Avian Influenza: H5 and H7 outbreak update report

18 October 2023

agriculture, land reform & rural development

Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

Report compiled by:
Directorate: Animal Health

Please note: This report includes all information as available by close of business on 18 September 2023.

1. Introduction and Background

Avian influenza is a highly contagious viral disease that affects several species of food producing birds, pet birds and wild birds. Occasionally other mammals, including humans, may also contract avian influenza. H5 and H7 avian influenza are classified into two categories according to the severity of disease it causes in poultry namely low pathogenic avian influenza (LPAI) and highly pathogenic avian influenza (HPAI). LPAI strains cause few or no clinical signs in poultry while HPAI strains may cause severe clinical signs and potentially high mortality rates among poultry. Outbreaks of HPAI in poultry may result in trade bans on the export of poultry and poultry products. Reporting of HPAI outbreaks in non-poultry (e.g. wild birds, pet birds, birds kept as a hobby, backyard poultry as defined by the 2021 OIE Terrestrial Animal Health Code), to the WOAH do not have trade implications.

In South Africa, avian influenza of any subtype is a controlled animal disease in terms of the Animal Diseases Act, 1984 (Act No 35 of 1984). Any suspect or confirmed case of avian influenza of any subtype must be reported immediately to the responsible state veterinarian in terms of the Animal Diseases Act, 1984 (Act No 35 of 1984). Both passive and active surveillance for avian influenza are conducted across the country in order to detect any incursion of avian influenza. Passive and active surveillance in backyard and commercial chickens is continuing across the country.

In 2017 the first case of Highly Pathogenic Avian Influenza (HPAI) was confirmed in commercial chickens in South Africa. This was confirmed as HPAI H5N8. A HPAI H5N2 was detected in October 2022 in chickens of a small-scale farmer facility in KwaZulu-Natal Province in 2022. This is the first ever HPAI H5N2 in chickens in the country. HPAI H5N2 was detected in ostriches during 2004, 2006 and 2011.

Current H5 and H7 avian influenza outbreaks within the country are summarised in this report and are categorised according to pathogenicity (HPAI, LPAI or undefined). The HPAI outbreaks are discussed under point 2 and LPAI is discussed in point 3.2.

2. Highly pathogenic avian influenza (HPAI)

All HPAI suspect farms are immediately placed under quarantine and no movement of birds, eggs or products are allowed on, off or through these farms. Samples are collected for verification of the suspicion and back and forward tracing is implemented to detect any possible spread of disease. So far most of the affected properties have culled out the chickens and carcasses were disposed of by dumping at an approved hazardous dump site, incineration, rendering or composting on farm; or on farm burial were allowed by the Environmental Affairs Department. Eggs are either taken under veterinary supervision for pasteurisation or moved after double fumigation or fogging.

Passive and active six-monthly surveillance in the country is ongoing. Listed NAI free compartments are continuing with the monthly surveillance. In terms of the Animal Diseases Act, 1984 (Act No 35 of 1984) any suspect or confirmed outbreak of any avian influenza strain must be immediately reported to the responsible state veterinarian for immediate investigation.

If HPAI is suspected/detected in poultry, there is no scientific justification in placing a radius around the affected farms as a controlled/protection zone due to the mode of transmission, primarily by wild birds. However, all neighbouring farms are immediately visited, and all epidemiologically linked properties to an affected farm are immediately placed under quarantine until preliminary investigations can be conducted.

The recovery of country HPAI freedom may require additional surveillance over and above the current passive and active surveillance.

3. Overview of the new HPAI H5 event

Sequencing data that became available in April 2023, indicated that a new strain of HPAI H5N1 was introduced in November 2022 in the Free State Province. It was decided to report this outbreak and any future HPAI H5 outbreaks as new events with the World Organisation of Animal health (WOAH), unless proven otherwise.

3.1 Overview of the new HPAI H5 poultry event

The index case of the new HPAI H5 poultry event has a start date of 18 April 2023 and was detected in poultry layers in the Swartland Local Municipality within the Western Cape Province. A total of ten (n=10) outbreaks were reported to WOAH as part of the new HPAI H5 poultry event - seven outbreaks in the Western Cape Province and three outbreaks in KwaZulu-Natal Province. The affected local municipalities in the Western Cape and KwaZulu-Natal Provinces are represented in Table 1 below. Outbreaks that were resolved are striked through. Six (n=6) of the outbreaks were resolved.

There were two HPAI H5 positives in KwaZulu-Natal Province which will be reported upon receipt of the emergency reports. There is one H5 PCR positive in Mpumalanga Province for which pathotyping is awaited.

Province	**Local Municipality with total number of outbreaks within this Local Municipality**	**Details of outbreak**
KwaZulu-Natal *0 out of 3 outbreak resolved*	Mkhambathini (n=1) *0 out of 1 outbreak resolved*	Commercial chicken breeder farm
	The Msunduzi (n=2) *0 out of 2 outbreak resolved*	Commercial chicken breeder farm
		Commercial chicken breeder farm
	Mpofana (n=1)	Commercial chicken layer farm
Western Cape *6 out of 7 outbreaks resolved*	City of Cape Town (n=2) *1 out of 2 outbreaks resolved*	~~Commercial chicken layer farm~~
		Commercial chicken layer farm
	~~Drakenstein (n=2)~~ ~~*2 out of 2 outbreaks resolved*~~	~~Commercial chicken layer farm~~
		~~Commercial chicken layer farm~~
	~~George (n=2)~~ ~~*2 out of 2 outbreaks resolved*~~	~~Commercial chicken layer farm~~
		~~Commercial chicken layer farm~~
	~~Swartland (n=1)~~ ~~*1 out of 1 outbreak resolved*~~	~~Commercial chicken layer farm~~
	Oudtshoorn	Commercial ostriches
Mpumalanga	Steve Tshwete	Broiler farm

TABLE 1: AFFECTED LOCAL MUNICIPALITY PER PROVINCE FOR HPAI H5

3.2 Spatial distribution of the new HPAI H5 poultry event

The spatial distribution of the reported HPAI H5 outbreaks in poultry is represented in Figure 1 below.

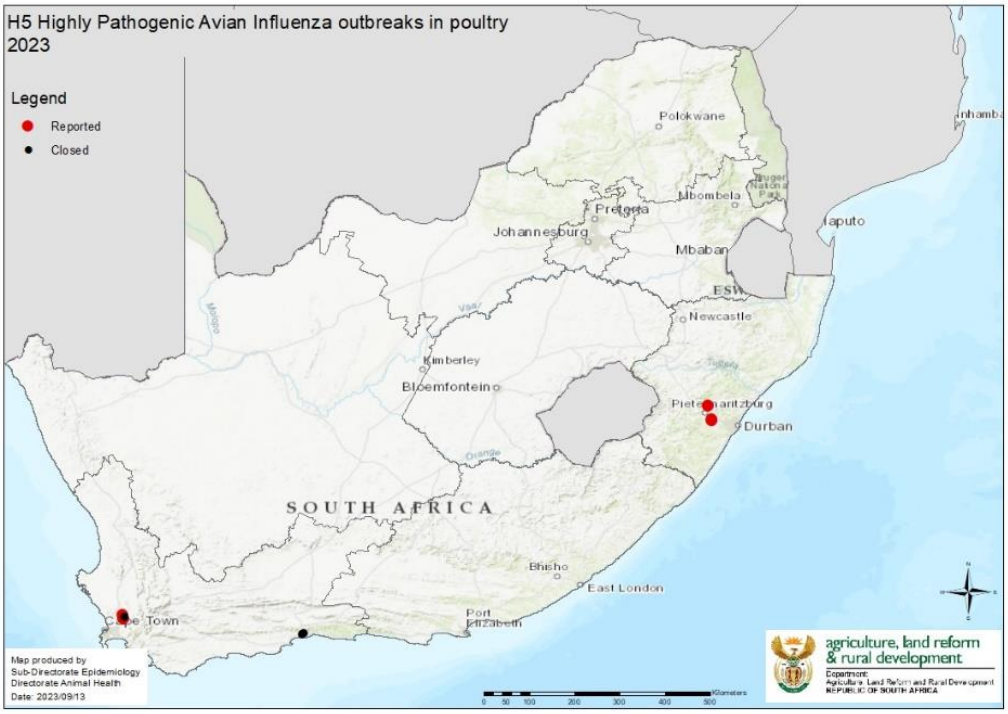

FIGURE 1: SPATIAL DISTRIBUTION OF HPAI H5 OUTBREAKS IN POULTRY

3.3 Overview of the new HPAI H5 non-poultry (wild bird) event

A new wave of H5 avian influenza introductions started in March 2023. Thirty-nine outbreaks (n=39) were reported to WOAH as part of this new HPAI H5 event.

Fourteen (n=15) of these outbreaks are in the Western Cape Province. Four (n=4) outbreaks are in shorebirds in the Eastern Cape Province and one (n=1) outbreak is in shorebirds in the Ethekwini Local Municipality in KwaZulu-Natal Province. Further positive locations were detected in Gauteng Province (n=10); in Mpumalanga Province (n=1); in KwaZulu-Natal Province (n=4); and in North West Province (n=2).

3.4 Spatial distribution of the new HPAI H5 non-poultry (wild bird) event

The spatial distribution of the reported HPAI H5 outbreaks in non-poultry is represented in Figure 2 below.

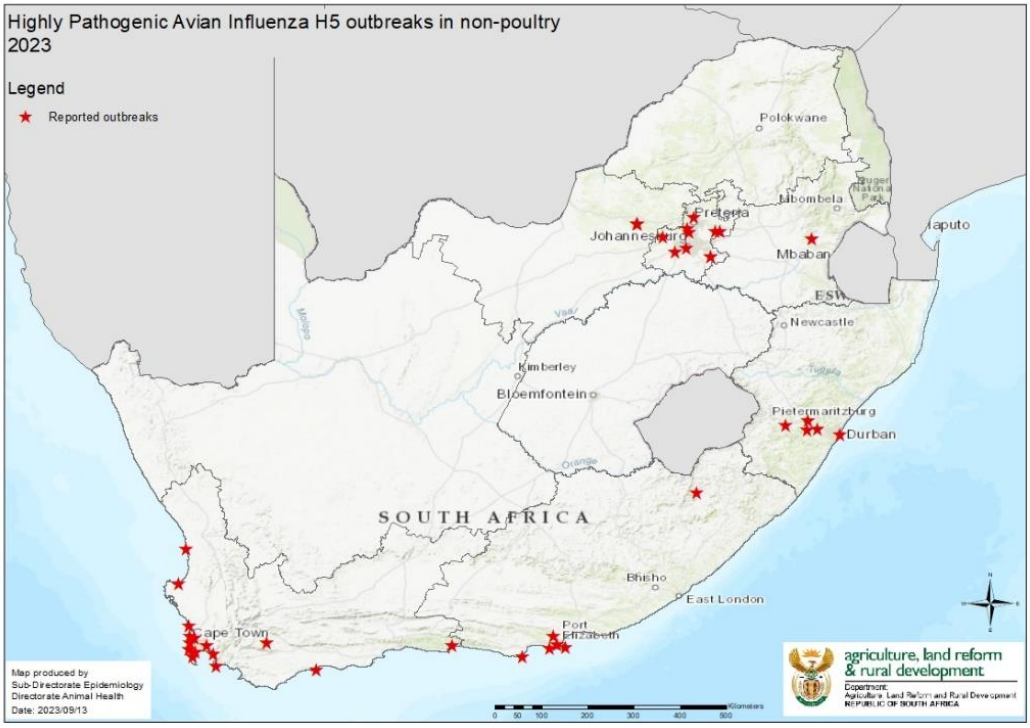

FIGURE 2: SPATIAL DISTRIBUTION OF HPAI H5 OUTBREAKS IN NON-POULTRY

3.5 Temporal distribution of the new HPAI H5 event

The temporal distribution per category (commercial chickens; small scale farmers/speculators; backyard poultry; commercial ostriches; and wild birds/hobbyists/zoos) per week since the start of the HPAI H5 events is represented in Figure 3 below.

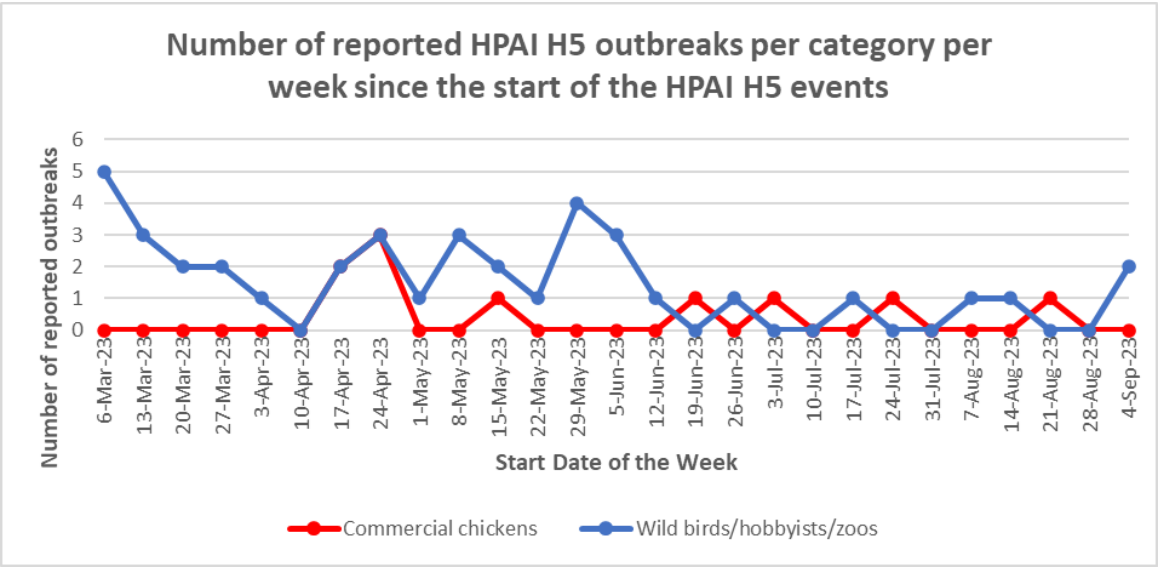

FIGURE 3: TEMPORAL DISTRIBUTION OF HPAI H5 OUTBREAKS PER CATEGORY PER WEEK

The temporal distribution of the HPAI H5 event in poultry is depicted in Figure 4 below, while the temporal distribution of the event in non-poultry is depicted in Figure 5 below.

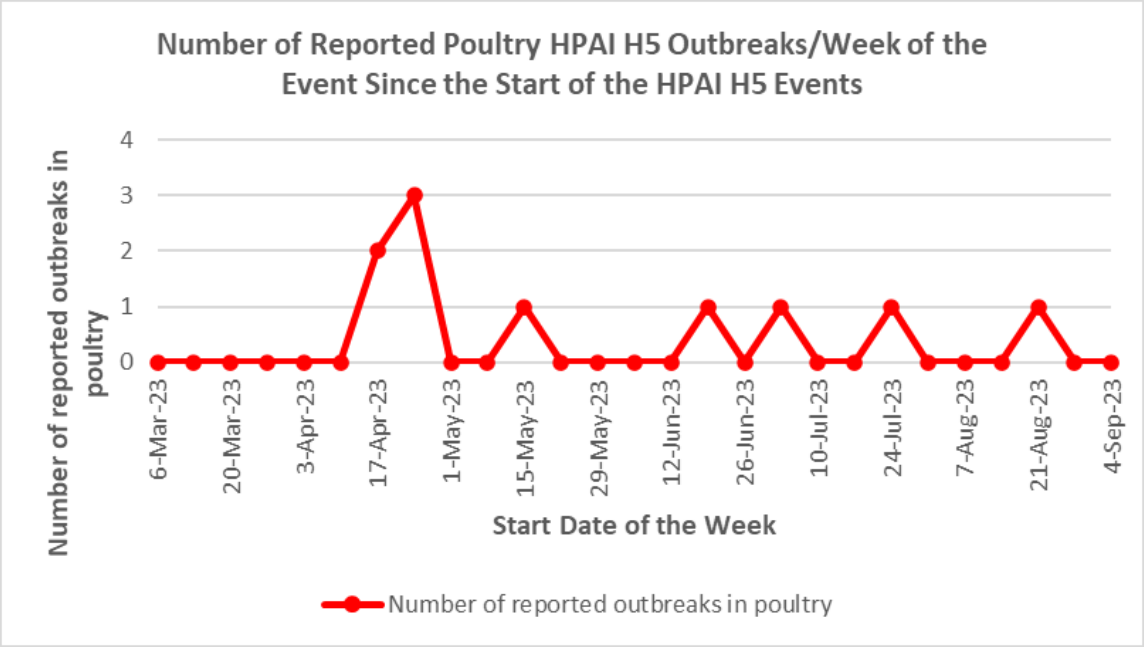

FIGURE 4: TEMPORAL DISTRIBUTION OF HPAI H5 EVENT IN POULTRY

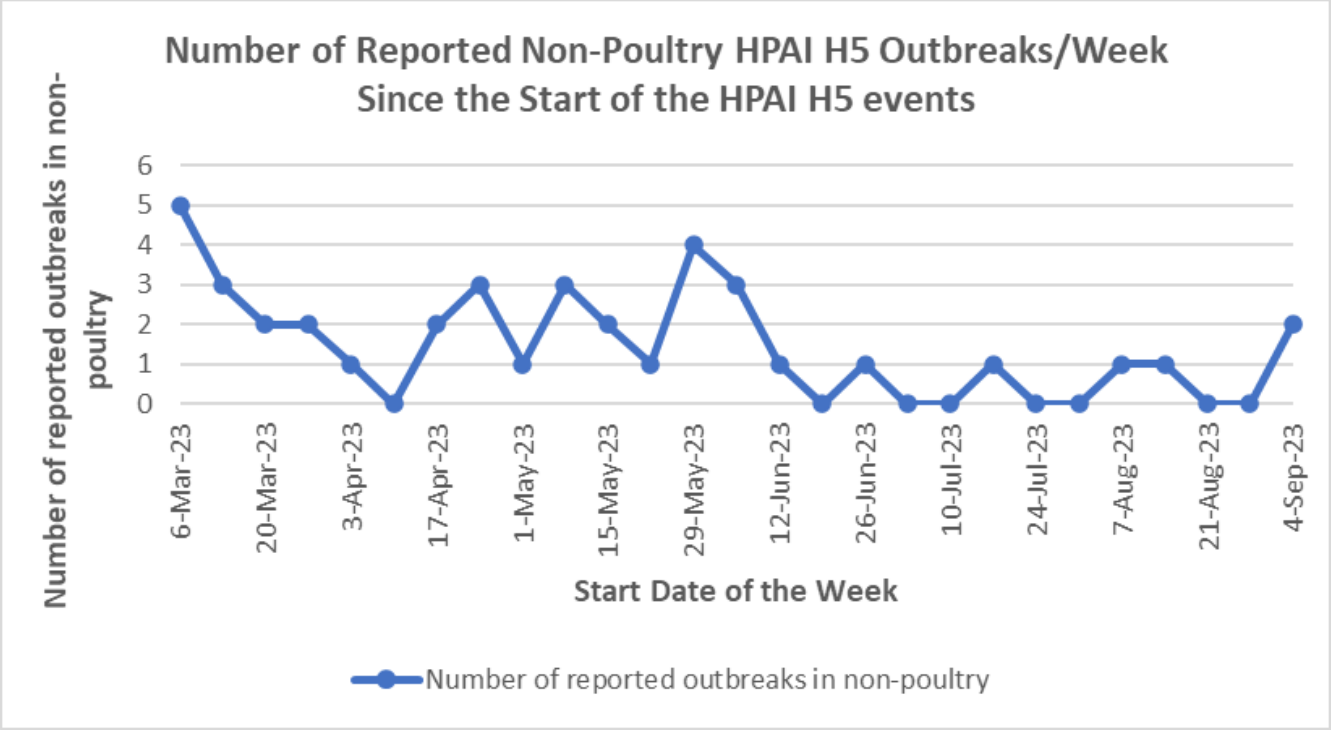

FIGURE 5: TEMPORAL DISTRIBUTION OF HPAI H5 EVENT IN NON-POULTRY

4. Overview of the new HPAI H7 event

The first ever HPAI H7 was detected in chickens in South Africa on samples collected in beginning of June 2023. The first H7 PCR positive was detected in non-poultry in a backyard chicken flock in Gauteng Province in September 2023.

4.1 Overview of the HPAI H7 poultry event

A total of ninety-six (n=96) outbreaks were reported up to date. Sixty-seven of these outbreaks are located in Gauteng Province; eleven in Mpumalanga Province, one in the Free State Province, four in Limpopo Province, eleven in North West Province, one in KZN and one in the Western Cape Province. Full genome sequencing is under way.

The sample from Gauteng Province just across the border from Mpumalanga, yielded an HA0 cleavage-site sequence characteristic of HP H7. The sample yielded an HA sequence with less than 95% nucleotide identity to H7 viruses isolated in Egypt and Georgia. Sequencing of the NA gene yielded an N6 positive and an NA sequence with 97% nucleotide identity to a virus isolate obtained in Egypt and George. The region sequenced for the HA gene was 300bp and further sequencing is underway to determine a more detailed genetic relationship with other characteristic strains.

The affected local municipalities are represented in Table 2 below.

TABLE 2: AFFECTED LOCAL MUNICIPALITY PER PROVINCE FOR HPAI H7

	Broiler breeders	**Broiler**	**Layer breeders**	**Layers**	**Grand Total**
01 MPUMALANGA	**2**	**1**	**0**	**8**	**11**
101 Steve Tshwete		1			**1**
102 Emalahleni				1	**1**
104 Victor Khanye	1			6	**7**
141 Lekwa	1			1	**2**
02 GAUTENG	**10**	**2**	**5**	**50**	**67**
219 Mogale City			1	21	**22**
221 Lesedi				1	**1**
224 City of Tshwane	9	2	4	18	**33**
232 Midvaal				1	**1**
250 Ekurhuleni	1			9	**10**
03 LIMPOPO	**1**	**2**	**0**	**1**	**4**
356 Modimolle/Mookgophong	1				**1**
366 Bela-Bela		2		1	**3**
04 NORTH WEST PROVINCE	**3**	**2**	**1**	**5**	**11**
472 Local Municipality of Madibeng				1	**1**
473 Rustenburg	2	2		4	**8**
474 Kgetlengrivier	1				**1**
482 Tswaing			1		**1**
05 FREE STATE				**1**	**1**
584 Matjhabeng				1	**1**
06 KWAZULU NATAL				**1**	**1**
622 Msinga				1	**1**
08 WESTERN CAPE PROVINCE				**1**	**1**
808 George				1	**1**
Grand Total	32	14	12	134	96

4.2 Spatial distribution of the HPAI H7 poultry event

The spatial distribution of the reported HPAI H7 outbreaks in poultry is represented in Figure 6 below.

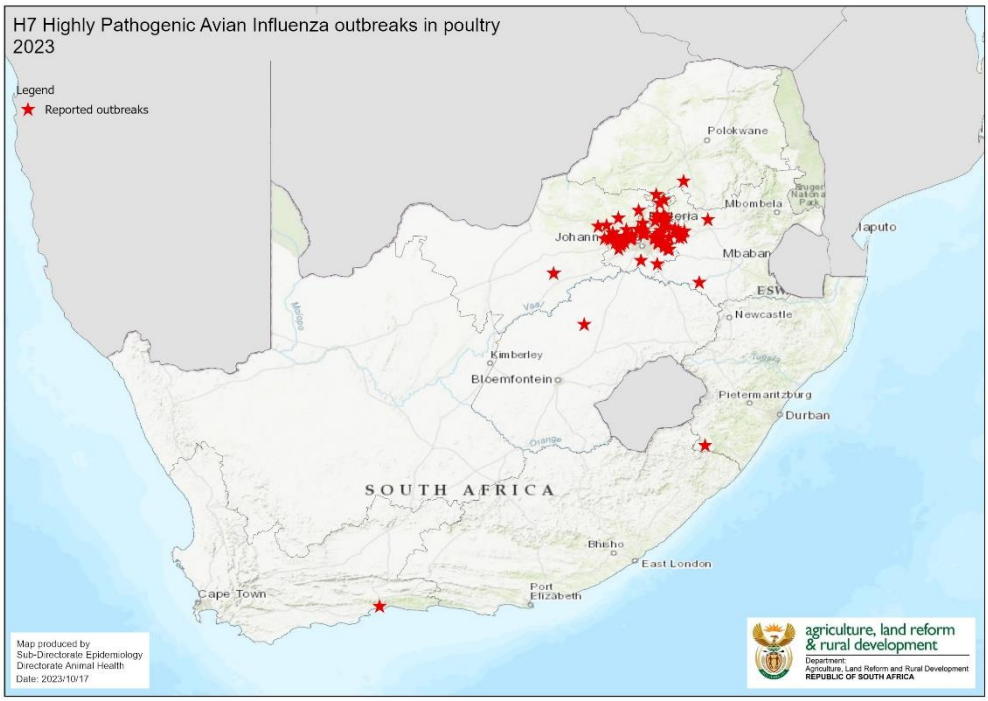

FIGURE 6: SPATIAL DISTRIBUTION OF HPAI H7 OUTBREAKS IN POULTRY

4.3 Overview of the HPAI H7 non-poultry (backyard poultry)

Only one outbreak has been reported in backyard poultry. This outbreak was detected in the City of Johannesburg Local Municipality in Gauteng Province on 2 September 2023.

4.4 Spatial distribution of the HPAI H7 non-poultry event

The spatial distribution of the reported HPAI H7 outbreaks in non-poultry is represented in Figure 7 below.

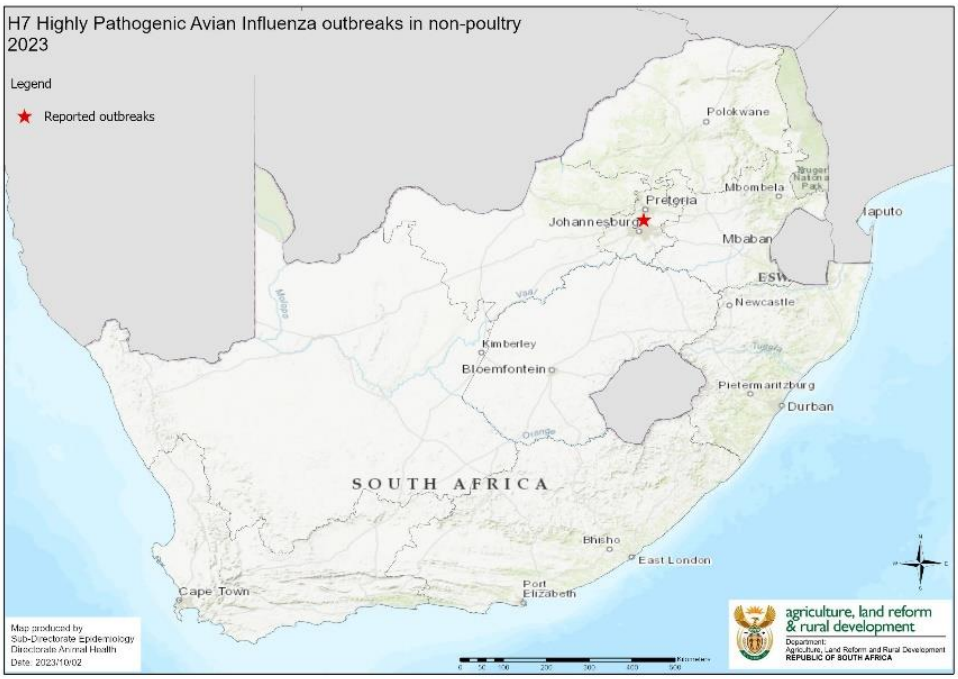

FIGURE 7: SPATIAL DISTRIBUTION OF HPAI H7 OUTBREAKS IN NON-POULTRY

4.5 Temporal distribution of the HPAI H7 event

The temporal distribution per category (commercial chickens; backyard chickens) per week since the start of the HPAI H7 events are depicted in Figure 8 below.

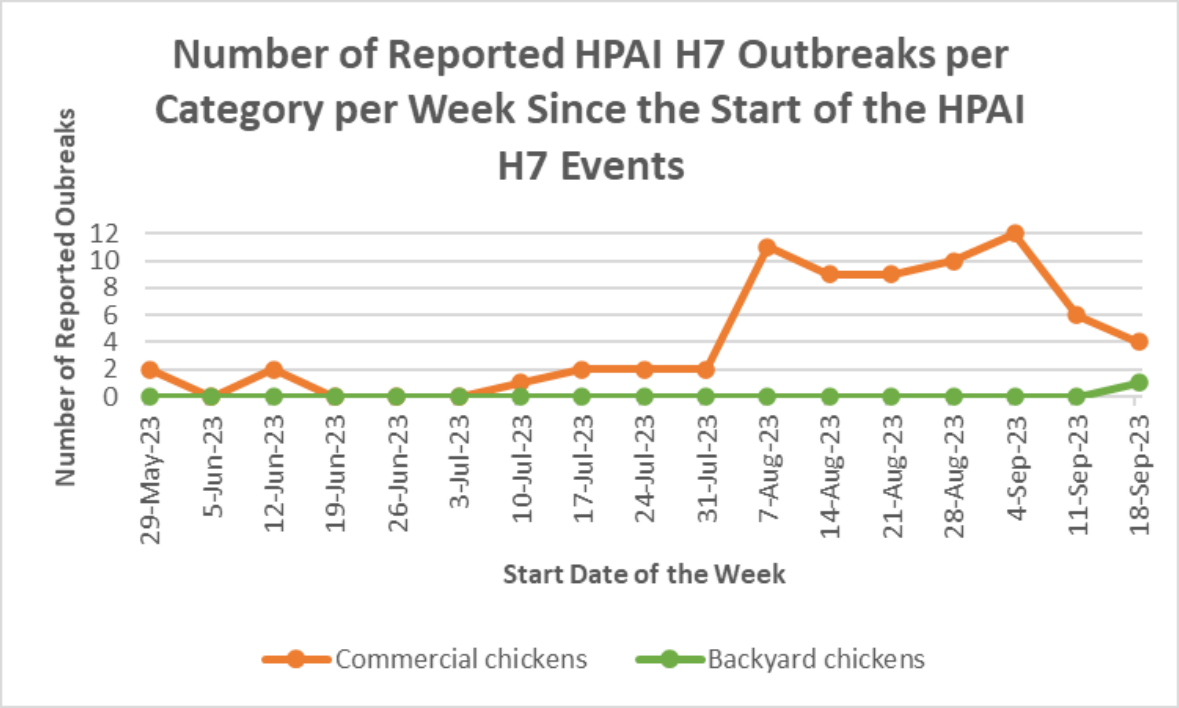

FIGURE 8: TEMPORAL DISTRIBUTION OF HPAI H7 OUTBREAKS PER CATEGORY PER WEEK

5. Low pathogenic avian influenza (LPAI)

In accordance with Chapter 1.3 of the OIE Terrestrial Animal Health Code, the "low pathogenic avian influenza (poultry)" disease code has been delisted. As of 1 January 2022, LPAI is only being reported to the WOAH as part of a country's six-monthly surveillance.

Environmental wild bird surveillance samples that tested positive for LPAI H5 on PCR include: two locations in Gauteng Province during March 2023 and four locations during April 2023 in the Western Cape Province.

All LPAI strains however remain controlled animal diseases in terms of the Animal Diseases Act, 1984 (Act No 35 of 1984) and control measures and reporting will remain unaltered until reviewed.

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