This report provides an update of the high pathogenicity avian influenza (HPAI) situation, according to the information submitted through the World Animal Health Information System of the World Organisation for Animal Health (OIE-WAHIS) between 9 December 2021 and 12 January 2022.

Seasonal trend

Using data reported to the OIE between 2005 and 2019 by 76 affected countries and territories for 18,620 outbreaks in poultry, we carried out a Seasonal and Trend decomposition using Loess (STL) analysis to determine the seasonal pattern of the disease (detailed methodology presented in Awada et al., 2018[5]). Based on the data reported to the OIE, spread is lowest in September, begins to rise in October, and peaks in February. Figure 1 shows the global seasonal pattern of HPAI in poultry and the red rectangle indicates where we currently are in the cycle based on the period covered in "recent updates" below.

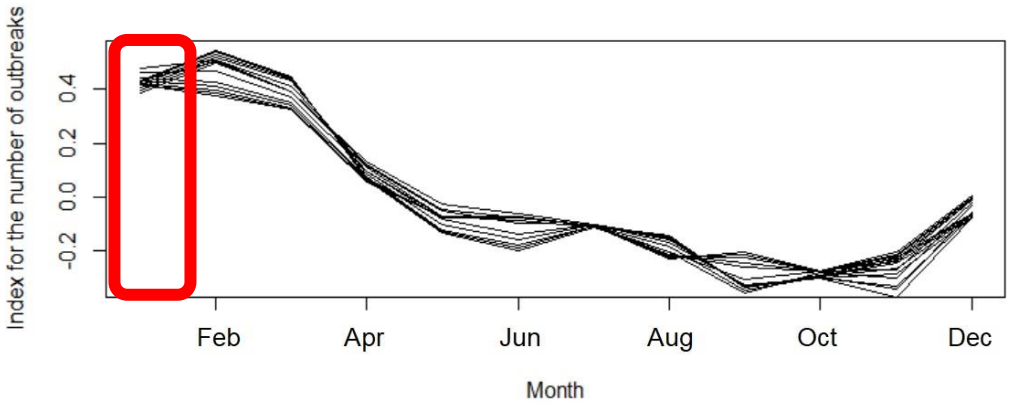

Figure 1. Seasonal trend in global HPAI incidence in poultry

Recent updates (09/12/2021 – 12/01/2022)

To describe the current disease situation of HPAI in poultry and in non-poultry birds, this section covers: (a) a list of new events[1] which started during the 5-week period (reported through immediate notifications); (b) information on events that started before the 5-week period but were still ongoing during that period; (c) the geographic distribution of new outbreaks[2] that started during the 5-week period and d) events which started before the 5-week period but were reported during the 5-week period. The different subtypes of HPAI circulating during the 5-week period are also listed below. This information is based on the immediate notifications and follow-up reports received by the OIE.

HPAI in poultry

New events by world region (reported through immediate notifications)

Africa

Subtype H5N1

A recurrence started in Niger (Niamey) on 31 December 2021.

Asia

Subtype H5N8

A recurrence started in India (Madhya Pradesh) on 27 December 2021.

Europe

Subtype unknown

Two recurrences started in Bulgaria

- In Stara Zagora on 16 December 2021;

[1] As defined in Article 1.1.2. of the OIE Terrestrial Animal Health Code, an "event" means a single outbreak or a group of epidemiologically related outbreaks of a given listed disease or emerging disease that is the subject of a notification. An event is specific to a pathogenic agent and strain, when appropriate, and includes all related outbreaks reported from the time of the initial notification through to the final report. Reports of an event include susceptible species, the number and geographical distribution of affected animals and epidemiological units.

[2] As defined in the glossary of the OIE Terrestrial Animal Health Code, an "outbreak" means the occurrence of one or more cases in an epidemiological unit.

- In Haskovo on 29 December 2021.

Subtype H5N1

A recurrence started in Germany (Sachsen-Anhalt) on 9 December 2021.
A recurrence started in Russia (Rostov) on 10 December 2021.
A recurrence started in Sweden (Skåne) on 11 December 2021.
A recurrence started in Denmark (Midtjylland) on 18 December 2021.
2 recurrences started in Portugal

- In Leiria on 22 December 2021;
- In Santarém on 28 December 2021.

A recurrence started in Slovenia (Podravska) on 26 December 2021.

Subtype H5N8

A recurrence started in Denmark (Veterinary Inspection Unit North) on 6 January 2022.

Americas and Oceania

No new events reported

On-going events for which there were new reported outbreaks, by world region (reported through follow-up reports):

Africa

Subtype H5N1

Nigeria

Asia

Subtype H5N1

Israel, Japan, Korea (Rep. Of), Vietnam

Subtype H5N2

Chinese Taipei

Subtype H5N5

Chinese Taipei, Iran

Subtype H5N8

Vietnam

Europe

Subtype H5N1

Belgium, Czech Republic, France, Germany, Hungary, Ireland, Italy, Netherlands, Poland, United Kingdom

Americas and Oceania

No new outbreaks reported in the on-going events, or no on-going events

New outbreaks and associated subtypes

During the period covered by this report, a total of 427 new outbreaks in poultry were reported by 25 countries and territories (Belgium, Bulgaria, Chinese Taipei, Czech Republic, Denmark, France, Germany, Hungary, India, Iran, Ireland, Israel, Italy, Japan, Korea (Rep. of), Netherlands, Niger, Nigeria, Poland, Portugal, Russia, Slovenia, Sweden, United Kingdom, Vietnam). Details are presented in Figures 2 and 3.

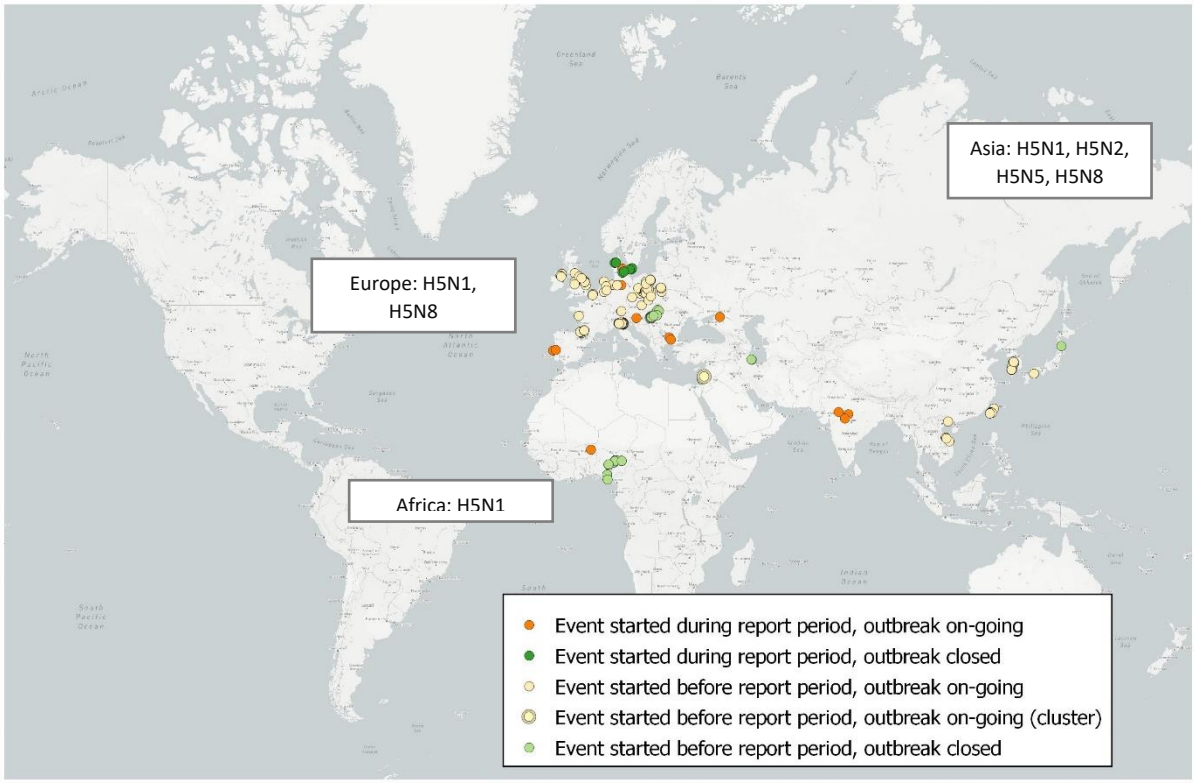

Figure 2. Distribution of HPAI new outbreaks in poultry, and corresponding subtypes

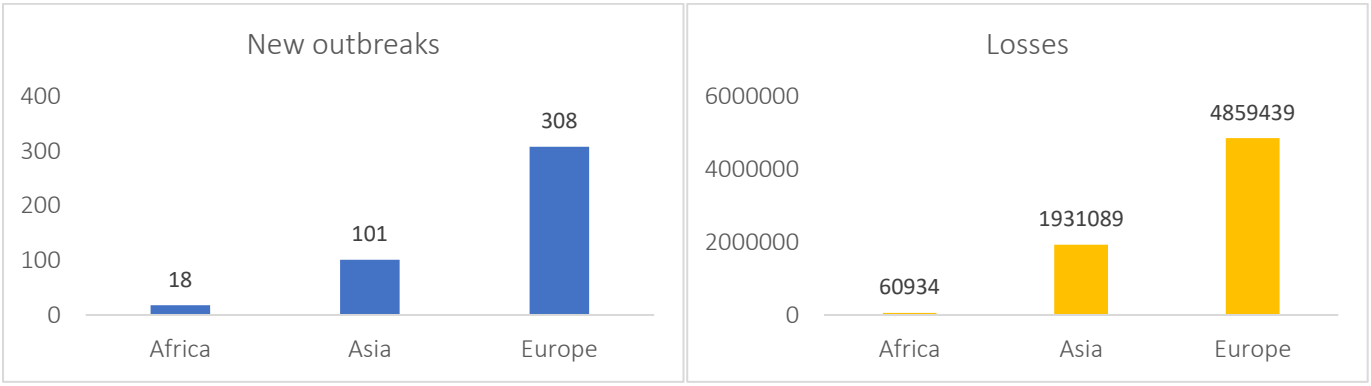

Figure 3. Number of new outbreaks and associated losses by geographical region (losses include animals dead and killed and disposed of)

Events which started before the 5-week period but were reported during the 5-week period (reported through immediate notifications)

Africa

Subtype H5N1

A recurrence started in Benin (Ouémé) on 5 October 2021.

Asia

Subtype H5

A recurrence started in Pakistan (N.W.F.P.) on 17 November 2021.

Subtype H5N1

A recurrence started in Vietnam (Bình Phước, Nghệ An, Ninh Bình, Quảng Trị, Tây Ninh) on 12 October 2021.

A recurrence started in India (Kerala) on 21 November 2021.

Subtype H5N2

A recurrence started in Chinese Taipei (Taiwan) on 16 November 2021.

Europe

Subtype H5N1
A recurrence started in Belgium (Vlaanderen) on 3 December 2021.
A recurrence started in Poland (Warmińsko-Mazurskie) on 5 December 2021.
Americas and Oceania
No events reported

HPAI in non-poultry

New events by world region (reported through immediate notifications)

Americas
Subtype H5N1
A recurrence started in Canada (Newfoundland and Labrador) on 9 December 2021.
Asia
Subtype H5N1
A recurrence started in Chinese Taipei (Tainan) on 15 December 2021.
A recurrence started in Hong-Kong (Yuen Long) on 16 December 2021.
Europe
Subtype H5
A recurrence started in Ukraine (Kherson) on 12 December 2021.
Subtype H5N1
The first occurrence of H5N1 started in Occitanie in France on 14 December 2021.
The first occurrence of H5N1 started in Cataluña in Spain on 22 December 2021.
A recurrence started in Slovenia (Podravska) on 27 December 2021.
The first occurrence of H5N1 started in Saarland in Germany on 30 December 2021.
A recurrence started in Portugal (Santarém) on 30 December 2021.
The occurrence of H5N1 (new strain) started in Bremen in Germany on 7 January 2022.
Subtype H5N8
A recurrence started in Denmark (Veterinary Inspection Unit North) on 13 December 2021.
Africa and Oceania
No new events reported

On-going events for which there were new reported outbreaks, by world region (reported through follow-up reports):

Asia
Subtype H5N1
Israel, Korea (Rep. Of)
Europe
Subtype H5
Netherlands
Subtype H5N1
Austria, Belgium, Croatia, Czech Republic, France, Germany, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Romania, Sweden, United Kingdom
Africa, Americas, and Oceania
No new outbreaks reported in the on-going events, or no on-going events.

New outbreaks

During the period covered by this report, a total of 279 outbreaks in non-poultry were reported by 25 countries and territories (Austria, Belgium, Canada, Chinese Taipei, Croatia, Czech Republic, Denmark, France, Germany, Hong Kong, Hungary, Ireland, Israel, Italy, Korea (Rep. of), Luxembourg, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Ukraine, United Kingdom). Details are presented in Figures 4 and 5.

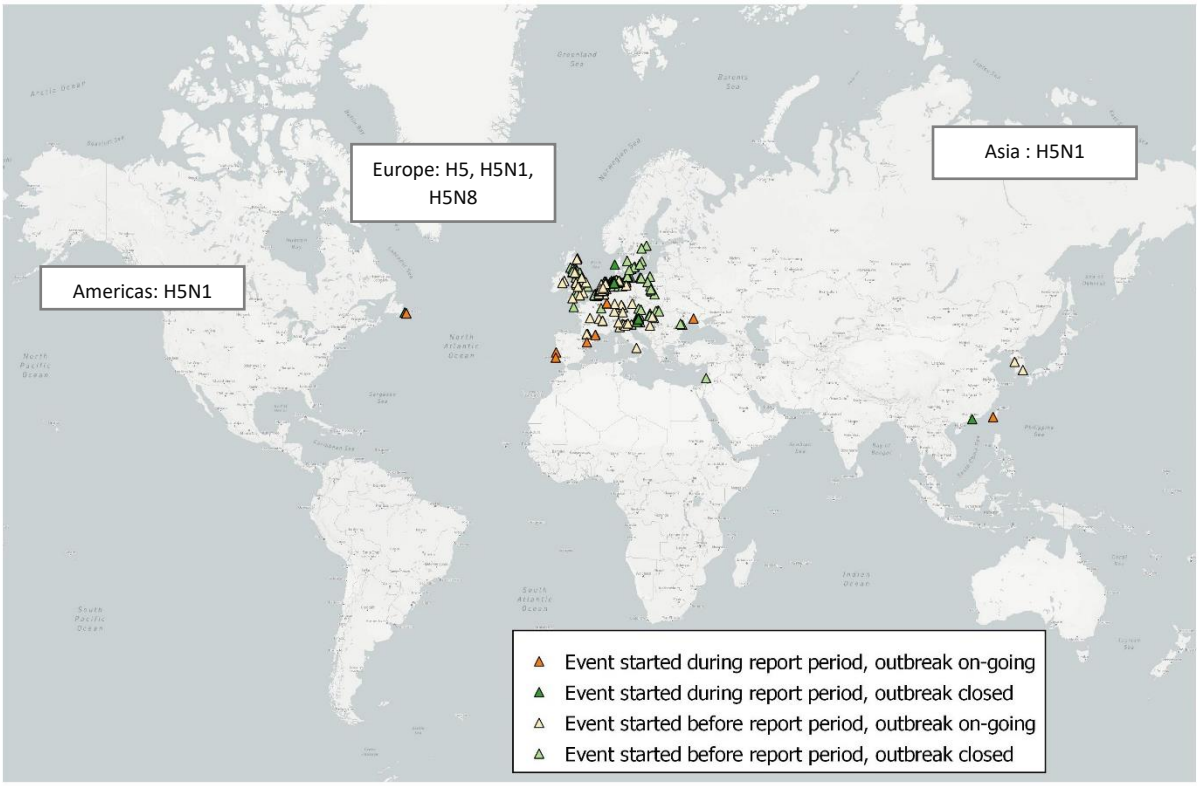

Figure 4. Distribution of HPAI new outbreaks in non-poultry birds, and corresponding subtypes.

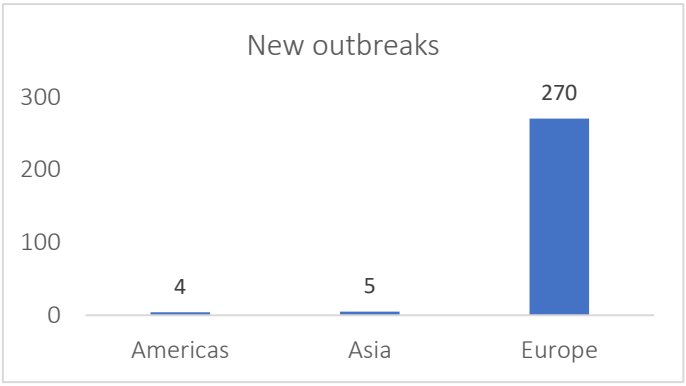

Figure 5. Number of new outbreaks by geographical region

Events which started before the 5-week period but were reported during the 5-week period (reported through immediate notifications)

Europe

Subtype H5

A recurrence started in Netherlands (Friesland, Noord-Brabant, Noord-Holland, Utrecht, Zuid-Holland) on 8 September 2021.

Subtype H5N1

The first occurrence started in Faeroe Islands on 15 September 2021.

An occurrence in unusual host (*Vulpes vulpes*) started in Estonia (Hiiu) on 8 November 2021.

A recurrence started in Greece (Macedonia and Thrace) on 6 December 2021.

Africa, Americas, Asia, and Oceania

No events reported

Epidemiological background

High pathogenicity avian influenza (HPAI) is caused by influenza A viruses in the family Orthomyxoviridae. Since its identification in China (People's Rep. of) in 1996, there have been four waves of intercontinental transmission of the H5Nx Gs/GD lineage virus:

- 1) in 2005-2006, H5N1 clade 2.2 virus involving Africa, Asia and Europe;
- 2) in 2009-2010, clade 2.3.2.1c virus affecting Asia and Europe;
- 3) in 2014-2015, at the same time clade 2.3.4.4a H5N8 virus as well as clade 2.3.2.1c H5N1 virus involving Africa, Asia, and Europe ; and
- 4) in 2016-2017, 2.3.4.4b H5Nx clade also involving Africa, Asia, and Europe[3,4].

HPAI has resulted in the death and mass slaughter of more than 246 million poultry worldwide between 2005 and 2020, with peaks in 2006 and 2016. During these two particular years, about a quarter of the world's countries were affected with HPAI[5]. In addition, up to now, humans have occasionally been infected with subtypes H5N1 (around 850 cases reported, of which half died), H7N9 (around 1,500 cases reported), H5N6 (around 50 cases reported, of which half died) and sporadic cases have been reported with subtypes H7N7 and H9N2[6,7,8,9,10].

Key messages

The current HPAI epidemic season continues with a high number of outbreaks in poultry and non-poultry reported in Europe, and also in a few countries in Africa and Asia over the 5 weeks covered by the report. The predominant subtype noticed in the current epidemic season is subtype H5N1. The majority of notifications in wild birds in multiple countries and regions indicates a possible introduction and spread of the virus through current wild bird migration. The recent detection of an H5N1 HPAI virus in Newfoundland, Canada represents the first identification of goose/Guangdong/1/96-lineage H5 HPAI virus in the Americas since June 2015 indicating the disease is spreading across the globe by wild birds. An unprecedented number of outbreaks has also killed thousands of wild birds in Israel and UK which is a cause of concern for wild birds. The increased number of notifications reflects the annual seasonal pattern of HPAI cases. Based on this known pattern, further increase in HPAI spread is expected in several regions in the coming months. In this context, the World Organisation for Animal Health (OIE) urges countries to intensify surveillance efforts, implement strict biosecurity measures at farm level to prevent the introduction of the disease, continue timely reporting of avian influenza outbreaks in both poultry and non-poultry species, and maintain the high quality of the information provided to support early detection and rapid response to potential threats to both animal and public health.

Other relevant resources

- OFFLU avian influenza statement
- OFFLU statement on outbreak of H5N1 high pathogenicity avian influenza in Newfoundland, CanadaWHO, Human infection with avian influenza A(H5) viruses
- The World Organisation for Animal Health calls for increased surveillance of avian influenza as outbreaks in poultry and wild birds intensify – Press release
- WHO 2021, Assessment of risk associated with highly pathogenic avian influenza A(H5N6) virus
- World Organisation for Animal Health (OIE), Self-declared Disease Status
- OIE World Animal Health Information System (OIE-WAHIS)
- OFFLU Influenza A Cleavage sites update 2021

[3] Lee D.H., Ferreira Criado M.& Swayne D.E (2021). Pathobiological Origins and Evolutionary History of Highly Pathogenic Avian Influenza Viruses, Cold Spring Harb Perspect Med 2021;11:a038679
[4] Sims L., Harder TC., Brown IH., Gaidet N., Belot G., Von Dobschuetz S., Kamata A., Kivaria FM., Palamara E., Bruni M., Dauphin G., Raizman E., Lubroth J.. 2017. Highly pathogenic H5 avian influenza in 2016 and early 2017 - observations and future perspectives. Rome : FAO, 16 p. (Empres Focus On, 11)
[5] Awada L, Tizzani P, Noh SM, Ducrot C, Ntsama F, Caceres P, Mapitse N and Chalvet-Monfray K, 2018. Global dynamics of highly pathogenic avian influenza outbreaks in poultry between 2005 and 2016—focus on distance and rate of spread. Transboundary and Emerging Diseases, 65, 2006–2016. https://doi.org/10.1111/tbed.12986
[6] Chen H. 2019. H7N9 viruses. Cold Spring Harb Perspect Med doi: 10.1101/cshperspect.a038349
[7] WHO. Influenza (Avian and other zoonotic), 2018, available at https://www.who.int/news-room/fact-sheets/detail/influenza-(avian-and-other-zoonotic)
[8] WHO. Cumulative number of confirmed human cases for avian influenza A(H5N1) reported to WHO, 2003-2021, 21 May 2021, available at https://www.who.int/publications/m/item/cumulative-number-of-confirmed-human-cases-for-avian-influenza-a(h5n1)-reported-to-who-2003-2021-21-may-2021
[9] Yang L, Zhu W, Li X, Chen M, Wu J, Yu P, Qi S, Huang Y, Shi W, Dong J, Zhao X, Huang W, Li Z, Zeng X, Bo H, Chen T, Chen W, Liu J, Zhang Y, Liang Z, Shi W, Shu Y, Wang D. 2017a. Genesis and spread of newly emerged highly pathogenic H7N9 avian viruses in mainland China. J Virol doi: https://doi.org/10 .1128/JVI.01277-17
[10] https://www.who.int/docs/default-source/wpro---documents/emergency/surveillance/avian-influenza/ai-20211224.pdf?sfvrsn=223ca73f_171#:~:text=Between%2017%20December%20and%2023%20December%202021%2C%20one%20new%20case,was%20hospitalized%20on%207%20December.