



SA EQUINE
HEALTH & PROTOCOLS
EXPORTS SOUTH AFRICA



African horse sickness control

Surveillance report

**General AHS surveillance and testing
2023**

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2023**



**Western Cape
Government**
FOR YOU

Introduction

In this report we evaluate the laboratory-based reporting of African horse sickness (AHS) across South Africa during 2023. We evaluate both negative and positive test results which had an impact on the risk-based system in place (all previous reports on the Areas Status Declaration system are [here](#)) with regards to movement control of equids into and within the AHS controlled area. AHS movement control aims to limit the risk of introduction of AHS virus into the controlled area of South Africa. An active surveillance report is published [annually](#) which focusses on the sentinel surveillance program within the AHS free and surveillance zones of the controlled area. AHS surveillance is however not limited to the sentinel surveillance active component. Passive and other active surveillance is undertaken throughout the country since AHS is a controlled (and therefore notifiable) disease. Clinical investigations by veterinarians will often include testing for the virus, and, since the development of RNA-detection methods, primarily PCR, this has been the testing method of choice for clinicians.

The laboratories in South Africa that tested for AHS during 2023 were Onderstepoort Veterinary Research (OVR) and the Equine Research Centre – Veterinary Genetics Laboratory (ERC). The Stellenbosch Provincial Veterinary Laboratory (SPVL) underwent renovations during 2023 and was not involved in AHS testing. In collaboration with the laboratories in South Africa, with support from the Department of Agriculture, Land Reform & Rural Development – DALRRD, the Western Cape Department of Agriculture and the South African Equine Veterinary Association (SAEVA), SAEHP have been provided with access to AHS case reports and testing results since September 2017 and have captured these in the Equine Cause of Disease ([ECOD](#)) system from September 2018, coinciding with the start of the 2018/2019 AHS season. This report evaluates available data for the 2023 calendar year.

Data considerations

General data considerations have been discussed in a [prior report](#) and relate to the ability to follow up on all negative results. While this report focusses on laboratory associated results, it is important to note that clinically diagnosed cases of AHS (with no laboratory result), with an epidemiologic link to a confirmed AHS case, are considered cases that prevent movement of horses from the area concerned. In 2023 2 confirmed clinical cases of AHS were reported with a further 11 suspect cases in this regard. One data set that is not available is the number of clinical investigations performed by clinicians where AHS was ruled out as a differential diagnosis but without performing laboratory tests. Deficiencies regarding State reported clinical cases are discussed below.

While some sentinel surveillance evaluation is shown below (Figure 8), the data depicted here excludes this component simply because the sentinel program is reported on in detail annually. Furthermore, data presented does not consider clustering at herd level – results are captured on lab-report basis, and while it can be assumed that all horses tested in a single lab report are associated with a single group it is not possible to confirm this in all cases without further investigation.

Finally, the case totals published here may differ from officially published totals by the South African Government, where the latter focus more on cases submitted officially through SR1 reports or monthly disease reporting processes. In 2022 the DALRRD reported 194 cases of AHS, 92.3% of the



total reported here, and like the 95% in 2021 and 90% in 2020. The 2023 Government data available at the time of writing of this report included the first 6 months of 2023, which includes the majority of the year's cases. DALRRD reported 431 cases by end June 2023, 111% of the total reported for the same period in this report. The difference was largely due to clinical cases reported by the State in the Eastern Cape's Qumbu, Lusikisiki, Port St. Johns and Umtata regions in January and February 2023.

Results

General results

Table 1 shows the overall summary of data presented in this report (with 2022 and 2021 data bracketed). A total of 2794 individual horse laboratory test results were captured, of which 85.6% were negative and 14.2% were positive.

Table 1: Summary of all available data regarding AHS diagnoses and categorised by laboratory or clinical-only cases with case status. Data shown in brackets () relate to the 2022; 2021 values for the same parameter.

Diagnosis method	AHS status			Total tested
	Confirmed	Suspect	Negative	
Laboratory	398 (203; 264)	4 (1; 0)	2392 (1350; 1184)	2794 (1554; 1448)
Clinical	2 (7; 4)	11 (74; 12)	NA	13 (81; 16)
Total	400 (210; 268)	15 (75; 12)	2392 (1350; 1184)	2807 (1635; 1464)

Spatial and temporal depiction of AHS surveillance

To allow for areas and months to be compared this section only includes results from laboratory-based testing (N=2794) with the associated 398 confirmed AHS cases by laboratory testing (see Table 1).

Provincial and Municipal breakdown of testing and laboratory positives

Figure 1 shows the temporal spread of testing per province during the 2023 calendar year with a comparison to 2021 and 2022. The epidemic curve of laboratory confirmed AHS cases is overlaid on the plot. The provincial breakdown of testing is spatially shown in Figure 2. Gauteng tested the most horses (n=1281 – 46% (like the 43% in 2022)). The Western Cape maintained a high level of sampling, 859 samples (30% of the total - an increase from the 552 samples in 2022). There were increases in sampled totals per province across the country except for the Northern Cape which remained the same – the improved extent of laboratory testing in the north-eastern Provinces bodes well for understanding the endemic status of AHS in South Africa's infected area. The testing temporal pattern still shows that most testing occurs in the March to May period. The epidemic curve peaked a month later (April) compared to March in 2022 but otherwise had a similar structure compared to previous years although with an increase in cases for the year. Figure 3 further categorises the number of tests performed from each municipality where horses were tested. Figure 5 depicts the positive cases from these locations – increases of note were the Kwa-Zulu Natal municipalities on the south-coast. A decrease in the central regions of South Africa was seen compared to 2022, although generally cases are sporadic in that area. Most cases occurred still occurred in Gauteng – 207 (52%). It should be noted that the Eastern Cape laboratory confirmed cases are low but that official DALRRD data includes 177 cases reported from indigent regions of the Eastern Cape in the first half of the year.

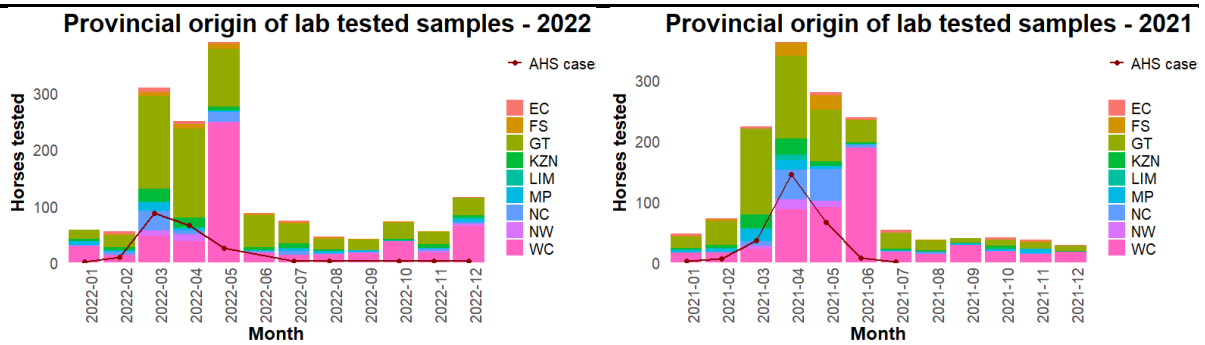
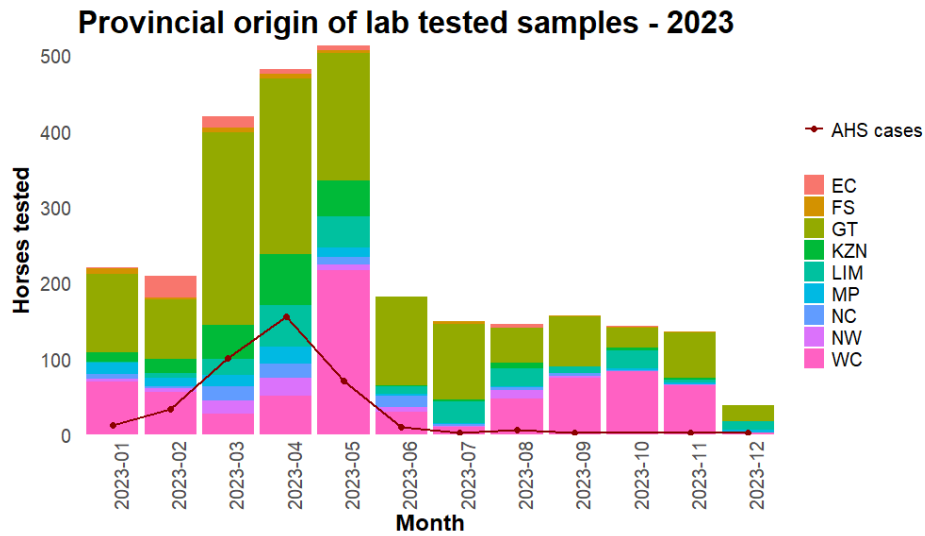


Figure 1: Breakdown of all laboratory testing performed by province and month of year for 2023. Prior years (2021 – 2022) are included for reference. The positive laboratory diagnosed AHS cases overlays the bar plot. EC – Eastern Cape; FS – Free State; GT – Gauteng; KZN – KwaZulu Natal; LIM – Limpopo; MP – Mpumalanga; NC – Northern Cape; NW – North-West; WC – Western Cape

Horses tested at laboratories for African horse sickness
Clinical investigation and pre-movement/export
2023: Provincial breakdown

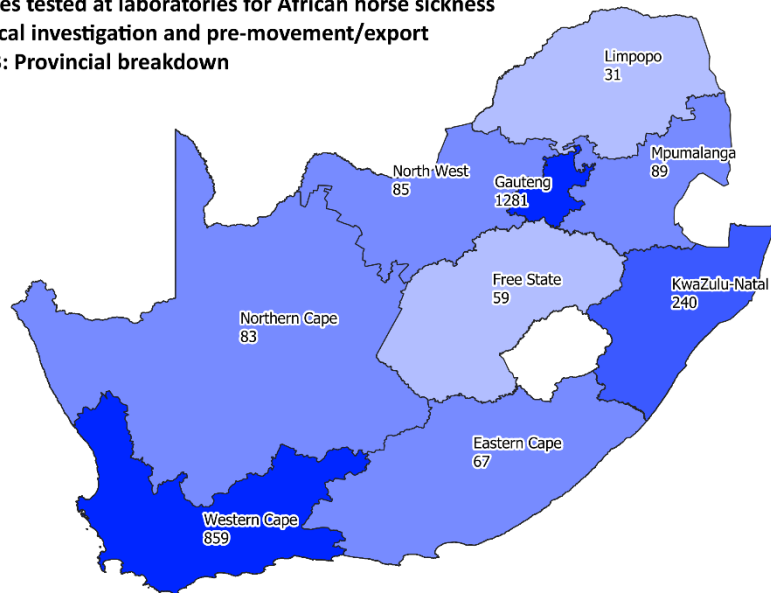


Figure 2

Horses tested at laboratories for African horse sickness
Clinical investigation and pre-movement/export
2023: Municipality breakdown

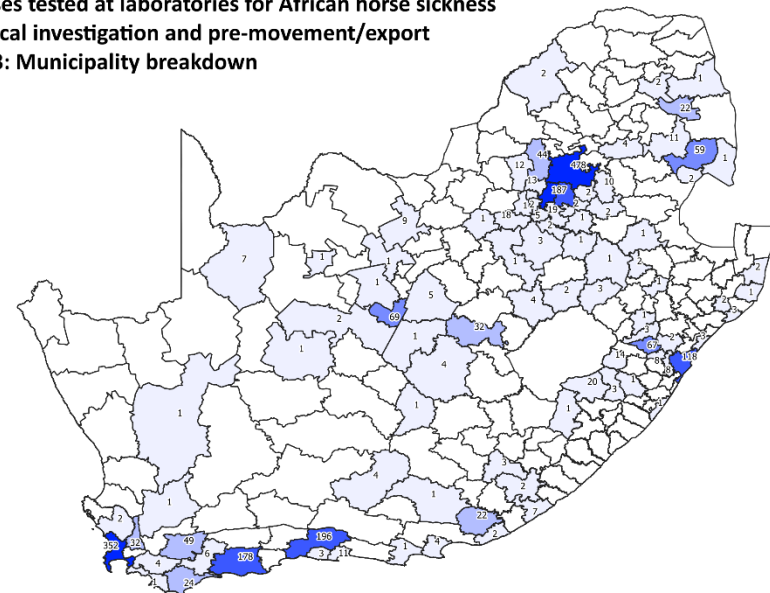


Figure 3

Positive African horse sickness cases - lab confirmed
 Clinical investigation and pre-movement/export
 2023: Provincial breakdown

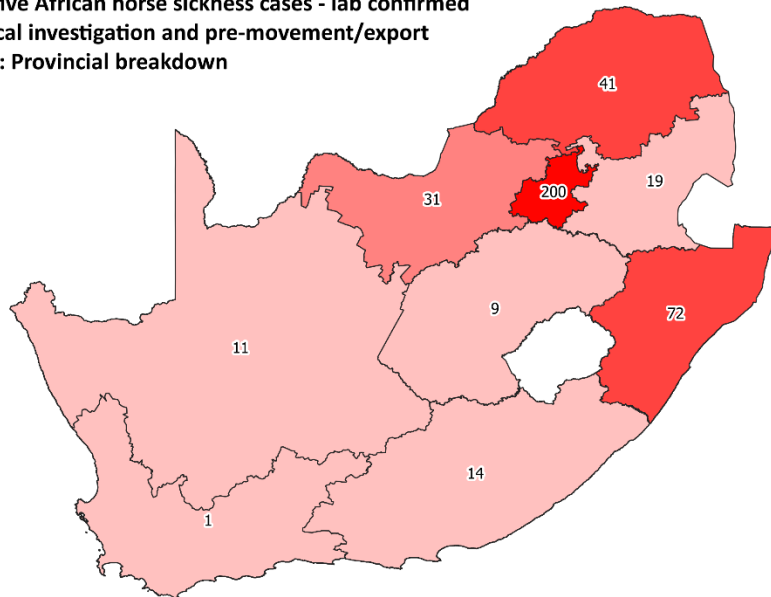


Figure 4

Positive African horse sickness cases - lab confirmed
 Clinical investigation and pre-movement/export
 2023: Municipality breakdown

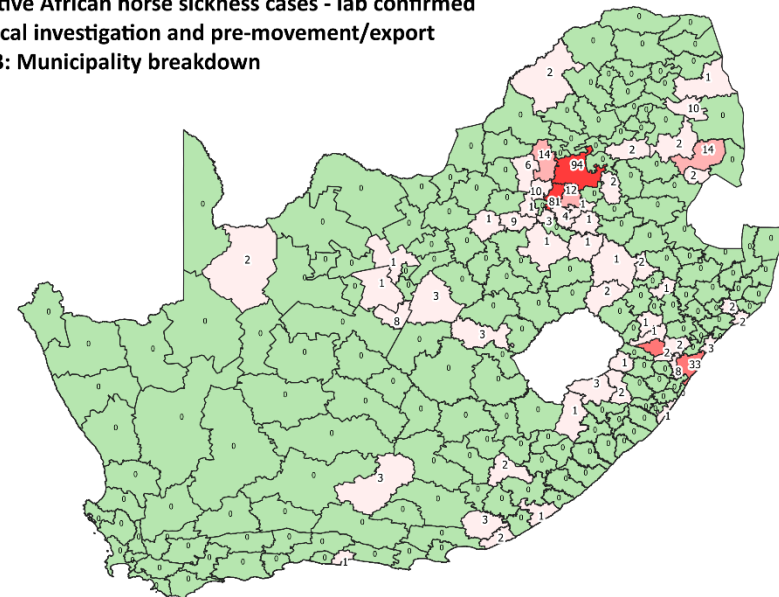


Figure 5

Reason for testing and proportional laboratory involvement

There are three primary reasons for testing for AHS in South Africa – diagnosis of disease (clinical investigation), movement control (including pre-export testing) and sentinel surveillance. Figure 6 below shows the former two reasons depicted over 2023 overlaid by the number of AHS confirmed cases.

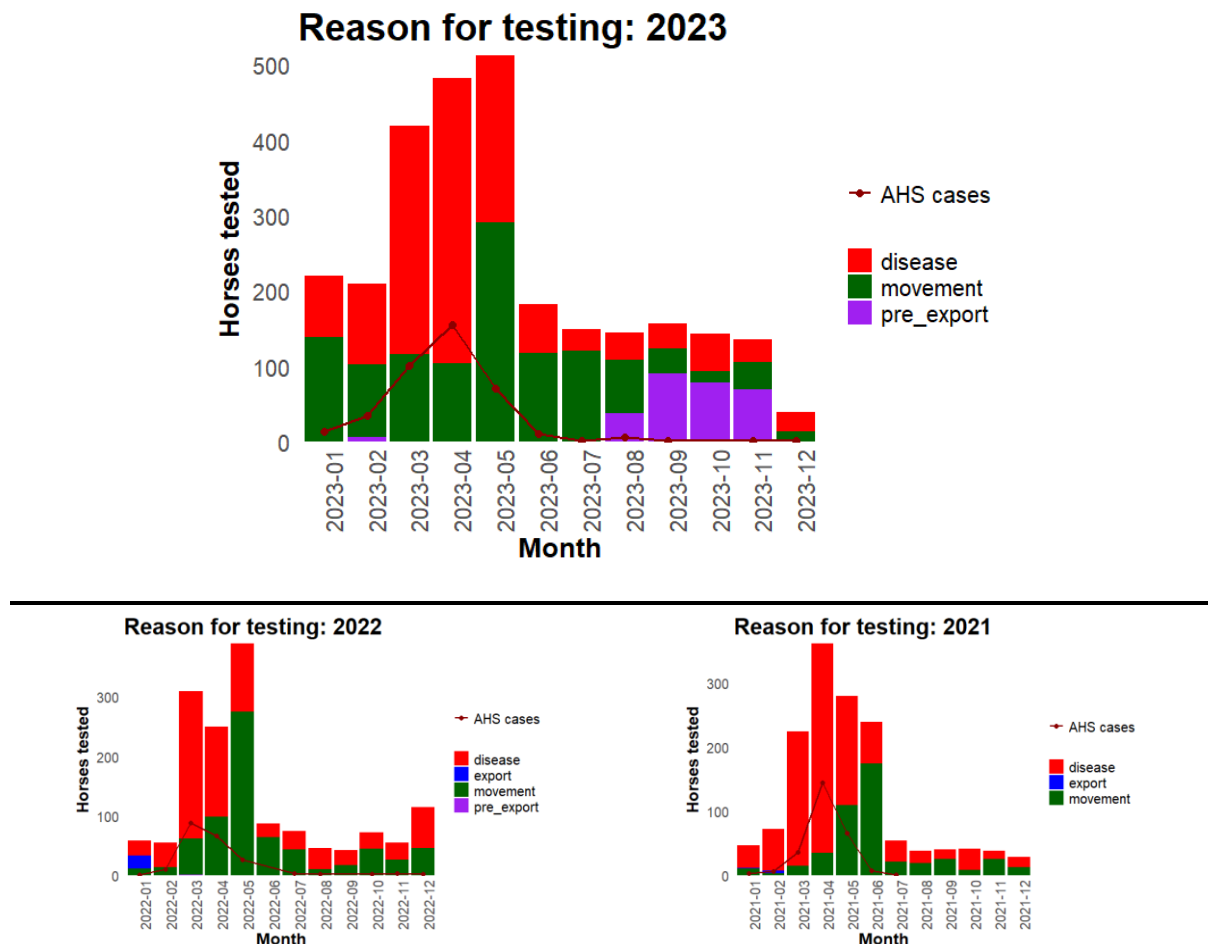


Figure 6: Breakdown of all laboratory testing performed by reason in 2023 for testing and month of year – 2021 and 2022 are included for comparison purposes. Note that all export-based testing is categorised as ‘pre_export’ and includes samples taken both prior to quarantine entry and exit.

Figure 7 and 8 illustrates the breakdown of testing performed at the different laboratories for diagnostic purposes or for movement control. The ERC remains the mainstay of most AHS testing for diagnostic or movement purposes. The monthly sentinel testing in the AHS surveillance zone for 2023 was also tested at ERC in the absence of the SPVL where the same cohort of horses are tested from month to month and which approximately accounts for ~40% of the total number of tests performed. In 2023 the OVR increased their relative contribution for both movement and diagnostic testing.

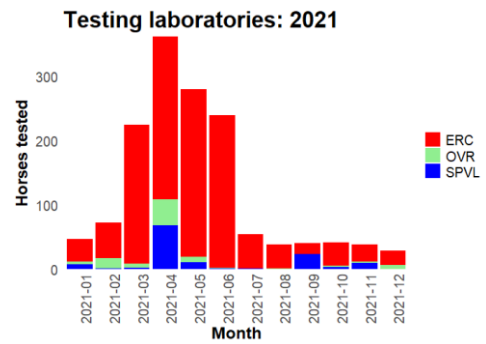
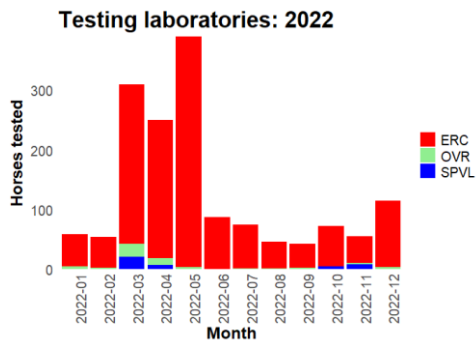
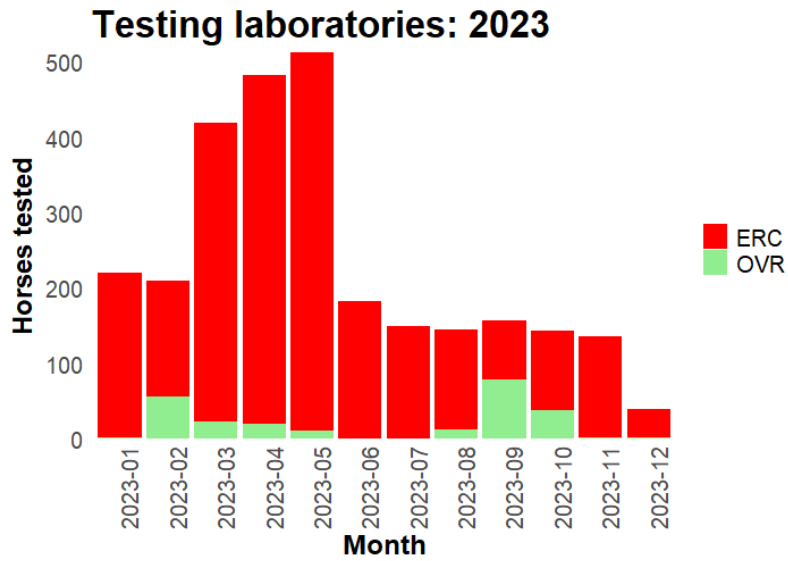


Figure 7: Breakdown of all laboratory testing performed by laboratory associated and month of year for 2023 with comparative figures from 2021 and 2022. ERC – Equine Research Centre – Veterinary Genetics Lab; OVR – Onderstepoort Veterinary Research; SPVL – Stellenbosch Provincial Veterinary Laboratory

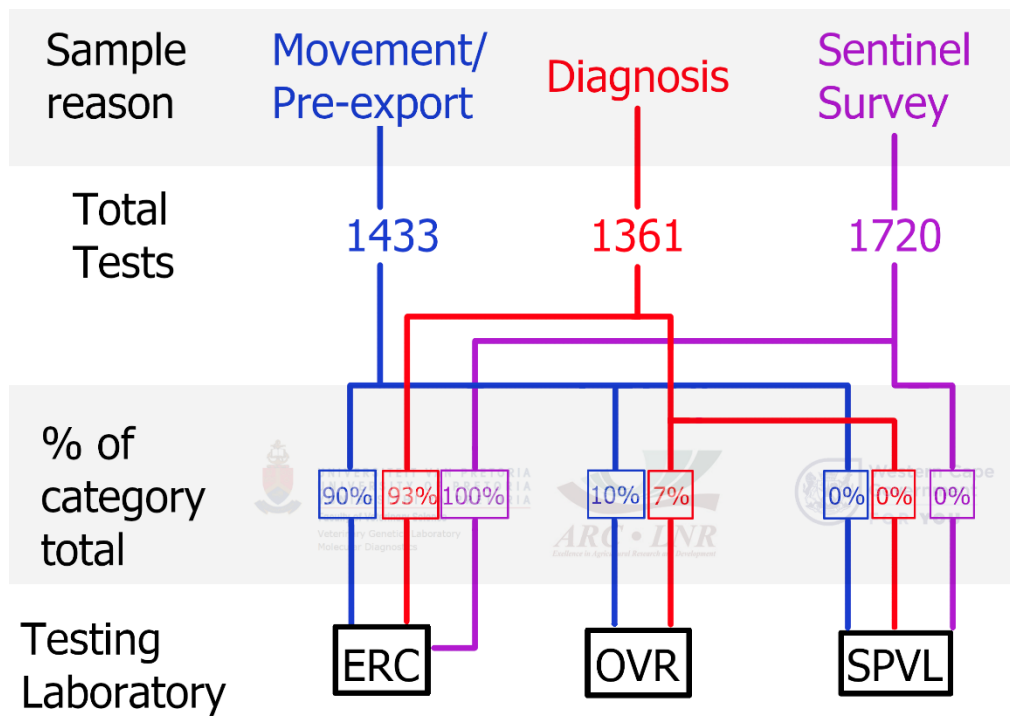


Figure 8: Reason for sampling breakdown by laboratory in 2023. *NOTE: Sentinel surveillance samples are included here.* ERC – Equine Research Centre – Veterinary Genetics Lab; OVR – Onderstepoort Veterinary Research; SPVL – Stellenbosch Provincial Veterinary Laboratory

Discussion and acknowledgements

This is the fifth consolidated report that includes both positive and negative AHS test results for testing performed over the entire country for a calendar year. The report establishes a testing baseline, an overview of the reasons for testing and a summary of the samples processed at the different laboratories with a breakdown of the results, all of which supports and refines a risk-based approach to AHS control in the country.

Case totals in 2023 were higher compared to 2022, with the maximum still occurring in Gauteng making up half the country's cases. The non-laboratory confirmed cases in the Eastern Cape reported through the State processes highlight a challenge regarding the data in this report, where clinically confirmed cases that occur in indigent regions with less private veterinary coverage may result in this report not reflecting the exact extent of AHS in a given year. A focus on non-laboratory data integration into the system collating the information for this report would be worthwhile.

We are grateful for the continued support of the DALRRD and the Provincial Veterinary Services in allowing access to laboratory results from the respective laboratories. The laboratories mentioned in this report have kindly made their information available to the Boland State Veterinary Office, on whose behalf this analysis is performed by SAEHP. The ECOD system was developed in collaboration with the South African Equine Veterinary Association to report on all equine diseases and syndromes in the country. SAEHP have maintained this system