

Avian Influenza: H5 and H7 outbreak update report

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agriculture, land reform
& rural development

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

Report compiled by:
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Please note: This report includes all information as available by close of business on 6 May 2022. *Avian Influenza update reports will from now on be issued on a fortnightly basis.*

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. Both categories had to be reported to the World Organisation for Animal Health (OIE). This was reviewed and since 1 January 2022, only HPAI in poultry and birds other than poultry are reportable to the OIE. LPAI has to be reported only when there is proof that natural transmission with severe consequences in humans occurred.

Poultry is defined by the OIE as all domesticated birds, used for the production of meat or eggs for consumption, for the production of other commercial products, for restocking supplies of game, or for breeding these categories of birds, as well as fighting cocks used for any purpose. Backyard poultry is excluded from the OIE definition of poultry only if the birds are kept in a single household, the products of which are used within the same household exclusively with no direct or indirect contact with poultry or poultry facilities (2021 OIE Terrestrial Animal Health Code).

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 OIE), to the OIE 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. A number of backyard chicken holdings in all Provinces are included in the six monthly active surveillance. Active surveillance in commercial chickens is conducted every six months with monthly surveillance in NAI free compartments. Active surveillance in commercial ostriches is conducted six monthly with additional pre-movement, pre-slaughter and 28 days post-movement testing.

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. No new HPAI outbreaks were reported in commercial and backyard chickens since June 2018 until the recent detection in April 2021 of a HPAI H5N1 in commercial chickens.

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 most recent detection of HPAI H5N1 is discussed in point 2 and LPAI is discussed in point 3.

2. Highly pathogenic avian influenza (HPAI) H5N1

2.1 Overview of the HPAI H5N1 poultry event

The index case was detected on 11 April 2021 in Gauteng Province. Up to date, a total of eighty five (n=85) outbreaks were reported across Gauteng, North West, Western Cape, Mpumalanga, Free State, KwaZulu Natal and Eastern Cape Provinces. The affected Local Municipalities in each Province are represented in Table 1 below.

Province	Local Municipality with total number of outbreaks within this Local Municipality	Details of Outbreak
Gauteng <i>19 out of 25 outbreaks resolved</i>	City of Tshwane (n=6) <i>3 out of the 6 outbreaks resolved</i>	Commercial chicken layer farm ^{5, #}
		Commercial chicken layer farm
		Commercial chicken layer farm [*]
		Commercial chicken layer farm [*]
		Commercial chicken broiler breeder
	Ekurhuleni (n=7) <i>5 out of the 7 outbreaks resolved</i>	Small scale farmer
		Commercial chicken layer farm ^{5, #}
		Commercial chicken broiler breeder farm [*]
		Small scale farmer
		Commercial chicken layer farm [*]
	Emfuleni (n=4) <i>4 out of 4 outbreaks resolved</i>	Commercial chicken layer farm [*]
		Small scale farmer
		Small scale farmer
	Merafong City (n=1) <i>1 out of 1 outbreak resolved</i>	Small scale farmer
Midvaal (n=4) <i>3 out of the 4 outbreaks resolved</i>	Small scale farmer	
	Small scale farmer	
	Small scale farmer	
Mogale City (n=2) <i>2 out of 2 outbreaks resolved</i>	Backyard facility	
Randfontein (n=1) <i>1 out of 1 outbreak resolved</i>	Small scale farmer [@]	
Eastern Cape Province <i>6 out of 6 outbreaks resolved</i>	Nelson Mandela Bay (4) <i>4 out of 4 outbreaks resolved</i>	Small scale farmer
		Small scale farmer
		Small scale farmer
	Inxuba Yethemba (n=1) <i>1 out of 1 outbreak resolved</i>	Developing chicken broiler and layer farm [*]
Walter Sisulu (n=1) (previous name – Garipe) <i>1 out of 1 outbreak resolved</i>	Backyard facility [*]	
	Backyard facility	
Free State Province <i>1 out of 3 outbreaks resolved</i>	Commercial ostrich	
	Commercial ostrich	
	Commercial ostrich	
KwaZulu Natal <i>15 out of 16 outbreaks resolved</i>	Mafube (n=1) <i>1 out of 3 outbreaks resolved</i>	Commercial chicken broiler farm
	Nala (n=1) <i>0 out of 1 outbreak resolved</i>	Backyard facility [*]
	Ngwathe (n=1) <i>0 out of 1 outbreak resolved</i>	Commercial chicken layer breeder farm [*]
KwaZulu Natal <i>15 out of 16 outbreaks resolved</i>	Alfred Duma (n=1) (previous name – Ladysmith) <i>1 out of 1 outbreak resolved</i>	Commercial chicken layer breeder farm [*]
	Dannhauser (n=1) <i>1 out of 1 outbreak resolved</i>	Small scale farmer
	Mkhambathini (n=2) <i>2 out of 2 outbreaks resolved</i>	Commercial chicken layer farm
	Msunduzi (n=9) (previous name – Mkhombathini) <i>9 out of 9 outbreaks resolved</i>	Commercial chicken layer farm
		Commercial chicken layer farm [*]
		Commercial chicken layer farm [*]
	Msunduzi (n=9) (previous name – Mkhombathini) <i>9 out of 9 outbreaks resolved</i>	Commercial chicken layer farm [*]
		Commercial chicken layer farm [*]
		Commercial chicken layer farm [*]

		Commercial chicken broiler breeder farm
		Commercial chicken broiler breeder farm [Ⓢ]
		Commercial chicken layer farm [Ⓢ]
		Small scale farmer
		Small scale farmer [Ⓢ]
	Mtubatuba (n=1) 1 out of 1 outbreak resolved	Small scale farmer [Ⓢ]
	Ulundi (n=1) 0 out of 1 outbreak resolved	Small scale farmer
	Umkhlatuze (n=1) 1 out of 1 outbreak resolved	Small scale farmer
Mpumalanga 1 out of 1 outbreak resolved	Lekwa (n=1) 1 out of 1 outbreak resolved	Commercial chicken laying and rearing breeder farm
North West Province 3 out of 4 outbreaks resolved	JB Marks (n=4) (Includes the old Thlokwe City and Ventersdorp Local Municipalities) 3 out of 4 outbreaks resolved	Commercial chicken breeder farm [Ⓢ]
		Commercial chicken layer farm
		Commercial chicken layer farm
		Commercial chicken layer farm*
Western Cape Province 22 out of 30 outbreaks resolved	Bergrivier (n=1) 1 out of 1 outbreak resolved	Backyard facility
	Breede Valley (n=3) 3 out of 3 outbreaks resolved	Commercial chicken broiler breeder farm [Ⓢ]
		Commercial chicken broiler farm
		Commercial chicken rearing farm
	City of Cape Town (n=2) 2 out of 2 outbreaks resolved	Backyard facility*
		Backyard facility
	Drakenstein (n=3) 3 out of 3 outbreaks resolved	Commercial chicken layer farm
		Commercial chicken layer rearing farm [Ⓢ]
		Commercial chicken layer farm
	George (n=2) 2 out of 2 outbreaks resolved	Commercial chicken layer farm [Ⓢ]
		Commercial chicken layer farm [Ⓢ]
	Hessequa (n=6) 2 out of 6 outbreaks resolved	Commercial ostrich*
		Commercial ostrich
		Commercial ostrich
		Commercial ostrich
		Commercial ostrich
	Kannaland (n=1) 1 out of 1 outbreak resolved	Commercial ostrich
	Oudtshoorn (n=2) 1 out of 2 outbreaks resolved	Commercial ostrich
		Commercial ostrich
	Saldanha (n=1) 1 out of 1 outbreak resolved	Commercial chicken layer farm [Ⓢ]
	Stellenbosch (n=1) 1 out of 1 outbreak resolved	Commercial chicken layer farm [Ⓢ]
	Swartland (n=5) 4 out of 5 outbreaks resolved	Commercial chicken broiler breeder farm [Ⓢ]
Commercial chicken layer farm [Ⓢ]		
Non-commercial, backyard		
Commercial chicken broiler breeder farm [Ⓢ]		
Theewaterskloof (n=1) 1 out of 1 outbreak resolved	Commercial chicken layer farm [Ⓢ]	
Witzenberg (n=2) 0 out of 2 outbreaks resolved	Commercial ostrich	
	Commercial ostrich	

TABLE 1: AFFECTED LOCAL MUNICIPALITIES PER PROVINCE

Where all the outbreaks within a Local Municipality were resolved, that Local Municipality with the outbreaks were indicated by strikethrough in Table 1 above. Midvaal Local Municipality in Gauteng Province had a newly reported outbreak and hence the Local Municipality is no longer indicated by strikethrough. Sixty seven (n=67) out of the eighty four outbreaks were resolved with the OIE.

Sequencing conducted up to date confirmed that the current HPAI H5N1 is a Clade 2.3.4.4 virus. The HPAI H5N8 was also a Clade 2.3.4.4. virus. The sequencing of the current HPAI H5 virus however confirms that it is not genetically identical to the HPAI H5N8 virus of 2017, with several nucleotide differences between the two viruses. The latest HPAI H5 virus is genetically similar to HPAI Clade 2.3.4.4 strains currently circulating in wild

birds in Europe and West Africa as determined by phylogenetic analysis. Further sequencing confirmed the N type to be N1. No human infection due to these circulating avian influenza strains were reported in Europe and the zoonotic risk is therefore low.

The following genetic information was obtained for the current H5N1 outbreak by gene sequencing:

- The outbreaks indicated with “\$” in Table 1 above yielded HA and NA gene sequences that have genetic similarities to viruses isolated from wild birds in Europe.
- The NA gene analysis are identical for the two outbreaks in Gauteng indicated with “#” in Table 1 above. Further sequencing of 5 more genes from these two farms also indicate that it is the same virus. The same group owns the two farms and hence secondary spread is suspected.
- Outbreaks indicated with “*” in Table 1 above were sequenced as HPAI H5N1 with both the HA and NA genes having genetic similarities to viruses isolated from chickens in South Africa and Nigeria.
- The outbreaks indicated with “&” in Table 1 above were sequenced as HPAI H5N1 and we are awaiting subsequent reports on the phylogenetic relationships with other recent cases.
- The outbreaks indicated with “@” in Table 1 above were sequenced as HPAI H5 where the sequence has genetic similarities to viruses isolated from chickens in South Africa and Nigeria.

The reported outbreak in the small scale farmer in the Midvaal Local Municipality in Gauteng Province with start date of 19 April 2022 was confirmed to be HPAI H5 and N1 via PCR.

The reported outbreak in the speculator in the Ekurhuleni Local Municipality in Gauteng Province with start date of 15 March 2022 was confirmed to be HPAI H5N1 via PCR. Both the HA and NA genes have genetic similarities to viruses isolated from chickens in South Africa.

The reported outbreak on a small scale farmer facility in Midvaal Local Municipality in Gauteng Province with start date of 17 February 2022, was sequenced and the analysis shows that it is a HPAI H5 strain with similarity to viruses from the 2021 H5N1 outbreak in Nigeria, South Africa and Lesotho.

The reported outbreak on a commercial chicken layer farm in the Swartland Local Municipality in the Western Cape Province with start date of 27 January 2022, was sequenced and the analysis shows that the strain appears to be related to the 2021 HPAI H5N1 that was seen in the wild birds in the Western Cape Province, having only 1 or 2 base pair differences in both the HA and the NA genes. Next Generation Sequencing concluded that the strain also shares a recent common ancestor with viruses detected at other commercial poultry operations in the Western Cape Province in mid-October 2021.

Published information on the spread of the Clade 2.3.4.4b strains currently circulating in Europe, indicated that secondary spread by fomites (e.g. vehicles, people, equipment) between poultry facilities was a big contributing factor in the spread of the European outbreaks. The commercial chicken layer breeder farm in Ngwathe Local Municipality in the Free State Province is linked via secondary spread to the latest commercial chicken layer farm in JB Marks Local Municipality in North West Province and the latest commercial chicken layer farm in City of Tshwane Local Municipality in Gauteng Province. It is of utmost importance that all poultry facilities ensure that the best possible biosecurity is being maintained and that morbidity and mortality are closely monitored with no chickens being moved if there is a slight increase in morbidity and mortality.

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 where allowed by the Environmental Affairs

Department. Eggs are either taken under veterinary supervision for pasteurisation, or moved after double fumigation or fogging.

Passive surveillance in the whole country is ongoing, and all veterinarians have been notified to be on high alert and place HPAI at the top of the differential diagnostic list for any increased mortalities. Listed NAI free compartments are continuing with the monthly surveillance. Press releases are sent out continuously to update and remind the public to report any increased mortalities in poultry and wild birds to their nearest 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.

There are suspect HPAI outbreaks in Gauteng in the Randfontein State Veterinary Area that are under investigation. We are awaiting further diagnostics.

2.2 Overview of the HPAI H5N1 non-poultry (wild bird) event

A total of sixty four (n=64) non-poultry outbreaks were reported and these include wild birds and birds kept as hobby or zoo purposes. Backyard poultry as per the OIE definition specified the introduction and background in point 1 are now reported as part of the wild bird event since the publishing of the 2021 OIE Terrestrial Animal Health Code. Twenty six (n=26) of these non-poultry outbreaks were resolved.

The outbreak in Merafong City Local Municipality in Gauteng Province that was reported with start date 15 February 2022 was sequenced and the analysis shows that it is a HPAI H5N1 strain with similarity to viruses from the 2021 H5N1 outbreak in Nigeria, South Africa and Lesotho.

The outbreak in the Overstrand Local Municipality in the Western Cape Province that was reported with start date of 13 March 2022 was confirmed to be HPAI H5. We are awaiting further diagnostics.

The outbreak in Stellenbosch Local Municipality in the Western Cape Province that was reported with start date of 21 March 2022 was confirmed to be HPAI H5 and N1 via PCR.

The H5 PCR positive seabird in the Western Cape Province has been confirmed to be HPAI and N1 and the cases for the number of affected birds in the City of Cape Town Local Municipality was updated with the OIE. This case will therefore not reflect as a new outbreak.

There were some wild bird environmental surveillance samples from Gauteng, Western Cape, Eastern Cape, Free State and North West Provinces that tested low positive on avian influenza matrix gene. We are awaiting further diagnostics. The Mpumalanga wild bird environmental surveillance samples collected in March were deep sequenced as HPAI H5N1 by end of April. It will be reported as soon as the paperwork has been received from the relevant Province.

2.3 Spatial distribution of the poultry HPAI H5N1 event

The spatial distribution of the currently resolved (closed) and unresolved (reported) HPAI H5N1 outbreaks poultry is represented in Figure 1 below.

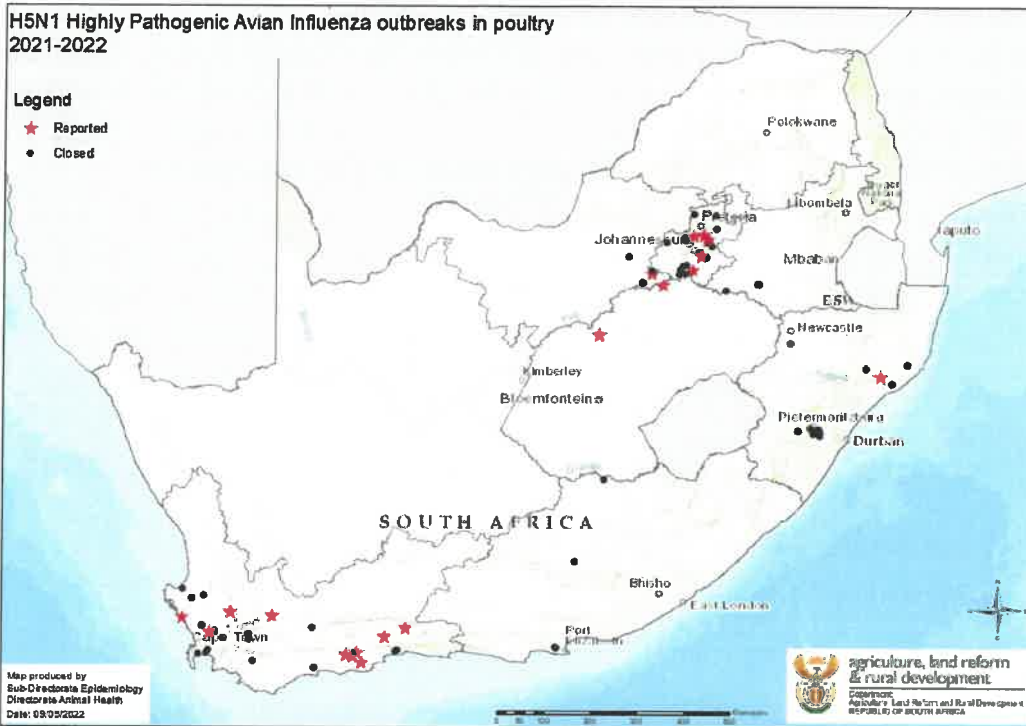


FIGURE 1: SPATIAL DISTRIBUTION OF HPAI H5N1 OUTBREAKS IN POULTRY

2.4 Spatial distribution of the non-poultry HPAI H5N1 event

The spatial distribution of the currently resolved (closed) and unresolved (reported) HPAI H5N1 outbreaks in non-poultry is represented in Figure 2 below.

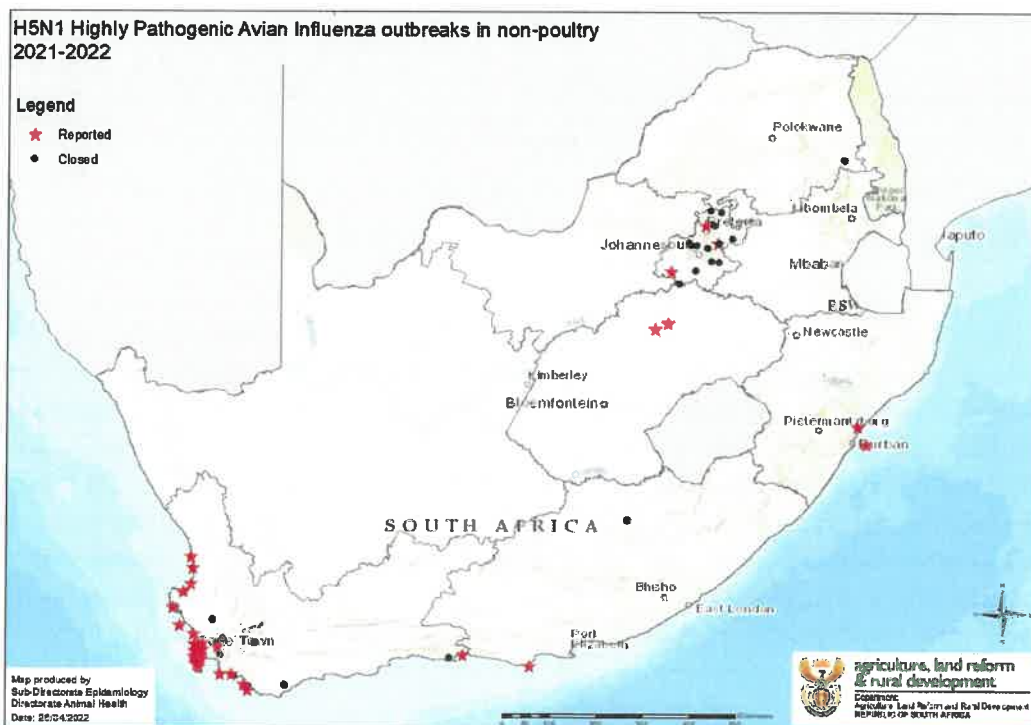


FIGURE 2: SPATIAL DISTRIBUTION OF HPAI H5N1 OUTBREAKS IN NON-POULTRY

2.5 Temporal distribution of the HPAI H5N1 event

We have entered the second year of the HPAI H5N1 event. The temporal distribution of the HPAI H5N1 event in poultry is depicted in Figure 3 below, while the temporal distribution in non-poultry is depicted in Figure 4.

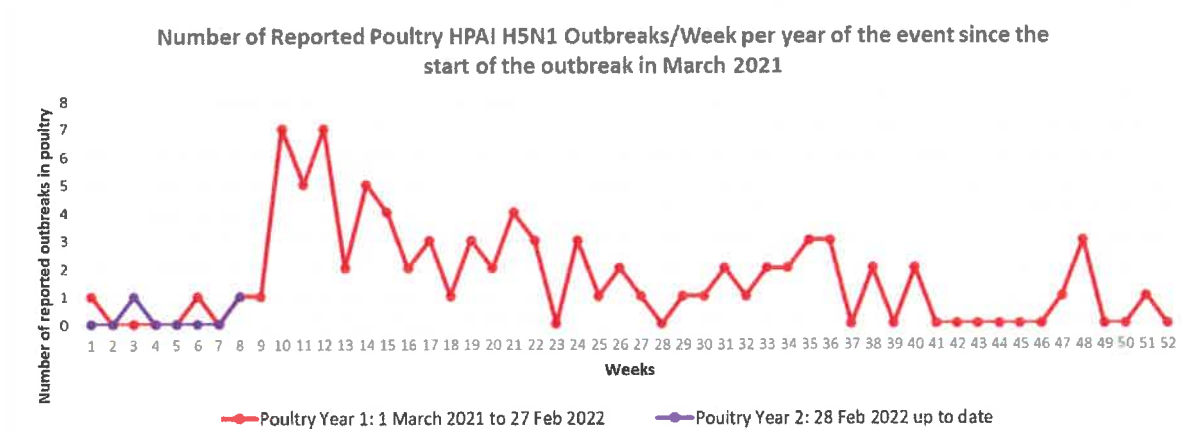


FIGURE 3: TEMPORAL DISTRIBUTION OF HPAI H5N1 OUTBREAKS IN POULTRY

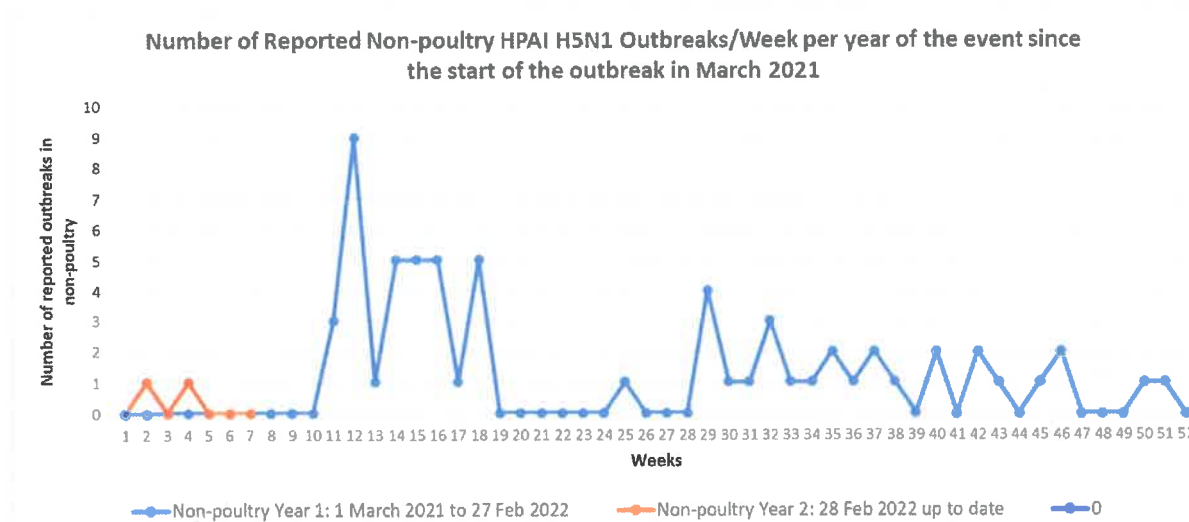


FIGURE 4: TEMPORAL DISTRIBUTION OF HPAI H5N1 OUTBREAKS IN NON-POULTRY

The temporal distribution per category (commercial chickens; small scale farmers/speculators; backyard poultry; commercial ostriches; and wild birds/hobbyists/zoos) per months is represented in Figure 5 below. The outbreaks in the commercial chickens, small scale farmers/speculators and commercial ostriches categories are currently being reported as part of the poultry event to the OIE. The outbreaks in the backyard poultry and the wild birds/hobbyists/zoos categories are currently being reported as part of the non-poultry event to the OIE. Although the currently reported backyard poultry outbreaks may not have trade implications, these outbreaks are still important as an early warning system of risk to commercial operations. It is important to note that the detection of new wild bird cases at an already reported location will not be reported as a new outbreak, the cases will simply be updated with the OIE. Hence it should be noted that there is still circulation in wild birds.

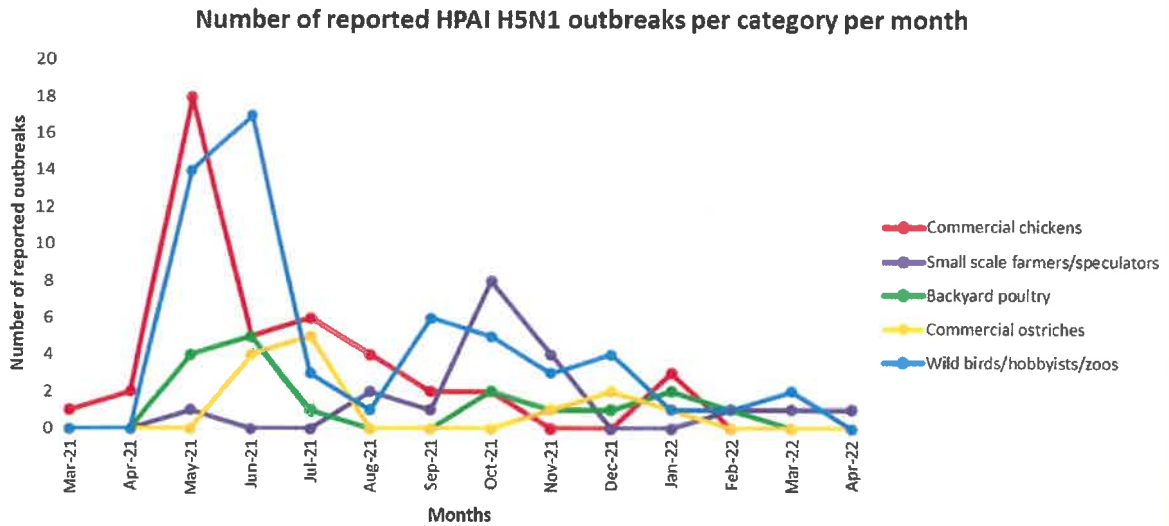


FIGURE 5: TEMPORAL DISTRIBUTION OF HPAI H5N1 OUTBREAKS PER CATEGORY PER MONTH

3. Low pathogenic avian influenza (LPAI)

3.1 General

In accordance with Chapter 1.3 of the OIE Terrestrial Animal Health Code, the “low pathogenic avian influenza (poultry)” disease code has been delisted. The OIE has requested that South Africa thus resolve the currently unresolved LPAI H7, Undefined H7 and LPAI H5 events before 31 December 2021. As of 1 January 2022 only HPAI are to be reported to the OIE.

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.

3.2 LPAI H5 in wild birds in Gauteng Province

LPAI H5 was detected in wild bird surveillance in Gauteng Province as part of a research project where environmental faecal samples are collected and pooled for PCR testing and sequencing of PCR positive pools. Further sequencing is underway to determine the N type.

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 Date:

