

# The impact of H5 & H7 in commercial, backyard and allied poultry industries in the sub-region

**SASVEPM**  
**14/03/2024**



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# CONTENT

- Risk in the SADC Region
  - General
  - Avian Influenza introduction
- Importance of poultry (meat and eggs)
- Highly Pathogenic Avian Influenza (HPAI) in SADC
- HPAI in South Africa (RSA).
- Impact of HPAI on the RSA industry.



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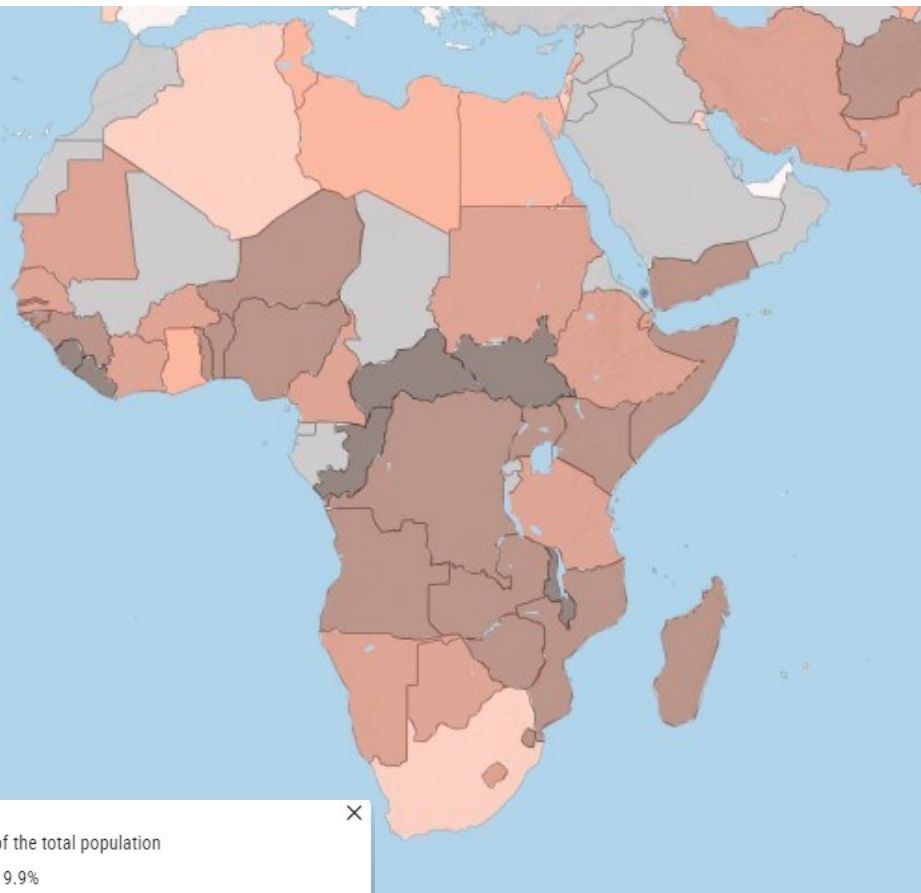
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# Prevalence of moderate to severe food security in the total population (%) – 2020 to 2022

- FAO hunger map.



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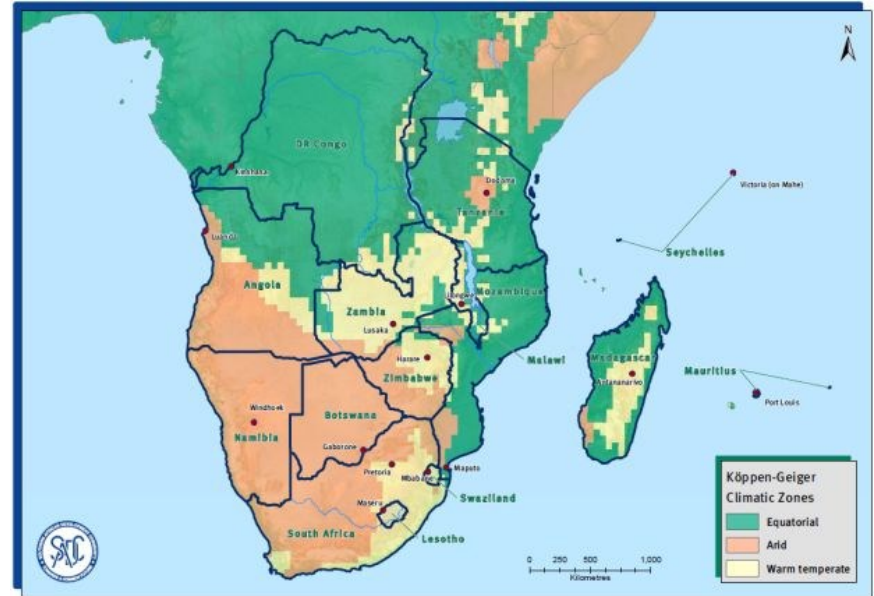
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# Farmers are risktakers

- Available land with good agricultural potential (fertile soil and sufficient water sources).
- Changes in weather patterns.



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# Farmers are risktakers

- Record unemployment levels with resulting constrained consumer spending.
- Negative impact of abnormally high grain prices.
  - result of the drought (USA)
  - increased buying of global grain stocks (China)
  - War (Ukraine)
  - fluctuations in the exchange rates and available markets
- Disease introduction.
- Ability to access treatment and vaccine.



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# Introduction of Avian Influenza

Gibraltar: a well-known bottleneck where an estimated 250 000 raptors cross in a season.

Bosporus, Turkey: a major bottleneck where more than two million storks and raptors pass in spring and autumn.



Banc d'Arguin National Park, Mauritania: 2.2 million waterbirds winter at this site.

Israel: a key site for migration. More than 1.2 million raptors have been counted in a single spring season.

Djoudj wetlands, Senegal: more than two million Sand Martins winter here, along with hundreds of thousands of waterbirds.

Bab al-Mandab – Mawza, Yemen: a major bottleneck, especially for raptors.

Lutembe Bay, Uganda: up to 1.5 million White-winged Terns winter at this site.

Okavango Delta, Botswana: this vital wetland holds three million wintering Barn Swallows.

La Mercy/Mount Moreland, South Africa: up to three million Barn Swallows winter at this site.

East Atlantic Flyway

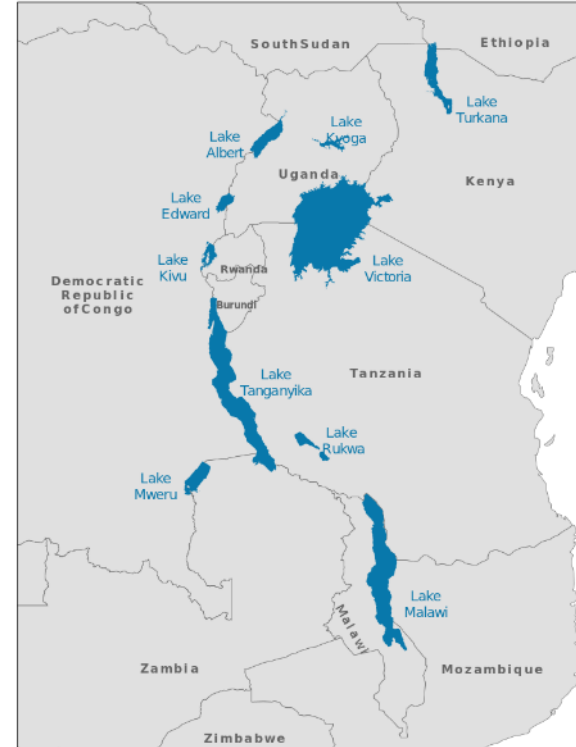
Mediterranean/Black Sea Flyway

East Asia/East Africa Flyway



# Introduction of Avian Influenza

- The Sahel – a belt of arid Acacia savanna
- Great lakes area



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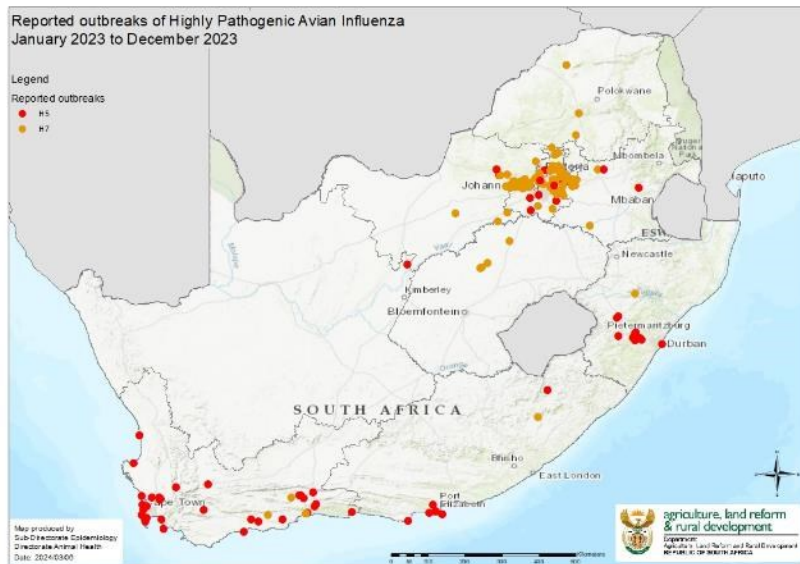
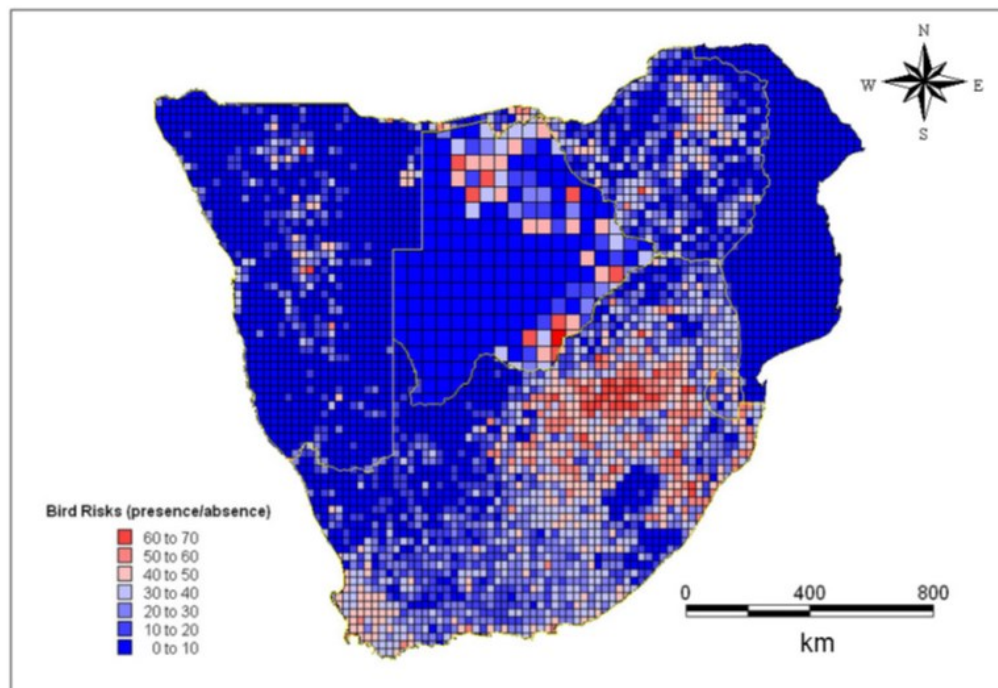
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# Risk in SADC

- Risk factors considered
  - Rainfall
  - Temperature
  - Presence of wetlands
  - Presence of irrigated crops and grasslands
  - Chicken density
  - Human density

Risk mapping for avian influenza: a social-ecological problem  
**Wild Bird Movements and Avian Influenza Risk Mapping in Southern Africa**  
 Graeme S. Cumming *1*, Philip A. R. Hockey *1*, Leo W. Bruinzeel *1*, and Morne A. Du Plessis

Ecology and Society **13**(2): 26  
<http://www.ecologyandsociety.org/vol13/iss2/art26/>





# Introductions into Africa by wild birds in future?

- Migratory birds are on the decline
  - Desertification of the Sahel region
  - Habitat destruction and pollution
  - Uncontrolled shooting and trapping in the Mediterranean and Middle east.
  - Weather pattern changes



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# The importance of poultry diseases

- The 5 most common diseases in poultry according to WAHIS (2018 to 2022)
  - High pathogenicity avian influenza
  - Newcastle disease
  - Avian infectious bronchitis
  - Low pathogenic avian influenza
  - Infectious bursal disease
- Poultry disease was associated with a 2.0% increase in global hunger in 2018 and 5.0% in 2019.
- In low-income countries, production levels in 2018 were reduced by up to 22%, compared to expected outputs without disease impacts.

Source: Animal health and sustainability: A global data analysis 2023. Health for animals global animal health association. <https://healthforanimals.org/resources/publications/publications/animal-health-and-sustainability-a-global-data-analysis-summary/>



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# The importance of poultry as source of protein

- Poultry meat consumption in 2019
  - RSA: 14.7 kg per capita
  - Global average: 14.8 kg per capita (50% of meat consumed was poultry meat)
- Poultry meat consumption in 2000
  - RSA: 17.2 kg per capita
  - Global average: 9.8 kg per capita (29% of meat consumed was poultry meat)

Source: Poultry World

<https://www.poultryworld.net/poultry/are-we-approaching-peak-poultry-and-meat-consumption/#:~:text=World%20poultry%20consumption%20per%20capita,in%20per%20capita%20poultry%20consumption.>



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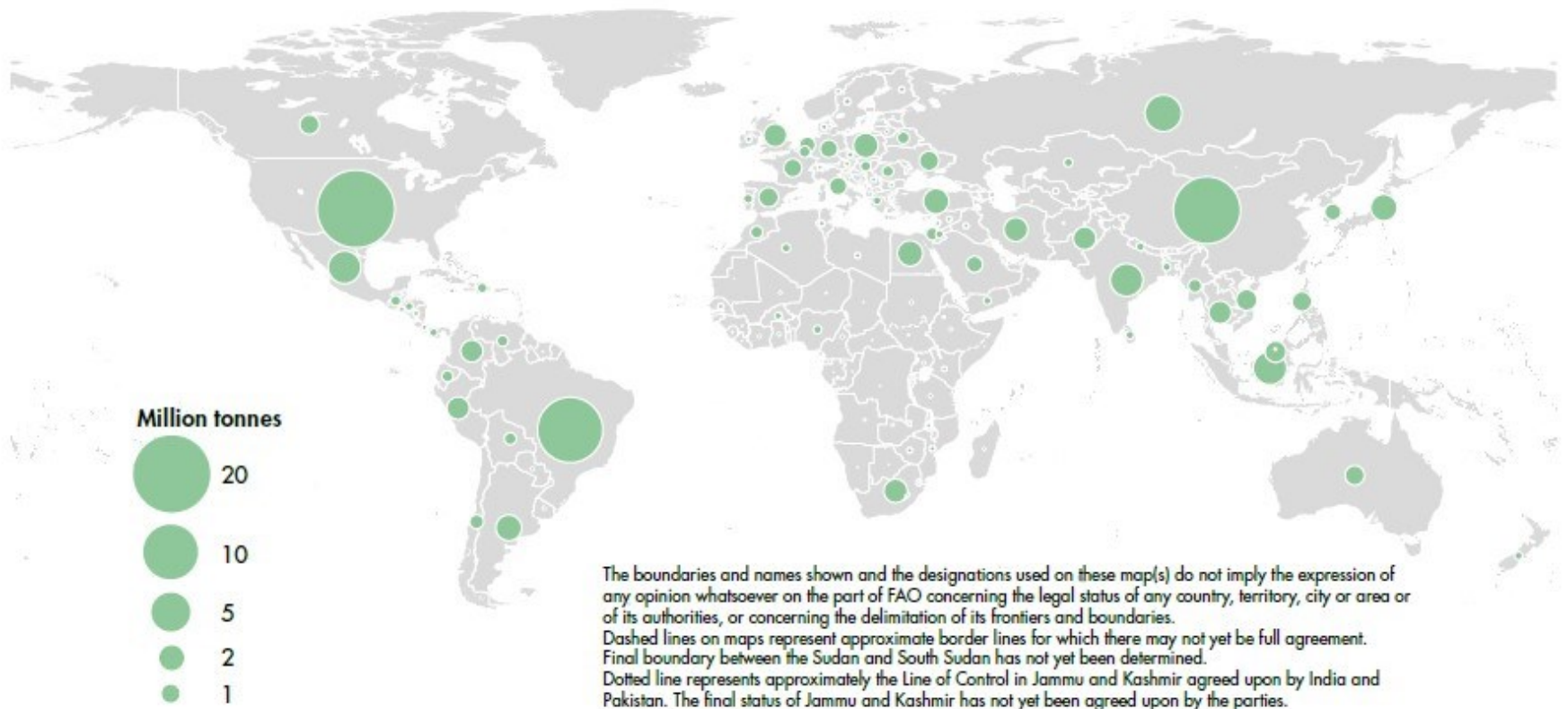
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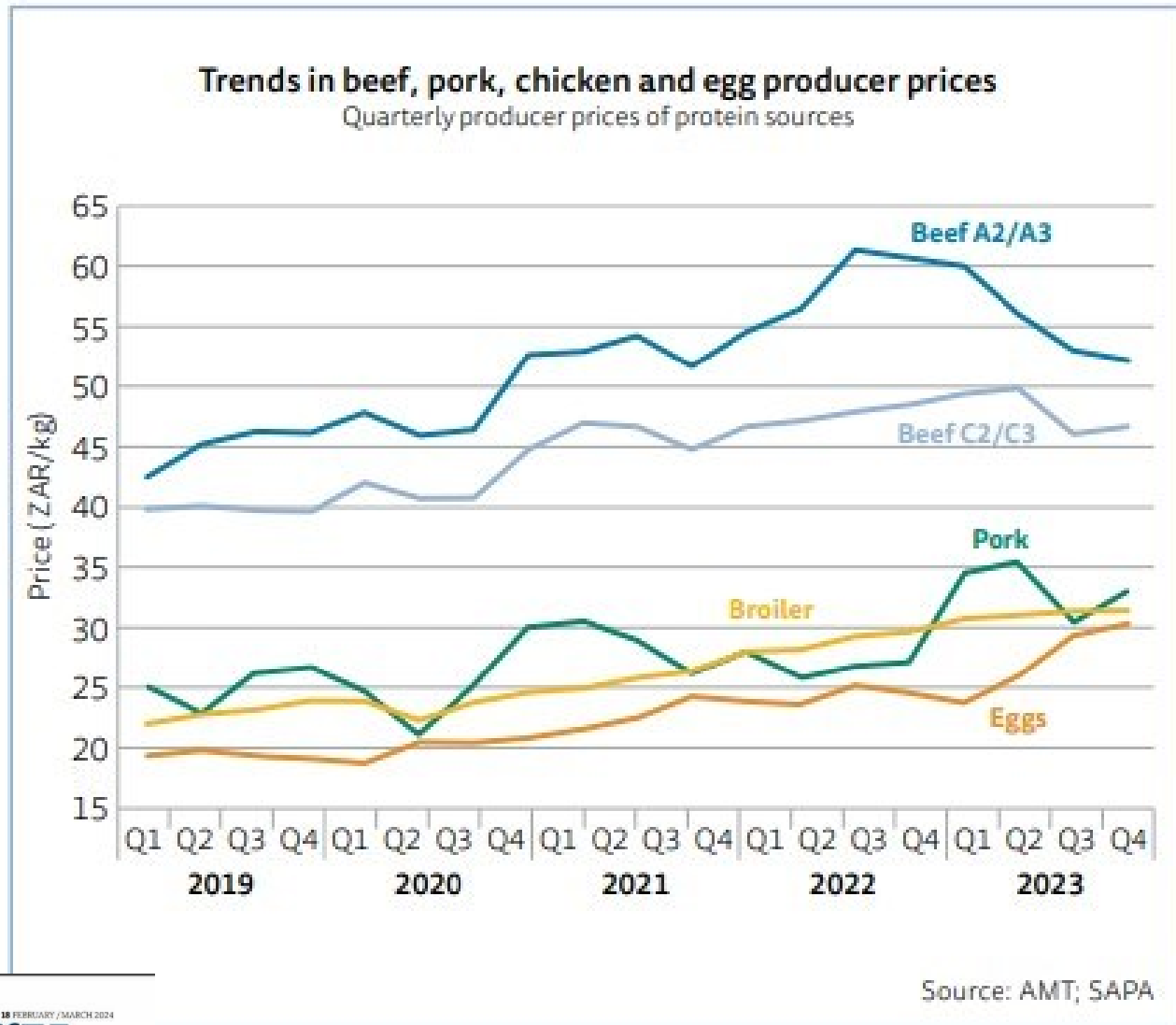
# Chicken meat production

MAP 15. PRODUCTION OF CHICKEN MEAT (2021)



Source: FAO. 2022. Production: Crops and livestock products. In: *FAOSTAT*. Rome. [Cited October 2023].  
<https://www.fao.org/faostat/en/#data/QCL> based on UN Geospatial. 2020. Map geodata [shapefiles]. New York, USA, UN.  
Download: <https://doi.org/10.4060/cc8166en-map16>

# Price trends in South Africa



# Price trends in South Africa

Total broiler price realisation: fresh and frozen

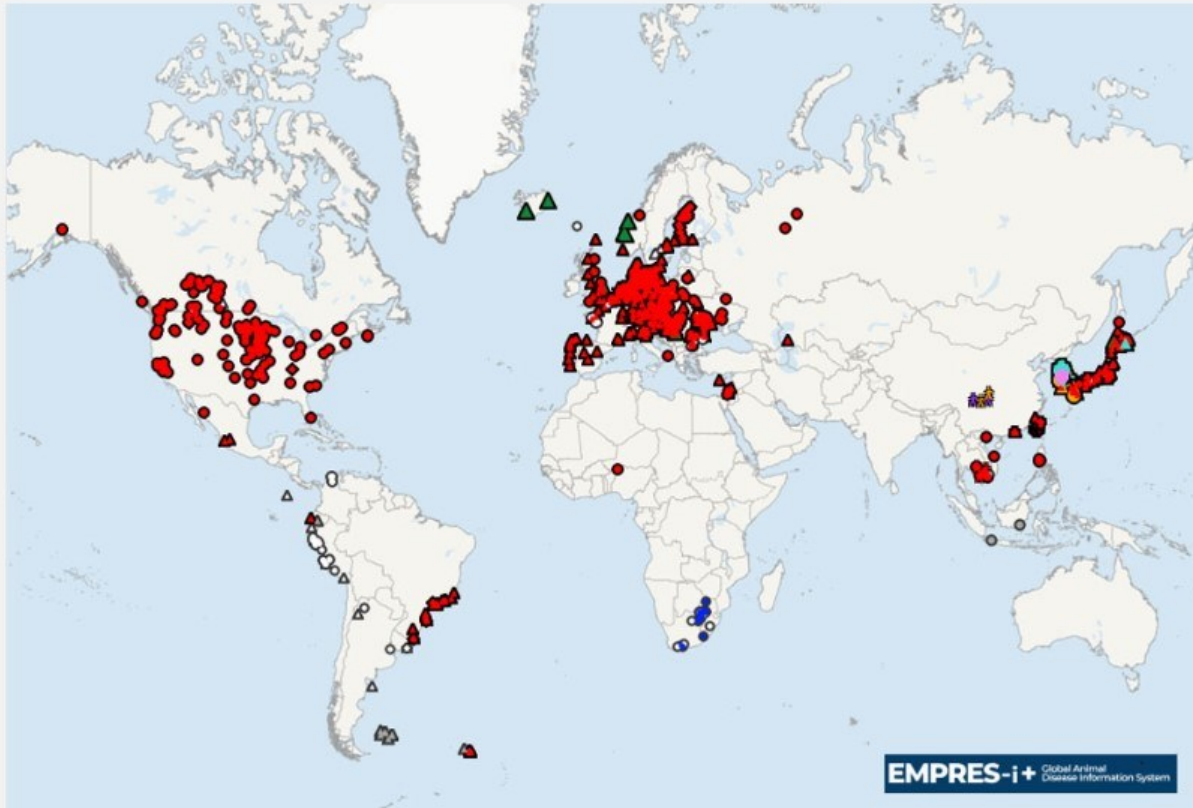
R per kg



Source: SAPA

# HPAI globally

Map 1. Global distribution of AIV with zoonotic potential\* observed since 1 October 2023 (i.e. current wave)



## Affected

Domestic



Environmental sample



Humans



Mammal



Wild



## Subtype

H5N1 HPAI



H5N2 HPAI



H5N4 HPAI



H5N5 HPAI



H5N6 HPAI



H3N8 HPAI



H7N6 HPAI



H7 HPAI



H9N2 HPAI



H9N2 LPAI



H5 HPAI



HPAI



LPAI



N.A.



FAO global map

22 February 2024,

The disease situation updates are produced by the FAO Emergency Prevention System for Animal Health (EMPRES-AH) as part of its mission to increase global disease intelligence.



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# HPAI in SADC

Country	Year	Start date	Strain	Type	Status
RSA	2004		First occurrence	H5N2	Resolved
Zimbabwe	2005	November	First occurrence	H5N2	Resolved
RSA	2006	June	Reoccurrence	H5N2	Resolved
RSA	2011	February	Reoccurrence	H5N2	Resolved
RSA	2017	June	New Strain	H5N8	Resolved
Zimbabwe	2017	May	New strain	H5N8	Resolved
Botswana	2021	July	First occurrence	H5N1	Resolved
Lesotho	2021	May	First occurrence	H5N1	Resolved
RSA	2021	March	Reoccurrence	H5N1	Resolved
RSA	2022	October	Reoccurrence	H5N2	Resolved
Mozambique	2023	October	First occurrence	H7	Ongoing
RSA	2023	May	New Strain	H7N6	Ongoing



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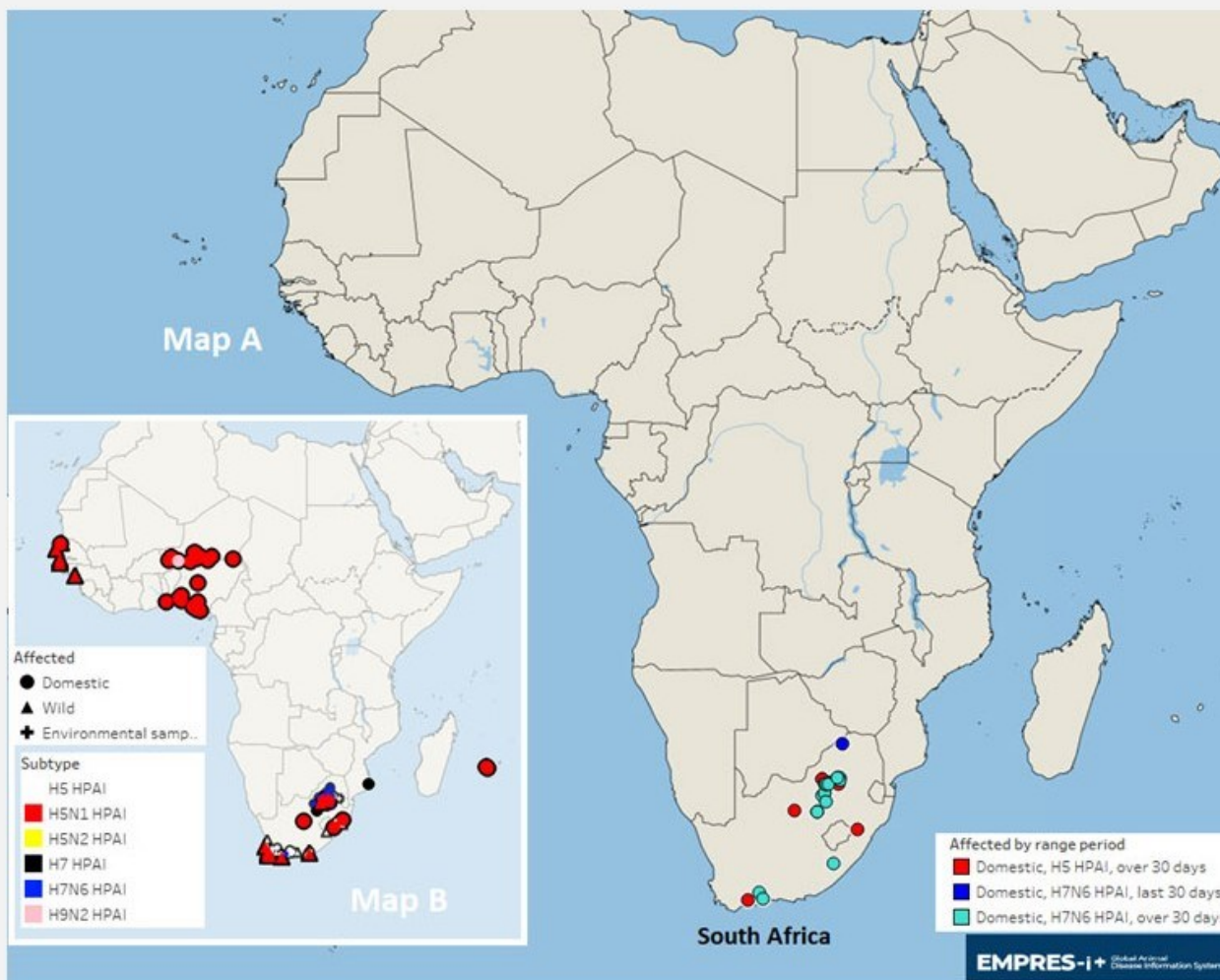
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# HPAI in Africa

**Map.** Officially reported HPAI outbreaks (H5, H5N1, H5N2, H7 and H7N6 subtypes) in sub-Saharan Africa, by onset date (1 October 2023 to date)



*Note:* Map A shows confirmed HPAI events observed from 1 October to 8 February 2024 (current wave). Map B shows HPAI events observed from 1 October 2022 to 30 September 2023 (previous wave).



# Summary of outbreaks after 2004

Disease	SubType	Event Start Date	Province	Species
HPAI	H5N2	2004/08/01	ECP, WCP	ostriches
HPAI	H5N2	2006/06/19	WCP, ECP	ostriches
HPAI	H5N2	2011/02/01	WCP	ostriches
LPAI	H5N2	2011/12/19	WCP, ECP	ostriches
LPAI	H5N2	2012/06/01	WCP	ostriches
LPAI	H7N7	2014/01/31	WCP	ostriches
LPAI	H5N2	2014/05/14	WCP, ECP	ostriches
LPAI	H7N2	2016/07/10	WCP, FS	ostriches
HPAI	H5N8	2017/06/19	WCP, ECP, NCP, FS, NWP, GAU, MPU, KZN	Chickens and ostriches
HPAI	H5N8	2017/06/30	WCP, ECP, GAU, NCP, MPU	Non-poultry
LPAI	H7	2020/07/15	WCP	ostriches
LPAI	H5N2	2020/08/27	WCP	Ostriches
HPAI	H5N1	2021/03/04	WCP, ECP, GAU, KZN, FS	Chickens and ostriches
HPAI	H5N1	2021/05/13	WCP, ECP, GAU, FS, KZN, LIM	Non-poultry
HPAI	H5N2	2022/10/25	KZN	Chickens and ostriches
HPAI	H5	2023/03/08	WCP, GAU, KZN, MP	Non-poultry
HPAI	H5	2023/04/18	WCP	Chickens and ostriches
HPAI	H7	2023/05/29	MPU, GAU, FS, WCP	Chickens



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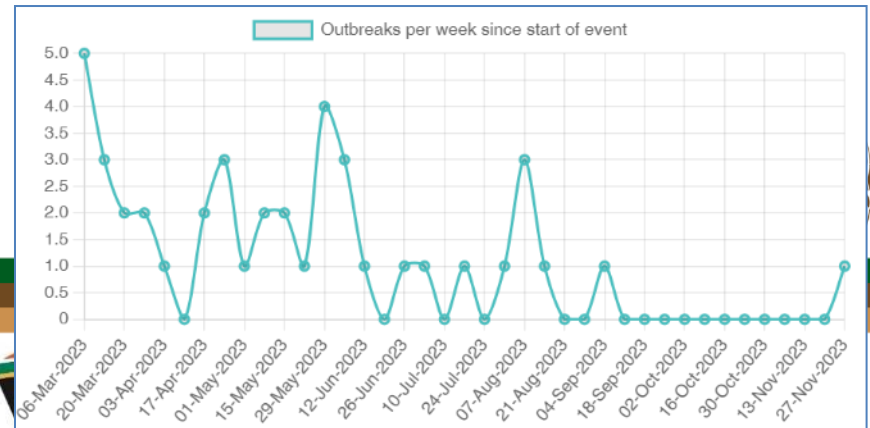
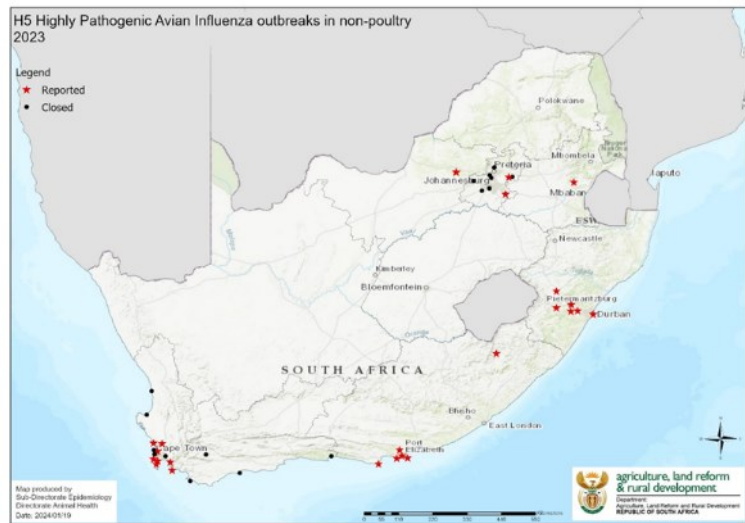
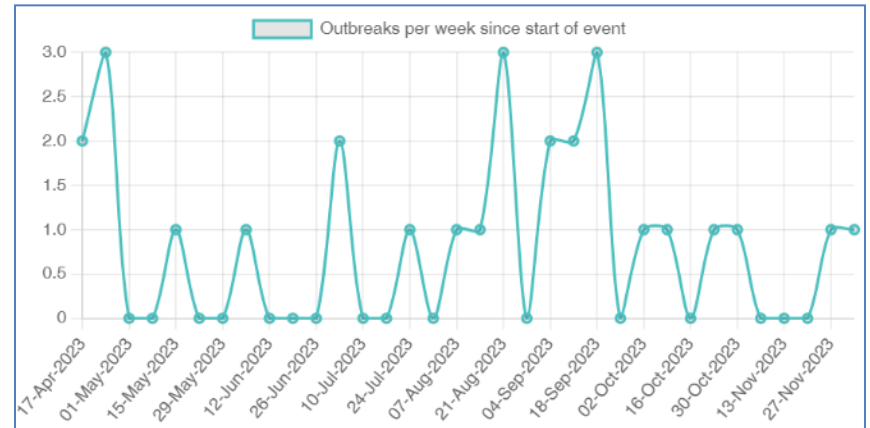
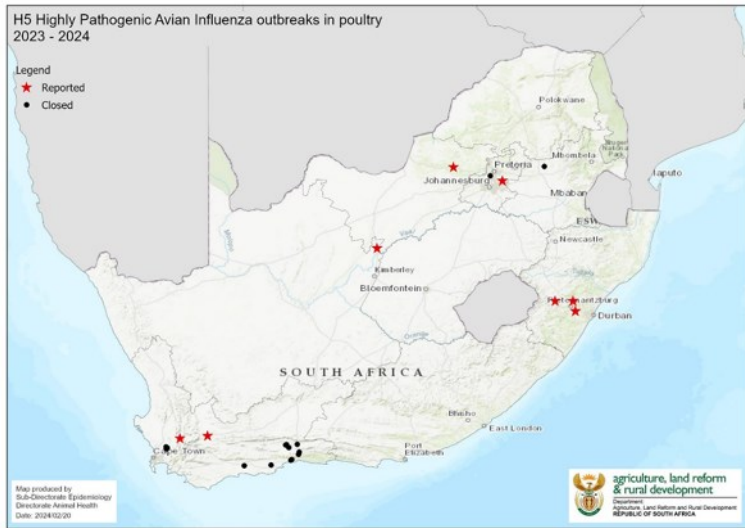


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# The most recent HPAI H5N1 event



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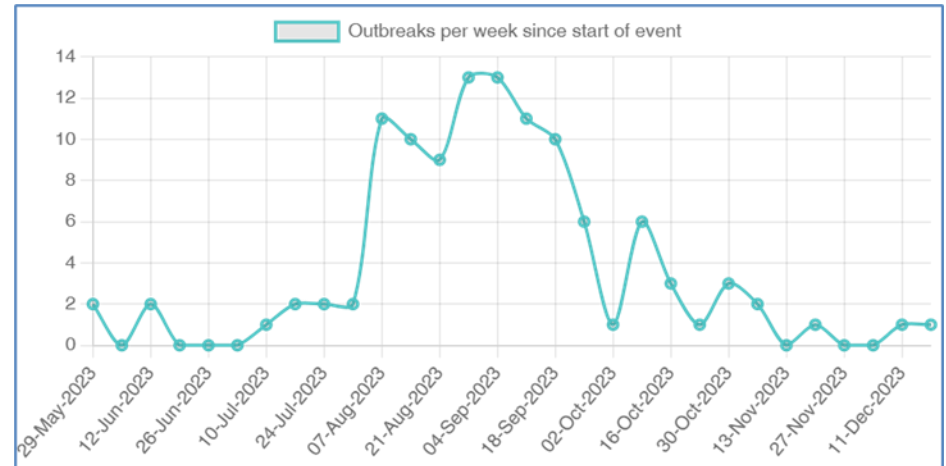
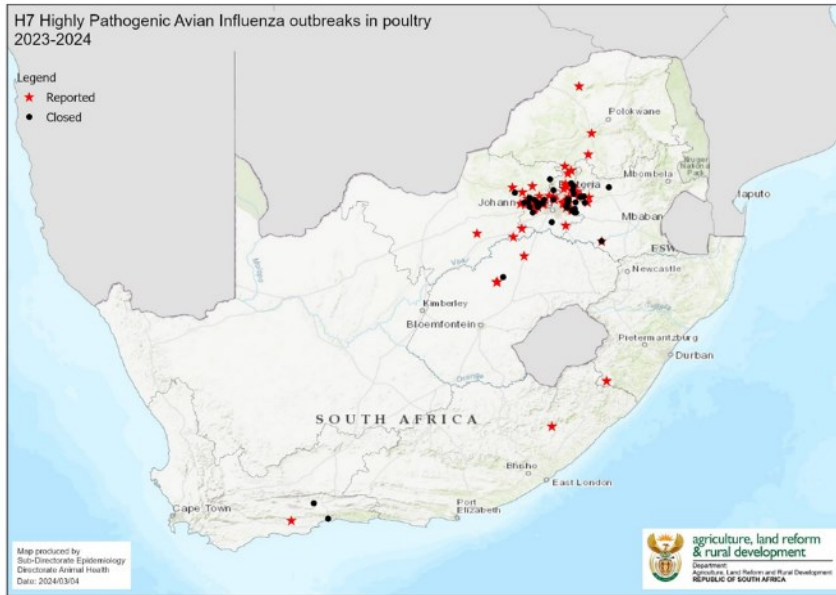
# The most recent HPAI H5N1 event

- Last outbreak start date
  - 5 December 2023 (poultry)
  - 27 November 2023 (non-poultry)

Province and Local Municipality per Province	Breeders	Broilers	Layers	Ostrich	poultry (chicken)	Grand Total (closed)
01 MPUMALANGA		1				1 (1)
02 GAUTENG			1		1	2(1)
04 NORTH WEST PROVINCE			1			1
06 KWAZULU NATAL	3				1	4
08 WESTERN CAPE PROVINCE			7	12		19 (17)
09 NORTHERN CAPE PROVINCE		1				1
<b>Grand Total</b>	<b>3</b>	<b>2</b>	<b>9</b>	<b>12</b>	<b>2</b>	<b>28 (19)</b>



# The recent HPAI H7N6 event



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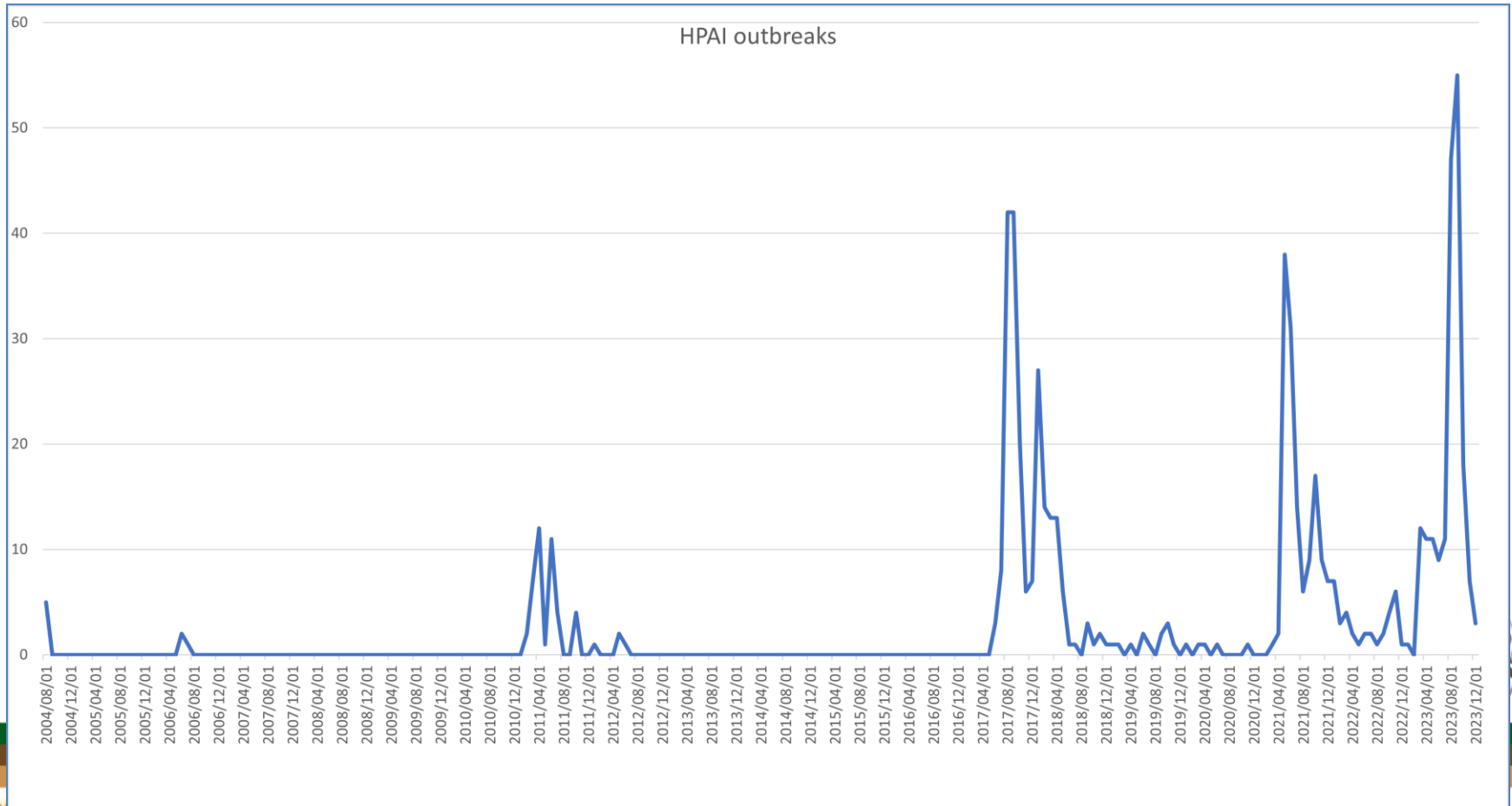
# The recent HPAI H7N6 event

- Last outbreak start date
  - 18 December 2023 (poultry)
  - 25 October 2023 (non-poultry)
- Suspect in chickens (Gauteng) – results pending

Province and Local Municipality per Province	Breeders	Broiler breeders	Broilers	Layer breeders	Layers	Layers & broilers	Ostrich	Parent broiler	Parent stock laying	poultry (chicken)	Rearing	Grand Total
01 MPUMALANGA	2	1			4	1				1	2	11 (7)
02 GAUTENG	1	12		4	48				2		5	72 (31)
03 LIMPOPO	3		1		1					1		6
04 NORTH WEST PROVINCE		3		2	7			2		1		15 (3)
05 FREE STATE		1			1					2		4 (1)
06 KWAZULU NATAL					1							1
07 EASTERN CAPE PROVINCE										1		1
08 WESTERN CAPE PROVINCE					1		2					3 (2)
<b>Grand Total</b>	<b>6</b>	<b>17</b>	<b>1</b>	<b>6</b>	<b>63</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>6</b>	<b>7</b>	<b>113 (44)</b>



# Epidemiological curve - all reported outbreaks in South Africa



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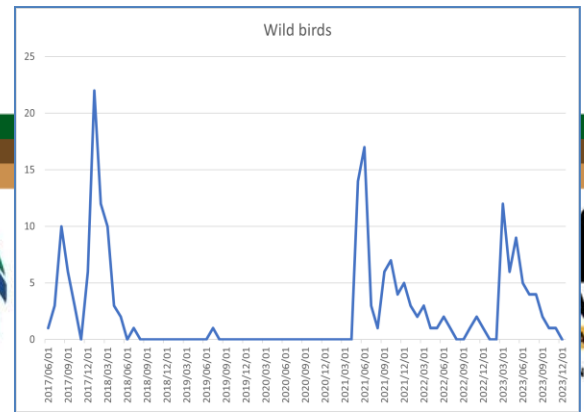
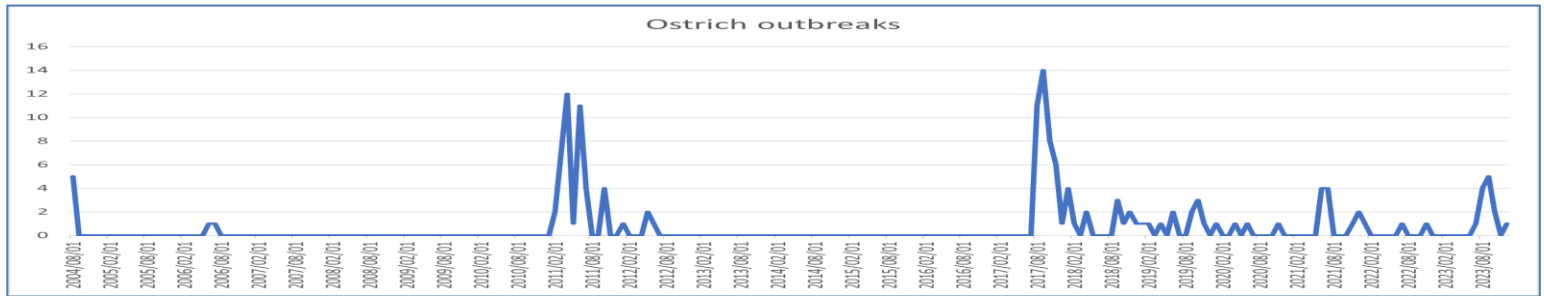
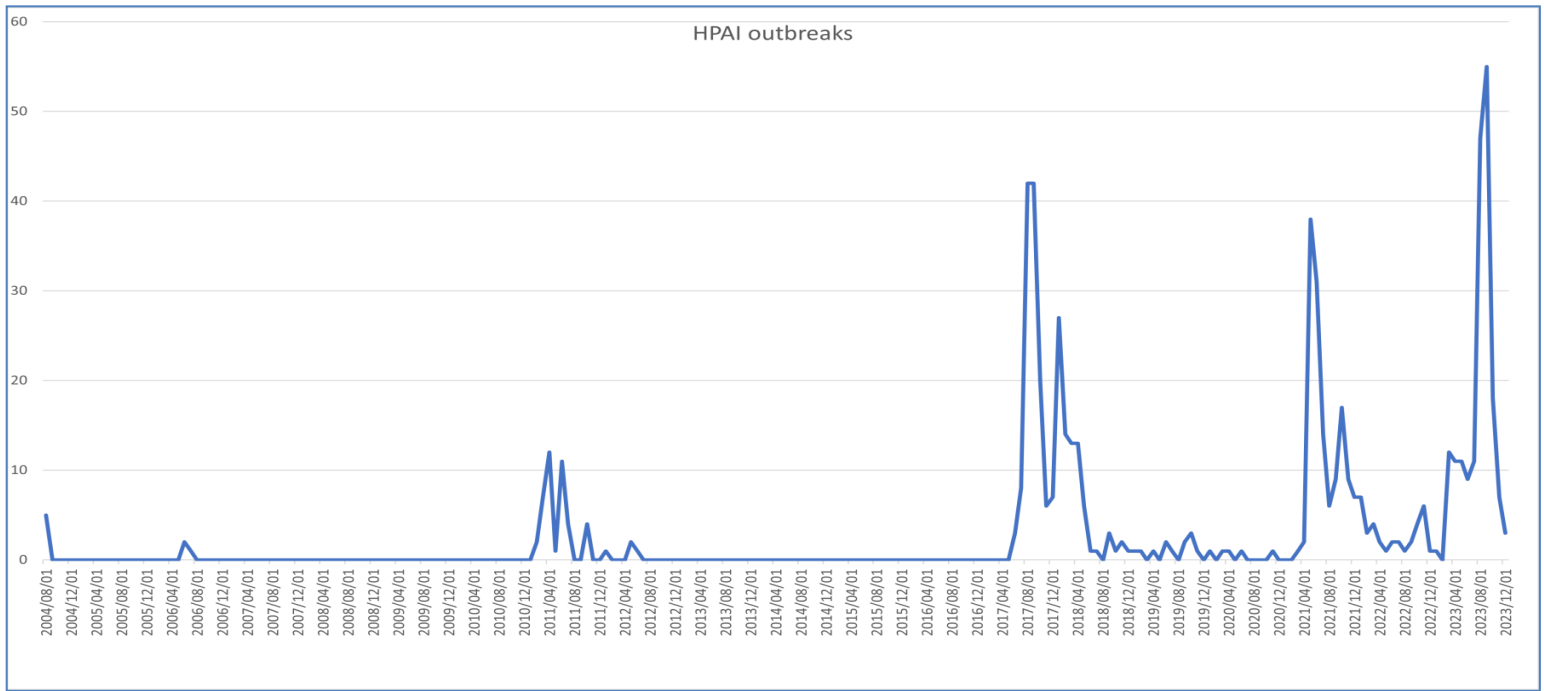
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# Impact on the chicken industry in RSA



- Impact of H7N6 on parent breeder flock.
  - Disruption in the supply of fertilised hatching eggs
  - Importation of 2.654 million hatching eggs
- Average retail price for large eggs was R37.68/dozen (increase of 3.7%).
- Average price for producer increased from R17.73/dozen in 2022 to R22.93/dozen in 2023.
- The number of day-old pullets hatched, decreased by 12.8% to 19.76 million in 2023 (380 000 per week) compared to 468 800 per week in 2022.
- The total table egg production decreased by 14% to 621.4 million eggs

Information provided by the South African Poultry Association



SOUTH AFRICAN POULTRY ASSOCIATION



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# Impact on exports

- HPAI resulted in trade bans
  - Egg exports dropped by 42.3% to 5 128 tonnes)
  - Value of exports decreased by 27.3% to R265.6 million
- Main destinations
  - Mozambique (73%)
  - Botswana 3.4%)
  - Eswatini (18.2%)



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# Impact on imports

- Total imports of chicken eggs (fertilised eggs, shell eggs and egg products), increased from 752 tonnes in 2022 to 3 733 tonnes (+396%)
- The bulk of the imports was fertilized eggs (for broilers and layer industry)
  - Brazil (87.3%)
  - Spain (10.7%)
  - UK and USA (2%)



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# Impact on the number of layers

- Number of laying hens decreased
  - 37 403 108 (2022)
  - 22 771 086 (2023)
  - 17 342 597 (2024)



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# Way forward

- Exception from culling.
  - Financial implications – is it viable?
    - Biosecurity and surveillance
    - Loss of production and timeframe
  - Guidelines in place (8 Nov 2023).
  - Requests for lifting of quarantine being evaluated.

	DEPARTMENT OF AGRICULTURE, LAND REFORM AND RURAL DEVELOPMENT DIRECTORATE: ANIMAL HEALTH
	<b>EXEMPTION FROM DESTRUCTION OF CHICKENS INFECTED OR IN-CONTACT WITH HIGHLY PATHOGENIC AVIAN INFLUENZA (HPAI)</b>  Annexure to  Guidelines for control measures following a suspect/confirmed highly pathogenic avian influenza outbreak in chickens.
NO OF PAGES:	11 + 4



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# Way forward - vaccination

- Vaccination strategy (22 Nov 2023)
  - Vaccine for H5 already registered, H7 vaccine under review (Act 36).
  - Applications received and the first application is being evaluated.
- Safety of vaccination is key
  - Permit to vaccinate
  - Controlled release
  - Vaccinated chickens can only go for slaughter
- Biosecurity and surveillance must be on high level
- Concerns
  - Antigenic drift (mutations)
  - Antigenic shift (combinations)
  - endemicity
  - Zoonotic potential



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	HIGHLY PATHOGENIC AVIAN INFLUENZA VACCINATION STRATEGY SOUTH AFRICA
NO OF PAGES:	15 + 3

# Way forward

SAPA is negotiating with DALRRD to relax some of the requirements.

- Surveillance
  - What to sample
  - How many to sample
  - When to sample
- Veterinary oversight
  - Responsibility and role of different role-players
- Biosecurity .
  - Auditable records and training



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**THE END– thank you for surviving this presentation**

