

# Final 2016 African Horse Sickness Season Report (Amended)

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1 September 2015 to 31 August 2016



Directorate: Animal Health

2016/12/20

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## Introduction

African Horse sickness (AHS) virus is an Arbovirus from the Reoviridae Family. The virus is transmitted mainly by *Culicoides imicola* and *C. bolitinos*. AHS is seasonally endemic in the north eastern part of South Africa with seasonal epidemics spreading to the south and west of the country. The existence of endemic areas other than the areas described above could never be proven.

AHS outbreaks are recorded from 1 September to 31 August of the next year for practical reasons to include all the outbreaks in a single summer season. An outbreak is defined as a laboratory confirmed or epidemiologically linked positive case or cases on a property (farm or village) in a calendar month. If the disease persists for more than a calendar month in a single location in the AHS infected zone, the responsible Veterinarian or Animal Health Technician should decide if the severity of the situation warrants further action.



## The 2016 AHS season: Climatic conditions

Favourable climatic conditions will increase the breeding and spread of the *Culicoides* vector. Periods of drought followed by heavy rains are particularly favourable for the field vector. AHS has both seasonal and cyclical incidence with outbreaks occurring mainly in late summer and autumn.

Figure 1 indicates that large parts of the country received lower than average rainfall. Very few areas received above average rainfall namely the south western border of Eastern Cape Province, south eastern border of Western Cape Province and small areas in KwaZulu-Natal Province, Northern Cape Province and Mpumalanga Province.

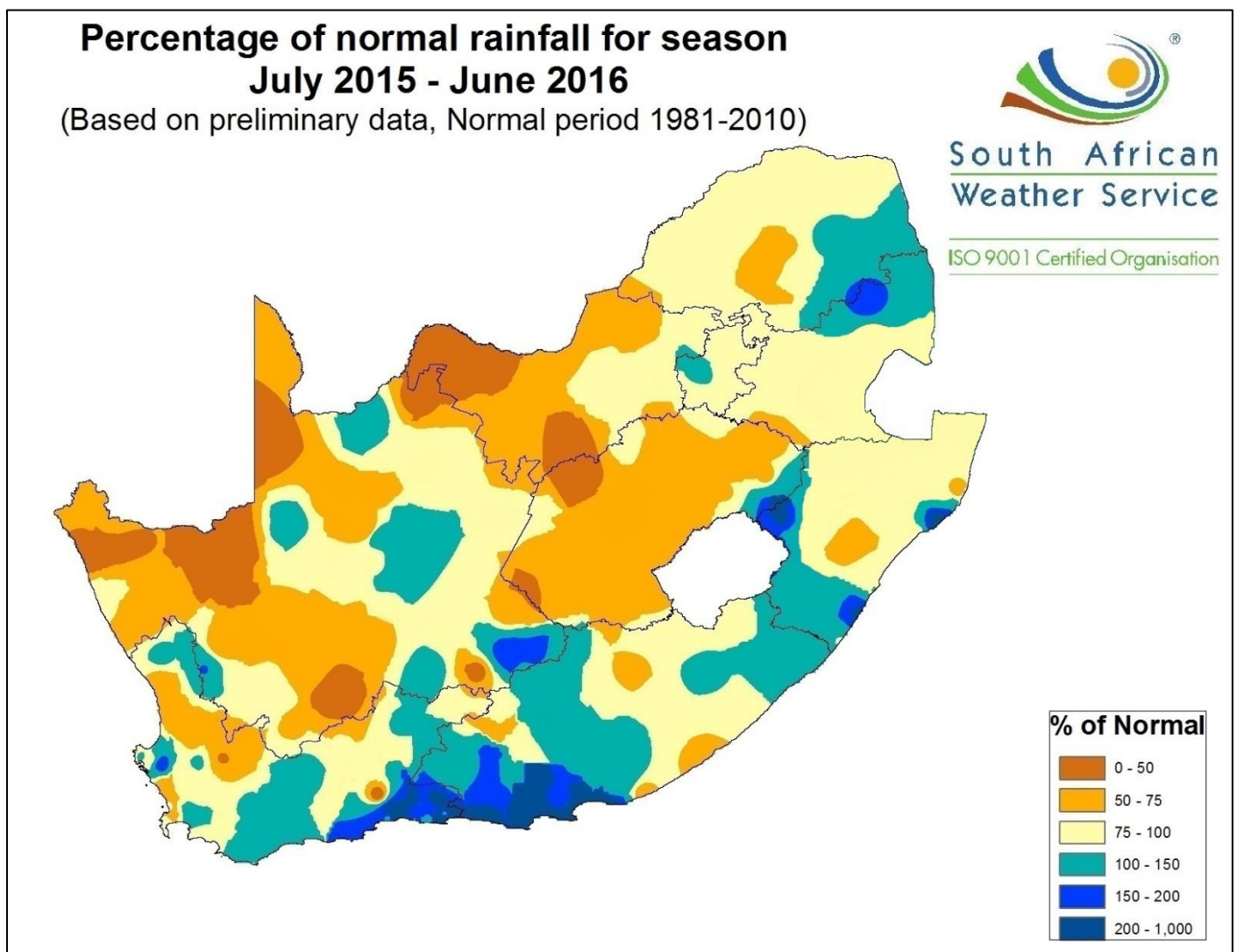


Figure 1: Percentage of normal rainfall for July 2015 – June 2016

## Laboratories involved in AHS diagnostics

Two laboratories are approved for testing AHS:

- The Biotechnology Laboratory (Onderstepoort Veterinary Institute) is DAFF approved and SANAS accredited. An AHSV hnRT-PCR is used to detect AHS virus.
- Deltamune in Oudtshoorn is SANAS and DAFF approved. A lightcycler PCR test is used to detect AHS virus.

## Reporting of outbreaks

AHS is a controlled disease according to the Animal Diseases Act, 1984 (Act 35 of 1984). Passive surveillance depends on owners to report suspect cases to the veterinarian who then further investigates the case. All AHS outbreaks must be reported to the local state veterinarian. State veterinarians are required to report all outbreaks to the Department of Agriculture, Forestry and Fisheries on a SR1 report. The SR1 reports can either be e-mailed to [Epidemiology@daff.gov.za](mailto:Epidemiology@daff.gov.za) or faxed to 012 319 7470.

In case of a suspect or positive AHS outbreak, please contact the office of the Provincial Director, Veterinary Services, if the contact details of the State Veterinarian are unknown.

(<http://www.daff.gov.za/vetweb/Contacts/Contact%20list%20Provincial%20Directors.htm>).

## Reported AHS outbreaks: Comparison of previous AHS seasons

The number of outbreaks for the period 1 September 2011 to 31 August 2016 is compared in Fig. 2. The 2012 season had the lowest number of AHS outbreaks whereas the 2011 season had the highest. As can be seen in Figure 2 and Table 1, there has generally been a low occurrence of AHS for the 2016 season throughout the country. Outbreaks for 2016 peaked in May 2016, which is noticeably later compared to previous years.

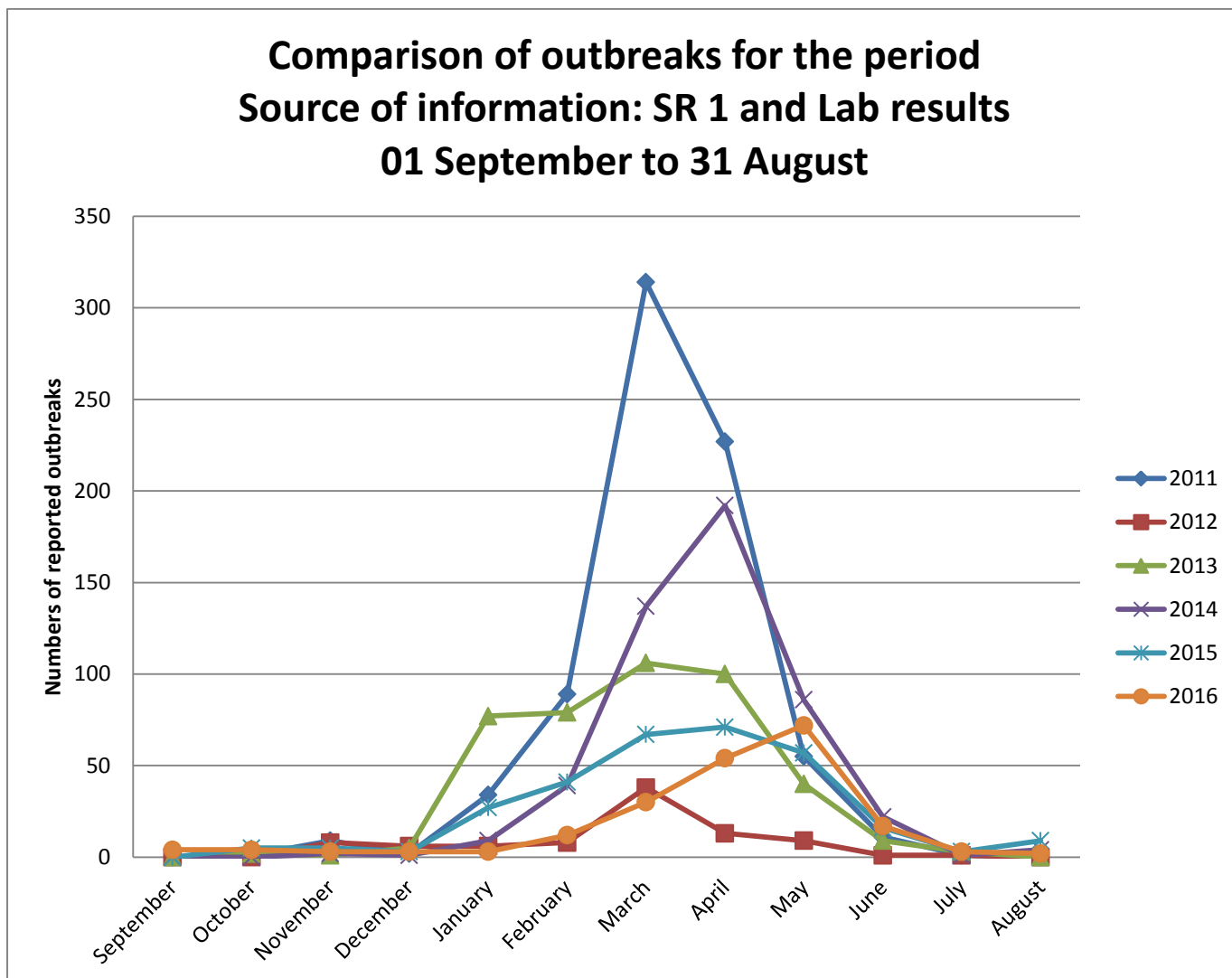


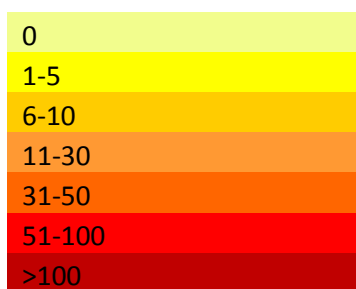
Figure 2: Comparison of the number of reported AHS outbreaks for the previous AHS seasons

## Temporal occurrence of AHS from 1992: countrywide

The number of reported outbreaks combined with the temporal distribution of outbreaks is illustrated in Table 1. Outbreaks commonly occur between January and June. The frequency of outbreaks usually drops during the winter months as a result of unfavourable environmental conditions for vectors causing a significant drop in vector populations.

**Table 1: African Horse sickness outbreaks from September 1992 to August 2016: occurrence and number of outbreaks**

Season	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Sept 1992-Aug 1993	0	0	0	0	3	0	1	0	0	1	0	0
Sept 1993-Aug 1994	0	1	0	2	2	1	2	0	3	1	0	0
Sept 1994-Aug 1995	0	0	0	0	1	0	2	3	0	0	0	0
Sept 1995-Aug 1996	0	0	0	0	0	6	24	27	8	1	0	0
Sept 1996-Aug 1997	0	2	0	2	0	0	10	4	1	2	1	0
Sept 1997-Aug 1998	0	1	0	3	6	7	8	5	6	1	0	0
Sept 1998-Aug 1999	1	1	1	5	7	30	16	29	10	2	2	1
Sept 1999-Aug 2000	0	0	1	0	2	5	33	69	36	35	0	2
Sept 2000-Aug 2001	0	0	0	0	2	1	8	16	29	24	1	0
Sept 2001-Aug 2002	1	1	0	4	17	27	31	24	14	2	2	6
Sept 2002-Aug 2003	0	0	0	0	1	9	26	16	31	5	0	0
Sept 2003-Aug 2004	0	1	0	0	2	15	51	58	61	9	0	0
Sept 2004-Aug 2005	0	0	0	0	20	19	35	79	36	2	1	0
Sept 2005-Aug 2006	1	0	1	2	14	36	107	77	62	16	0	0
Sept 2006-Aug 2007	2	0	2	2	9	8	11	17	5	2	1	0
Sept 2007-Aug 2008	0	0	0	7	24	83	137	91	40	5	1	0
Sept 2008-Aug 2009	0	7	1	3	10	31	90	91	47	16	0	1
Sept 2009-Aug 2010	0	1	0	0	6	13	17	44	14	21	2	0
Sept 2010-Aug 2011	0	8	10	11	32	89	314	226	44	9	1	0
Sept 2011-Aug 2012	0	0	0	0	7	11	38	14	9	1	0	0
Sept 2012-Aug 2013	0	2	2	5	70	79	105	98	40	9	4	1
Sept 2013-Aug 2014	0	0	2	1	7	25	137	192	86	13	1	2
Sept 2014-Aug 2015	0	5	5	3	27	41	67	71	57	16	3	9
Sept 2015-Aug 2016	4	4	3	3	3	12	30	54	72	17	3	2



## Number of reported AHS outbreaks: Comparison between provinces for the 2016 season.

Information obtained from the SR1 reports, routine monthly reports and laboratory result reports were used to compile this report.

Figure 3 Illustrates the number of outbreaks for the 9 provinces in the current AHS season based on positive laboratory results, SR1 reports and routine monthly reports. Gauteng Province had the highest number of outbreaks that peaked during May 2016 compared to the rest of the provinces. The distribution of horse populations and level of passive surveillance will contribute to the number of outbreaks that are reported as illustrated in Figure 3 and 4.

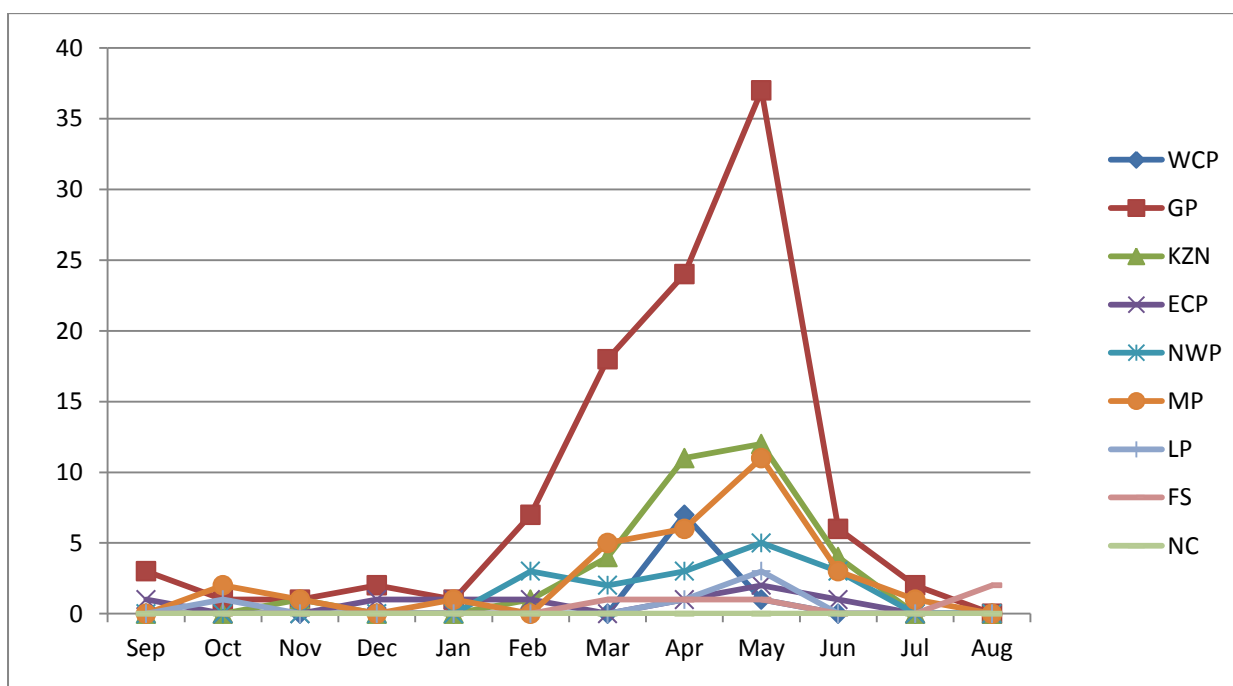


Figure 3: Comparison of the number of reported AHS outbreaks in each province from September 2015 – August 2016.

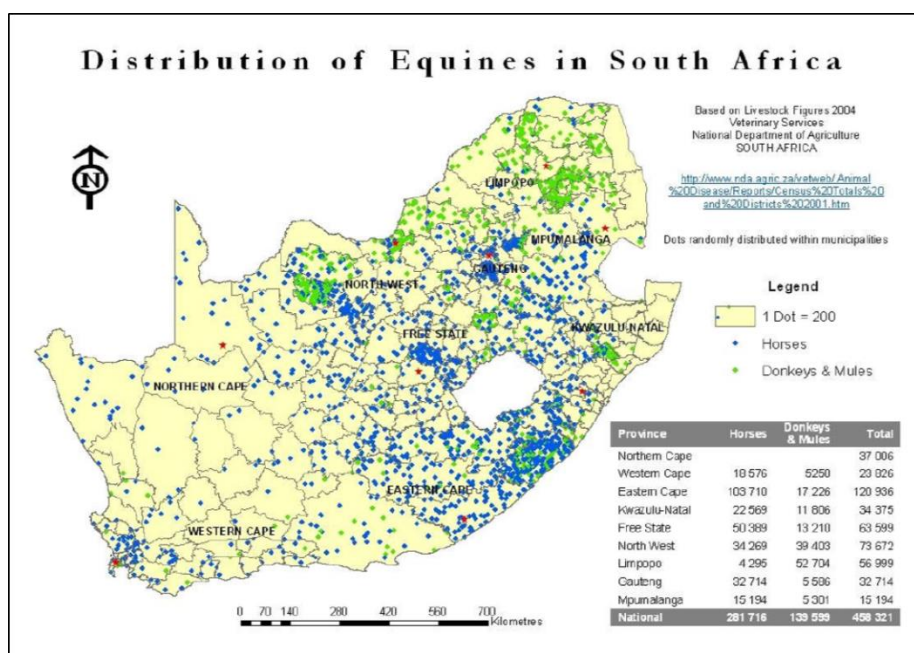


Figure 4: Distribution of Horse population in the country for 2004



Cases that have been diagnosed with serology have not been included in the report if background information regarding vaccination history was not available. This is because positive serological results received could be as a result of vaccination or natural infection.

Table 2 indicates the number of AHS outbreaks in horses from each province based on SR1 reports, routine monthly reports and lab results. All AHS outbreaks must be reported to the local state veterinarian according to the Animal Diseases Act, 1984 (Act 35 of 1984). For this season 42% of the positive locations were reported with SR1 reports and 16% positive locations were reported with routine monthly reports.

**Table 2: African Horse Sickness outbreaks based on lab results, routine monthly reports and SR1 reports received: September 2015 to August 2016**

Province	Number of outbreaks reported with SR1 reports	Number of outbreaks reported with monthly reports only (No SR1 reports)	Number of outbreaks reported by Lab results only (No SR1 or Monthly reports)
Mpumalanga	0	6	24
Gauteng	51	14	37
Limpopo	1	0	4
North West	10	2	4
Free State	1	1	3
KZN	11	9	13
Eastern Cape	5	1	2
Western Cape	8	0	0
Northern Cape	0	0	0
<b>TOTAL</b> (1 September 2015 to 31 August 2016)	<b>87</b>	<b>33</b>	<b>87</b>

## Comparison of all lab results, routine monthly reports and SR 1 reports for each province

The Western Cape Province reported 100% of their outbreaks by SR1 reports. North West Province and Eastern Cape Province reported 75% of their outbreaks by both SR1 and monthly reports, followed by Gauteng Province reporting 64% and KwaZulu-Natal Province reporting 61%. The Free State reported 40% of their outbreaks by SR1 or monthly reports, and Limpopo Province and Mpumalanga Province both only reported 20% (for Mpumalanga, no SR1 reports were received, the 20% reported outbreaks were only by monthly reports). No outbreaks were reported from Northern Cape Province. Figure 5 illustrates the number of outbreaks reported with SR1 reports in blue. The red bar shows the number of outbreaks reported with monthly reports, excluding SR1 reports. The green bar shows the number of outbreaks reported by Lab results only and does not include SR1 or Monthly reports.

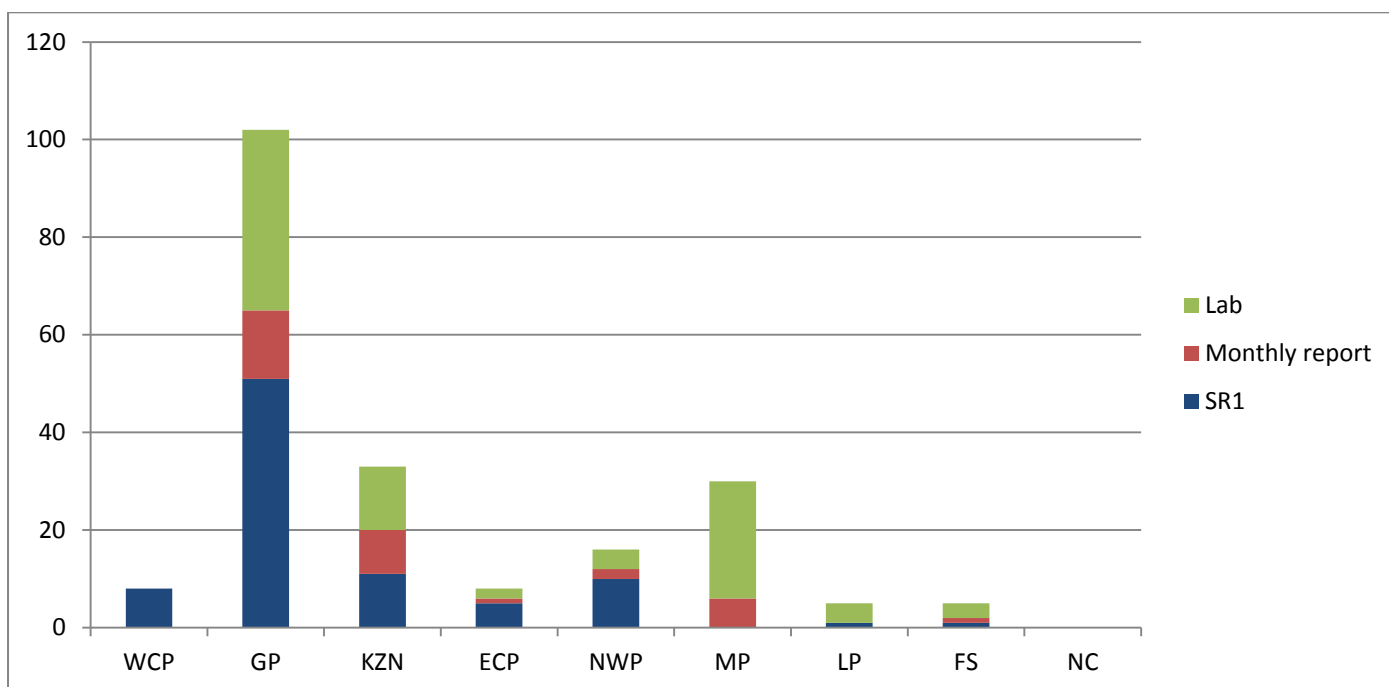


Figure 5: Comparison of the number of AHS outbreaks that were detected with lab results, routine monthly reports and SR1 reports

In the 2016 AHS season only 42% of all detected outbreaks countrywide were reported on SR1 reports and 16% from routine monthly reports as shown in the red area of Figure 6. All positive outbreak locations that were reported with laboratory reports only, are shown in the green area.

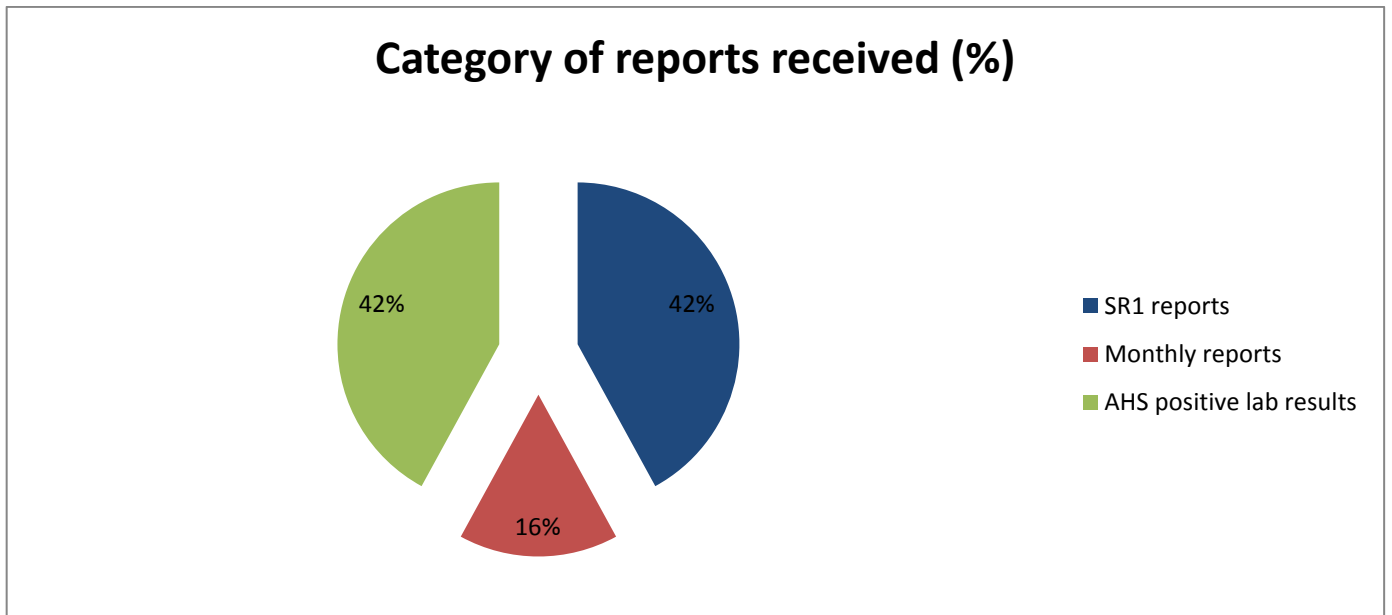


Figure 6: Categories of the detected outbreaks according to report status

The number and locations of outbreaks that have occurred in each province is illustrated in Figure 7, based on SR1 and monthly reports. Laboratory result reports without SR1 or monthly reports do not appear on the map due to insufficient background information. Therefore 42% of all laboratory confirmed outbreaks (87) are not represented in figure 7. The province with the highest number of reported outbreaks was Gauteng Province.

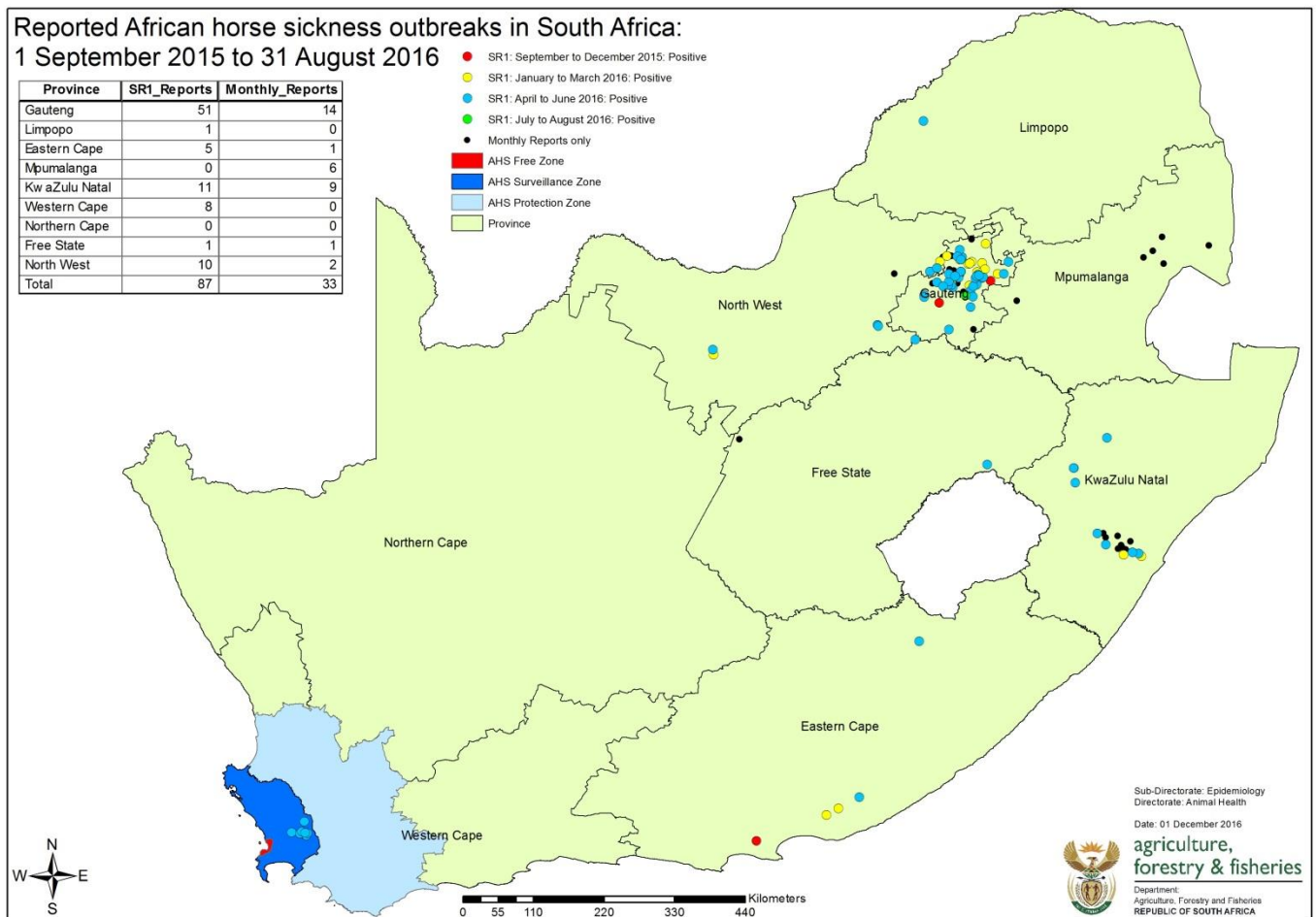


Figure 7: Reported number of AHS outbreaks in each province from September 2015 – August 2016

Figure 8 illustrates all the first outbreaks of the 2016 season for each province and the dates thereof based on SR1 reports only. Eastern Cape Province was the first to report an outbreak for the 2016 season in September 2015. Since no SR1 reports were received from Mpumalanga Province, an accurate date for the initial outbreak could not be established. Based on Mpumalanga Province monthly reports the first outbreak was reported for March 2016.

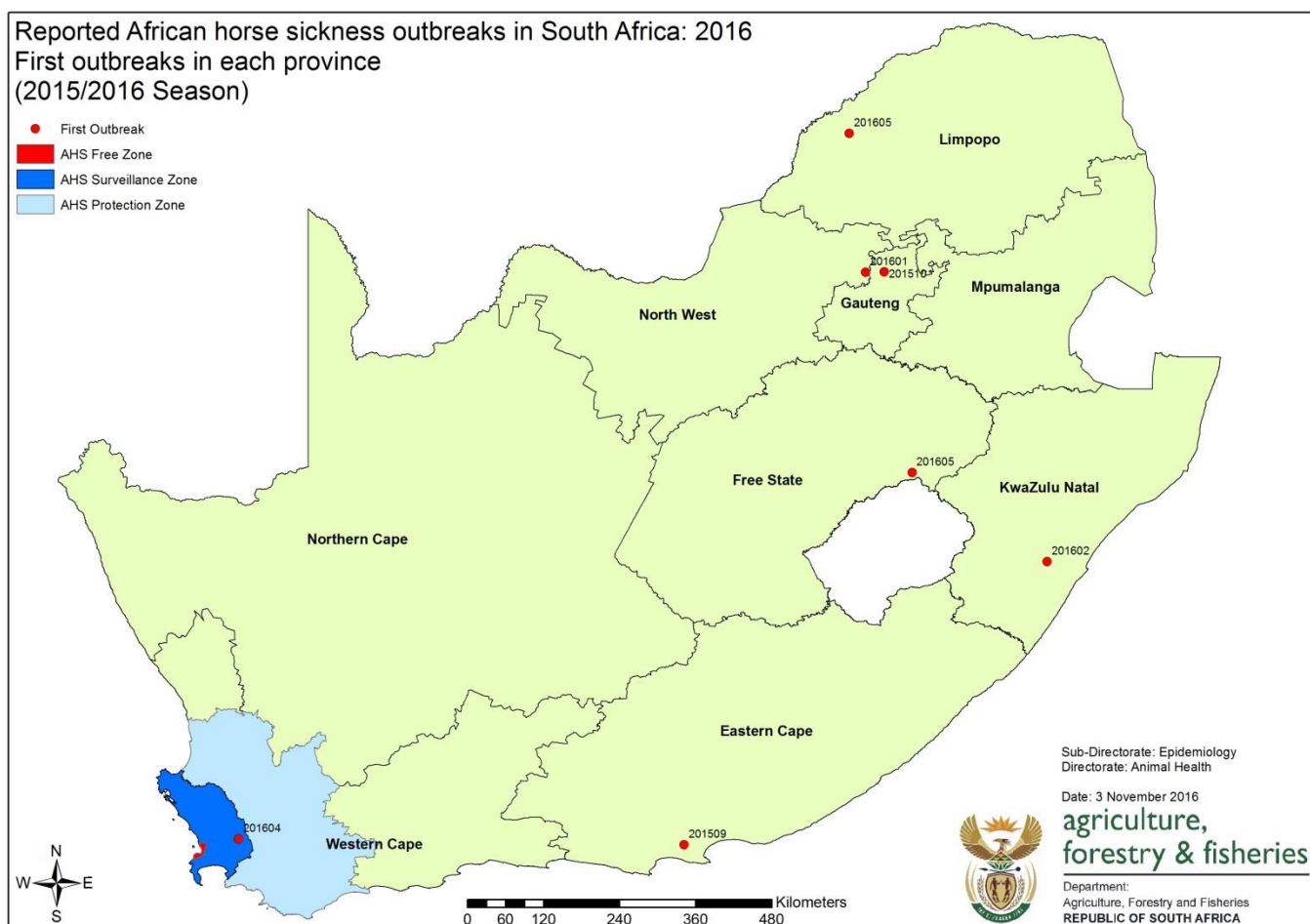


Figure 8: Reported number of initial AHS outbreaks for each province for September 2015 – August 2016

African Horse sickness virus is divided into 9 serotypes that are known to be circulating in South Africa. The map (Figure 9) illustrates the location of the different serotypes for the 2016 AHS season (From Laboratory result reports that could be linked to SR1 reports).

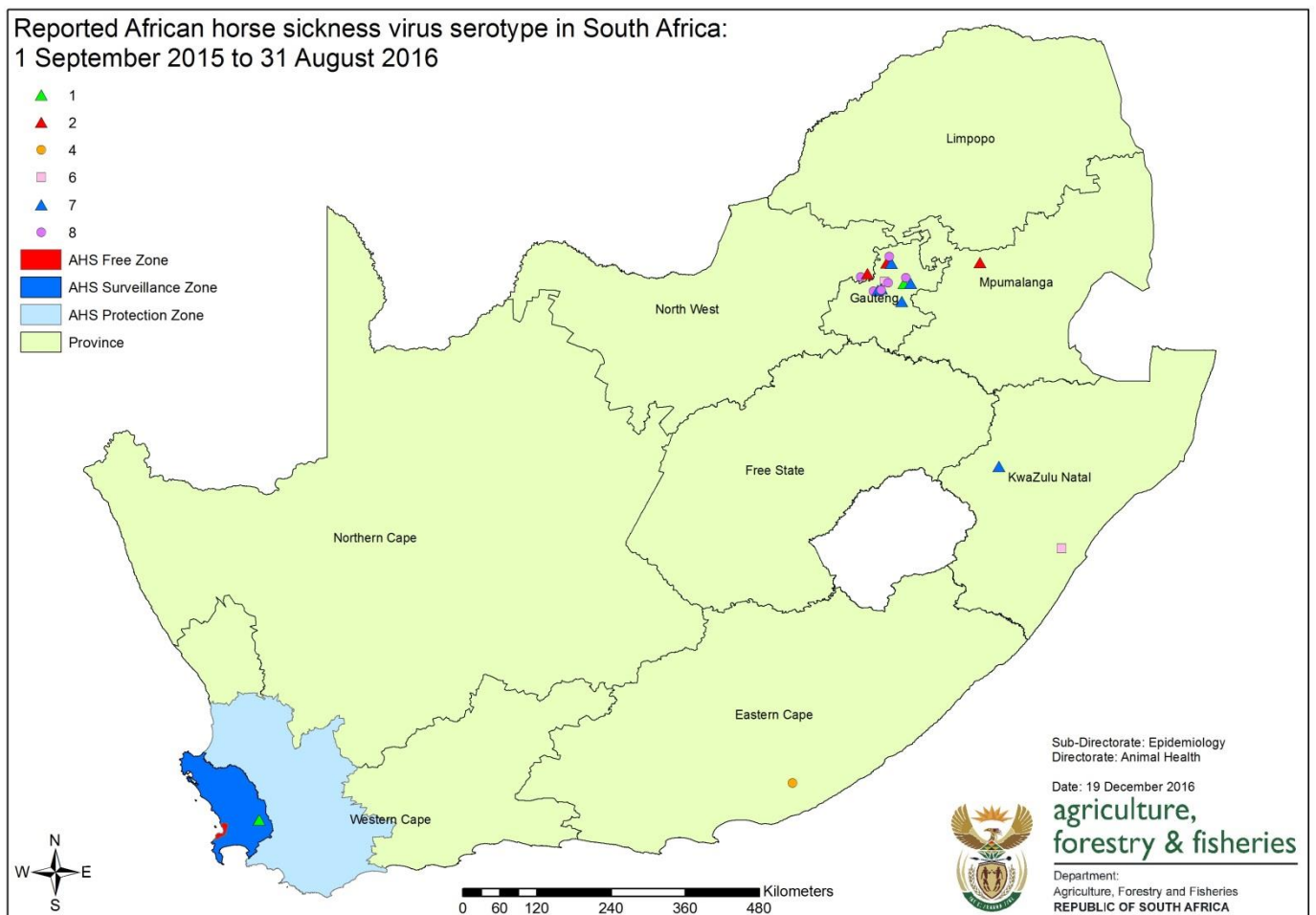


Figure 9: AHS virus serotypes in the country based on routine monthly reports and SR1 reports received

Table 3 indicates all the serotypes illustrated in Figure 9 that have been identified in the country (Serotypes received from Laboratory result reports that have been linked to SR1 reports). Please note that some points indicated on the table may not be seen on Figure 9 as they overlap.

**Table 3 Tabulated serotypes that are represented on the map in figure 9**

<b>Province</b>	<b>Serotypes obtained from SR1 and monthly reports. (Serotype x quantity)</b>
<b>Gauteng</b>	Serotype 1 × 1 Serotype 2 × 1 Serotype 6 × 1 Serotype 7 × 5 Serotype 8 × 5
<b>North-West</b>	Serotype 8 × 1 Serotype 2 × 1
<b>KwaZulu-Natal</b>	Serotype 6 × 1 Serotype 7 × 1
<b>Eastern Cape</b>	Serotype 4 × 1
<b>Western Cape</b>	Serotype 1 × 1
<b>Mpumalanga</b>	Serotype 2 × 1

### **Update on the outbreak in the surveillance zone**

A colt was diagnosed with AHS serotype 1 on the 2nd of April 2016 in Paarl through clinical surveillance in the Drakenstein Local Municipality. A containment zone was declared; once the disease was controlled the containment zone was lifted. The outbreak was officially closed on 13 June 2016 with the OIE.



## Negative results

Some negative laboratory results are received at DAFF. These animals were either tested because they were clinically suspect (but no AHS was detected), for movement or surveillance purposes. The table below shows the number of negative laboratory results that were received at DAFF.

Table 4: Negative reporting in the country

Province	Total negative lab results received at DAFF
Mpumalanga	46
Gauteng	346
Limpopo	8
North West	8
Free State	10
KZN	51
Eastern Cape	24
Western Cape	64
Northern Cape	4
Total	561

## Precautions to limit outbreaks

Owners are encouraged to vaccinate their animals annually to limit the impact of the disease. In accordance with Table 2 of the Regulations specified in the Animal Diseases Act, 1984 (Act 35 of 1984), all horses in RSA (except in the AHS free and surveillance zones in the Western Cape Province) must be vaccinated annually using a registered vaccine at the cost of the owner. The African Horse Sickness Vaccine from Onderstepoort Biological Products (Reg No, G0116, Act 36 of 1947) is currently the only registered vaccine in terms of the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947) . According to the OBP AHS vaccine insert, it is important to administer the vaccine in the low vector activity periods when the likelihood of transmission is low. DAFF has issued a directive, restricting vaccination periods from 1 June until 30 October as indicated in Table 5, below. Please note that the use of any AHS vaccine must be in compliance with the below vaccination periods. DAFF firmly discourages the use of unregistered vaccines against AHS.



Table 5: Dates for administration of African horse sickness vaccinations for each AHS zone

Area	Adjustment
AHS Free Zone	Permission for vaccination will only be given from 1 June to 31 October each year.
AHS Surveillance Zone	Permission for vaccination will only be given from 1 June to 31 October each year.
AHS Protection Zone	All equines in this area must be vaccinated within the period 1 June to 31 October each year.
AHS Infected Zone	Strong recommendation is made to vaccinate during the period 1 June to 31 October each year

It is advisable to stable horses at least two hours before sunset and keep them stabled until two hours after sunrise. This is the time period when the *Culicoides* midges are most active and known to be feeding. As *Culicoides* midges also colonize around stagnant water sources, all efforts should be made to prevent such pooling of water and to move animals away from these sources.

To aid in the prevention of the AHS virus introduction into the AHS controlled areas of the Western Cape, all movements of equids to the AHS controlled areas are subject to strict State Veterinary movement control. According to Regulation 20 of the Animal Diseases Act, 1984 (Act 35 of 1984) equids moving to the AHS controlled areas require a movement permit issued by the State Veterinarian at origin. The State Veterinarian may request the following in order to consider issuing a Movement permit.

- Valid identification of the equids
- Vaccination certificate where applicable
- Horse must be vaccinated not less than 40 days and not more than 24 months prior to movement
- No outbreaks must have occurred within a 30km radius of the farm of origin in the past 40 days

For more information please contact your private veterinarian, state veterinarian or state veterinarian Boland at 021 808 5253.

Regular testing and active surveillance of sentinel horses allows for early detection of clinical AHS outbreaks and possible subclinical carriers in the Free and Protection Zones. Sentinel animals are not vaccinated and are managed at fixed locations in order to detect any circulating infection among the herd. The OIE code requires ongoing surveillance to demonstrate freedom of disease in a country or zone. Owners play a crucial role in testing of sick animals. It is therefore important to educate horse owners about early disease detection and the importance of continuous surveillance.

## References

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