse sickness (AHS) in the absence of clinical signs strongly associated with AHS. This comment is based on data obtained during the Mamre AHS outbreak of 2011. In that outbreak the state considered a Ct cut-off for positive AHS cases at 30 (note that low Ct values indicate stronger positivity compared to higher Ct values). The AHS cases which had clinical and/or post-mortem signs of AHS with positive PCR and/or virus isolation results had an average Ct value of 23. Confirmed subclinical cases of AHS in that outbreak had an average Ct value of 26.3.

Case Definition

With the lack of clinical signs and significant mortality the case definition is limited to real-time PCR results indicating suspect cases of AHS. There have been no confirmed cases of the disease as yet.

Horses testing positive for AHSV on real time PCR but that have been vaccinated during 2013 are being provisionally classified as 'vaccine reactors'.

Immediate control measures implemented

Quarantine notices were implemented on all properties within the primary containment zone (PCZ). A press statement was issued on 29 May 2013 indicating the designation of the PCZ boundaries - See Figure 1.

The quarantine notices include requirements for the owners of the horses to ensure stabling of their animals at night and if this is not possible then making use of a registered insect repellent during the high risk vector feeding period of two hours before sunset to two hours after sunrise.

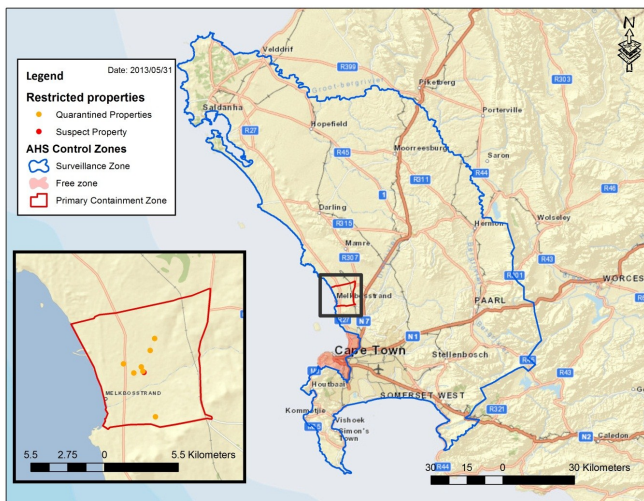


Figure 1: The primary containment zone in relation to the AHS surveillance zone of the Western Cape.

Follow up investigations

A complete census of equines within 5 km of the affected property was performed. Information about the demographics of this population has been collected and specific details on recent AHS vaccinations have been collected where available. A first round of surveillance was performed in the PCZ (primary control zone) between 27 May 2013 and 3 June 2013.

The primary affected property (Farm #1)

The disease history of the farm indicates nutritional issues in the past weeks to months. A history of diarrhoea and colic is evident with most horses on the property losing significant amounts of weight over the past month. Added to these clinical signs was evidence of a lack of feed on the farm on the day of investigation. Horses had been fed a bran mash with a lack of roughage in their diets. A lack of stable bedding has also been a factor over the recent weeks leading up to the positive results.

Vaccination status of equines

A good indication of the vaccination status of 3 of the 18 horses on Farm #1 is known. Two of these were horses that tested AHS positive. The horse that died was last vaccinated against AHS in late May (OBP Bottle 1) and June 2012 (Bottle 2). The other positive animal was vaccinated in late March and April 2013 (Bottle 1 and 2 respectively). From information received from the previous stable manager who left the farm in March 2013 it is unlikely that any other horses on the property were vaccinated against AHS between July 2012 and May 2013.

Clinical situation

There was an obvious lack of nutrition of horses on the property. Other abnormalities included: colic, depression, swollen conjunctivae with petechial haemorrhage, diarrhoea and cyanotic oral mucous membranes. Based on the description given by the

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current stable manager there have also been indications of icterus in the oral cavity of some horses. A request to the stable manager was made to monitor rectal temperatures on all equines on the property and to date there have been no fever reactions.

Sampling and results

Follow-up sampling was performed on 27 May 2013. Results indicate that the previously AHS positive horses that were still alive again tested AHS positive with very similar Ct values. All other equines on the property again tested AHSV and EEV negative.

Surrounding properties

There are a total of 7 properties (excluding Farm #1) within the PCZ. There are a total of 59 horses and 4 donkeys on these properties.

Vaccination status

See Figure 2. There were a total of 17 of the 81 equines within the PCZ which have an unknown AHS vaccination history (Yellow bars). A total of 16 equines had not been vaccinated (Red bars) against AHS including 4 donkeys and 12 horses partially made up of 7 AHS sentinel animals incorporated into the Western Cape's AHS sentinel surveillance system. A total of 48 equines are known to have been vaccinated at some point in the past against AHS in the PCZ. The timing of these vaccinations is very interesting – of these 48 horses a total of 15 have been vaccinated with AHS Bottle 1 vaccine and 28 have been vaccinated with AHS bottle 2 since the beginning of 2013, indicating a strong presence of AHS vaccine in the area over the past months.

Clinical situation

Two horses have had elevated temperature reactions on Farm #3. In both cases temperatures have been above 40°C. The sample taken from one of these horses taken on 27 May returned negative AHS PCR results with a positive equine encephalosis virus result (EEV). All other horses on this property returned negative AHS and EEV PCR results.

No other horses on surrounding properties have had any clinical issues reported or noted during sampling and investigation. Three of the seven properties are monitoring horse rectal temperatures on a daily basis.

Sampling and results

All horses (bar three) from the surrounding properties were sampled between 27 May and 3 June 2013 and tested against AHSV and EEV. This totalled 60 equines and serum and EDTA samples were taken. The AHS testing showed that a further three horses had positive results. These three horses came from three different properties within the PCZ (see Figure 2). The Ct values again, while within positive limits, are generally high. Two of the three horses had been vaccinated within 2013 against AHS so they were classified as vaccine reactors.

One other horse on farm #4 tested weak positive against EEV RNA but has not been showing fever or other clinical signs of disease in recent weeks.

Tracing from properties in the PCZ

While investigations are still underway for the properties within the PCZ it is known that there have been no recent movements of equines onto or off Farm #1. There have been local movement of equines in the area as many of the properties have outrides going

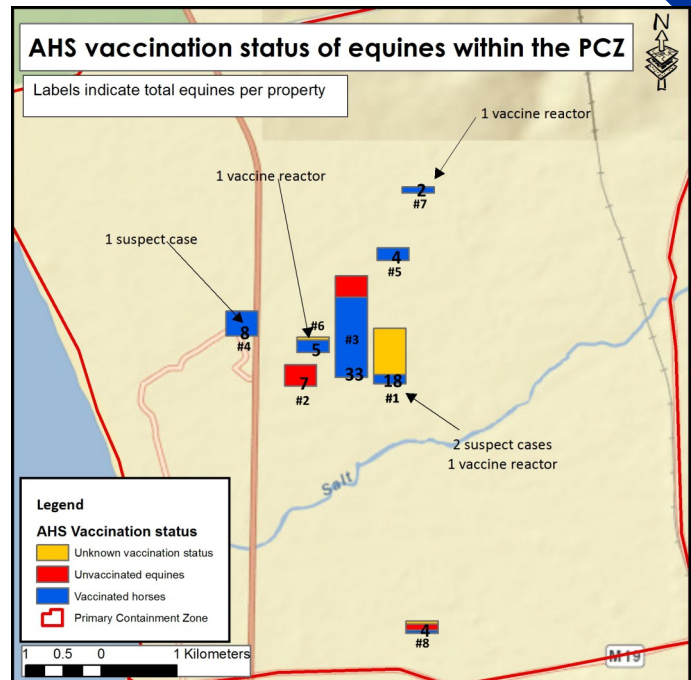


Figure 2: This figure shows the distribution of equines within the PCZ (Primary containment zone). Of the 81 equines most fall within a small area with about a 1 km radius in the centre of the PCZ. The vaccination status against AHS is shown by the coloured bars in the map. Farm #1 has the most equines of unknown AHS vaccination status and also contains the most suspect and vaccine reactors on its premises. The red indicates those equines which have not been vaccinated against AHS. Farm #3 has seven of these animals and they are currently incorporated into the AHS surveillance sentinels used by the Western Cape Veterinary Services. Farm #2 has exclusively non-vaccinated animals. At no point to date have any of these AHS unvaccinated animals shown any clinical features of AHS.

into the immediate surrounding area.

The Western Cape horse movement pre-notification database has been interrogated. In the month prior to the 20th May 2013 there were a total of 33 pre-notifications received (totalling 66 horses) by State Vet Boland in terms of moving horses between AHS control zones in the country. Ten of these horses had origins outside the Western Cape - six had destinations that were in the AHS protection zone and four had destinations within the AHS surveillance zone. There were no direct movements directly into the Melkbosstrand area.

The way forward and investigation plans

The result set from the first round of surveillance within the PCZ has not assisted in making any decisions regarding the source of the virus but it does show that there has been no immediate spread to the susceptible sentinel animals in close proximity to the first affected property.

Preliminary thoughts on the source of the positive results are difficult to confirm. On one hand there are positive AHSV PCR results from horses that have not been recently vaccinated (n=3) while three positive results were from recently vaccinated horses which (at least in this case) would explain the relatively high Ct values. On the other hand there have also been multiple recent vaccinations against AHSV in the surrounding area. While the circulation of AHS vaccine strain viruses has not been described in

horses this is an aspect to consider given the high Ct values obtained. Also the clinical signs seen on the initial suspect property have been significantly influenced by the lack of nutrition and veterinary care over the past two to three months. There are also the sentinel horses to consider on the neighbouring properties – in a wild strain AHS outbreak one would expect them to be significantly affected given the morbidity and mortality rates normally experienced in AHS outbreaks in susceptible animals – a case in point being the Mamre outbreak .

A second round of surveillance has been performed in the PCZ and samples from the first round of surveillance are also being tested at the OVI using the hn-PCR assay. West Nile Virus testing has also been requested on these samples.

Suspect lumpy wool disease in rams in Vanrynsdorp Jacques Kotze

A farmer from the Vanrynsdorp district noted one ram in his flock of 30 merino rams with sores on its back. The wound had also developed to a point where it was infested by maggots. He gathered all 30 rams to catch the affected one for treatment and noted distinct spots on seven other rams where wool loss had occurred. He then contacted the local animal health technician as he suspected the sheep had sheep scab, which is a controlled animal disease.



On closer inspection where the wool loss spots occurred there was clumping of the wool and underneath the clumps were large sores or scabs as seen in the images. When these scabs were pulled off the skin looked very sensitive and almost had a burned feel to it. There did not seem to be a huge effect on feed intake and body condition in the rams affected. All affected rams were treated with long-acting antibiotics and their skins thoroughly washed with a hibitane solution.

Lumpy wool in sheep is caused by a fungus (*Dermatophilosis congolensis*) which can also affect cattle, horses and goats. Its most important method of transmission is direct contact between infected and susceptible animals and this occurs more easily in wet conditions when sheep crowd together. The disease often occurs as a sequelae to the removal of the protective layer of wool normally found in sheep - i.e. after shearing or after dipping or prolonged rain where the skin loses its waxy covering.



When the fungus infects the hoof base the disease is called strawberry footrot - this was not seen in this outbreak

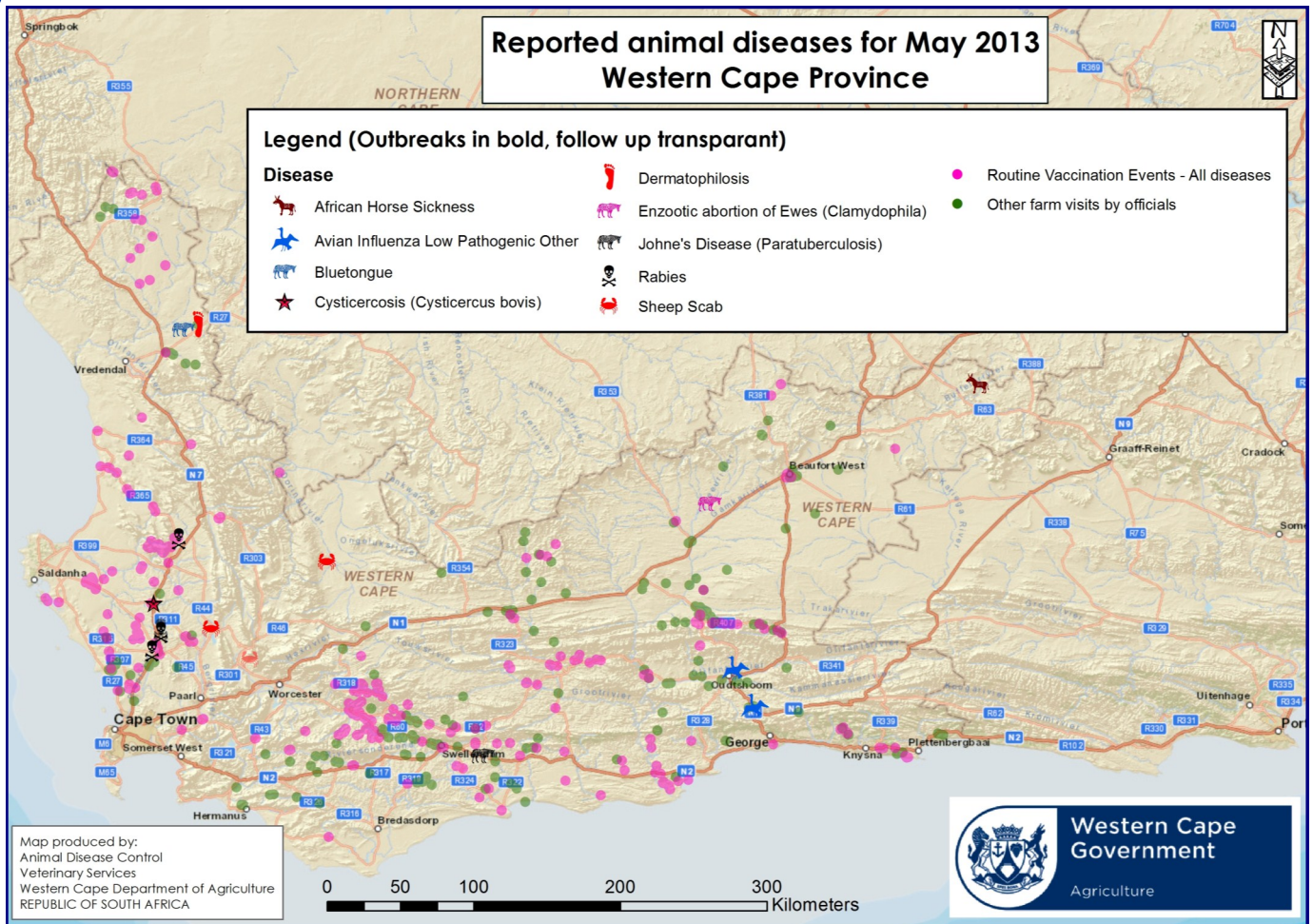
Prevention is best obtained by adding a 5% zinc sulphate solution to dip which prevents spread of the fungus. Also, care should be taken while shearing to prevent any injuries to the skin of the animal.

While lumpy wool in this flock does not pose a significant economic loss the disease in commercial wool flocks can become very serious as shearing becomes difficult and needs extra time per animal. There is also a loss of wool as clumped wool must be destroyed.

References: Bath, G. and de Wet, J., 2000. *Sheep and Goat Diseases*. Cape Town: Tafelberg, pp. 44-46.

Outbreak Map

Figure 3: Disease outbreaks in the Western Cape Province identified during May 2013



Web based event logging AHT leader boards

Total logs

State Vet area	User	May 2013 Total Logs
SV Swellendam	magriethavw	96
SV Malmesbury	michaels	83
SV Malmesbury	hendrikh	69
SV Beaufort Wes	CobusF	56
SV Malmesbury	estheaj	55
SV George	eddiel	46

Most rabies vaccinations performed

State Vet area	User	May 2013 Total
SV George	johanb	870
SV Boland	maresaf	537
SV George	fanieb	387
SV Swellendam	magriethavw	333
SV Malmesbury	estheaj	292
SV Malmesbury	hendrikh	183

Other Outbreak Events

- Another case of **bluetongue** occurred in an unvaccinated flock of **sheep** near **Vredendal**.
- A case of **African horse sickness** was reported from the infected zone of the province near **Murraysburg**. The affected **horse** had been vaccinated annually during the past five years but had not been vaccinated in 2012. It became ill, but recovered well after treatment. A horse on a neighbouring property had died acutely a week prior to this case, but unfortunately had not been reported and, by the time officials were informed of the death, the carcass could not be sampled as it was in an advanced state of decomposition.
- Three cases of **rabies** were reported from the **Malmesbury** state vet area, all involving rabid **bat-eared foxes** showing signs of disorientation and paresis. The level of awareness of the presence of rabies in bat-eared foxes is relatively high in this area and two of the cases were discovered and destroyed by farmers without human or animal contact before being brought to the local state vet for a confirmation of diagnosis. On these farms all pets were up-to-date with their rabies vaccination schedules. Unfortunately the third case was picked up by a farmer who attempted to treat the fox after it allowed her to handle it. The private vet she contacted notified the state authorities, the fox was destroyed and the farmer was referred to the department of health, although she had thankfully not received any bites, scratches or licks from the rabid animal.
- The number of **Johne's disease**-infected farms in the Western Cape continues to rise as, after observation of a typical clinical picture of the disease, the diagnosis was confirmed on a **sheep** farm near **Swellendam**. The farm was placed under quarantine, but is not a breeding farm and all sheep leaving the farm are normally for slaughter purposes.
- **Sheep-scab** infected sheep were discovered at an auction in **Gouda** during May and, after much detective work from the state vet offices of Malmesbury and Swellendam, linked infected farms were discovered in the **Ceres and Worcester** areas. Treatment of these sheep and further tracing is underway.
- **Chlamydomphila abortus** was confirmed on a **sheep** farm in the **Beaufort West** area after a farmer reported three fresh abortions.
- There have been another two outbreaks of **H7 avian influenza** in **ostriches** (see the map on the previous page for the locations near **Oudtshoorn**). In both cases viral RNA was detected using type specific H7 PCR testing. The farms were placed under quarantine and the immediate farms in a 3 km radius were sampled, while trace back and forward farms were also sampled by officials.

UBALO - Web based animal census system

In past Epidemiology Reports we have described the CADIS animal census data capture system and shown some of the analysis of census data that has been utilised from this system. We have now recently restructured the CADIS database to make it more streamlined to primarily store animal census data. Along with this process, and with the help of FC Basson from the Department's GIS services, we have implemented the capture of census data into the OIE-listed diseases web-based data capture system. The system was piloted in May 2013 and will be implemented in state vet offices around the province in June and July 2013.

In epidemiology the **host** is one of the triad of considerations to incorporate when assessing disease and disease risk (the other two being the **agent/pathogen** and the **environment**). Improving the animal census data means that informed decisions regarding animal diseases and animal disease surveillance can be made. It will also help in assessing high-risk areas for specific diseases. We look forward to showcasing the results of the UBALO system in future epidemiology reports, and we also look forward to adding another web-based capture leader board showing those technicians who perform exceptionally on the collection of animal census data.

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Disclaimer: This newsletter is published on a monthly basis for the purpose of providing up-to-date information regarding epidemiology of animal diseases in the Western Cape Province.

Much of the information is therefore preliminary and should not be cited/utilised for publication