Self-declaration of the recovery of country freedom from infection with high pathogenicity avian influenza viruses (HPAI) by Denmark

Self-Declaration sent to the OIE on 9 August 2021 by Dr Hanne Larsen, OIE Delegate for Denmark, Ministry of Environment and Food.

1. Introduction

The objective of the declaration is the recovery of self-declared freedom from high pathogenicity avian influenza in accordance with the provisions of Article 10.4.6. of the OIE Terrestrial Animal Health Code *(Terrestrial Code).* The self-declaration covers the whole country and describes 13 outbreaks of high pathogenicity avian influenza (HPAI) in poultry and three outbreaks of infection of influenza A viruses of high pathogenicity in birds other than poultry reported in the period November 2020 until July 2021.

The starting date of the self-declaration is 9 August 2021.

2. Avian influenza situation in Denmark

On 5 November 2020, Denmark reported the first incidence of HPAI in 2020 in a wild bird. Subsequently, HPAI was detected in many dead wild birds in the last two months of 2020 and continued during the winter and spring in 2021. At the end of May, the epidemic finally seemed to decline after the biggest HPAI epidemic in Denmark ever.

The epidemic was not unexpected as the European Centre for Disease Prevention and Control had issued an alert on 30 September 2020 about the risk of HPAI outbreaks in especially Northern and Eastern Europe due to HPAI outbreaks among wild and domestic birds in western Russia and Kazakhstan over the past months. This region is a known autumn migration route for wild water birds heading to Europe.

In May 2020, Denmark regained its status as a country free from notifiable avian influenza according to the *Terrestrial Code* after a previous outbreak of low pathogenicity avian influenza (LPAI). The status was maintained until 16 November 2020, when an outbreak of high pathogenicity avian influenza H5N8 was confirmed on a commercial poultry farm.

In the period 16 November 2020 - 20 April 2021, 12 outbreaks of HPAI in poultry were confirmed in Denmark. An overview of the outbreaks can be seen in table 1.

In the period 9 December 2020 – 21 March 2021, three outbreaks of HPAI in birds other than poultry were detected in other captive birds. An overview of the outbreaks can be seen in table 1.

In the period 5 November 2020 – 28 May 2021, 339 cases of HPAI in wild birds have been detected in the Danish passive and active surveillance of AI. The last case of HPAI in a wild bird was detected 28 May 2021 in a herring gull found dead on 14 May 2021. Further details on the surveillance in wild birds are available in table 4.

On 10 June 2021 Denmark regained its status as a country free from infection with HPAI in accordance with the provisions of Article 10.4.6. of the *Terrestrial Code.*

Due to an outbreak of HPAI in poultry, the free status was lost on 5 July 2021. An overview of the outbreaks can be seen in table 1.

Details of the outbreaks in poultry and captive birds

Two of the 16 outbreaks (no. 2 and 12 in table 1) were detected in the framework of "The Danish surveillance programme for avian influenza in poultry and game birds for restocking" by routine sampling of blood. The following analysis of tracheal and cloacal swabs from birds at the infected holdings detected HPAI virus.

Eleven of the 16 outbreaks were detected based on clinical signs among the poultry and three outbreaks were found due to tracing of contacts belonging to outbreak no. 8 (turkeys).

All outbreaks were detected by PCR followed by sequencing at Statens Serum Institute (National Reference Laboratory). Sampling and diagnostic were performed in accordance with Diagnostic Manual for Avian Influenza (2006/437/EC) and Chapter 3.3.4 of the OIE Manual of Diagnostic tests and vaccines for terrestrial animals

The epidemiological investigation concluded that the most likely cause of disease introduction into the holdings was direct or indirect contact with wild birds. Referring to table number 1, in case of outbreak no. 9 (turkeys), airborne transmission from outbreak no. 8 (turkeys) is also suspected due to the short distance (1.7 km) between the farms. In outbreaks no.11 (turkeys) and 13 (turkeys), inadequate biosecurity is also considered. The epidemiological investigation of outbreak no. 16 was still ongoing at the time of the report, but indirect contact with wild birds is suspected.

All outbreaks were reported to the OIE via World Animal Health Information System (OIE-WAHIS).

The last outbreak of HPAI in poultry in Denmark was detected on 5 July 2021 in a breeding establishment with poultry producing hatching eggs for the slaughter chicken production.

Table 1: Highly pathogenic avian influenza (HPAI) in poultry and other captive birds, Denmark, November 2020 – July 2021.

Out-break no.	OIE-WAHIS report ID	OIE-WAHIS outbreak no.	Municipa-lity	Confirmation of HPAI, date	Virus type	Suspicion type	Suscep-tible Birds, no	Cate-gory	Holding type	Approval of cleaning and disinfection, date
1	IN_36631	1000139583	Randers	16.11.2020	H5N8	Clinic	28.927	Poultry	Breeding establishment	19.11.2020
2	IN_36981		Vejle	09.12.2020	H5N8	Active surveillance	901	Other captive birds	Ornamental birds	12.12.2020
3	FUR_37813	1000144253	Viborg	01.01.2021	H5N8	Clinic	9.000	Poultry	Game birds	11.1.2021

4	FUR_38212		København	05.02.2021	H5N8	Clinic	35	Other captive birds	Ornamental birds	7.2.2021
5	FUR_149832	ob_85180	Bornholm	25.02.2021	H5N8	Clinic	23	Poultry	Backyard: Laying hens and ducks	28.2.2021
6	FUR_149832	ob_85181	Bornholm	03.03.2021	H5N8	Clinic	10	Poultry	Backyard: Laying hens	5.3.2021
7	FUR_149832	ob_85182	Ringsted	03.03.2021	H5N8	Clinic	582	Poultry	Game birds	7.3.2021
8	FUR_149832	ob_85183	Slagelse	06.03.2021	H5N8	Clinic	37.000	Poultry	Slaughter turkey	15.3.2021
9	FUR_149832	ob_85184	Slagelse	10.03.2021	H5N8	Contact	24.000	Poultry	Slaughter turkey	15.3.2021
10	FUR_149832	ob_85201	Kalundborg	12.03.2021	H5N8	Clinic	19	Poultry	Backyard: Laying hens and ducks	15.3.2021
11	FUR_149832	ob_85202	Slagelse	17.03.2021	H5N8	Contact	5.700	Poultry	Slaughter turkey	23.3.2021
12	FUR_149832	ob_85204	Langeland	17.03.2021	H5N8	Active surveillance	2.200	Poultry	Game birds	20.3.2021
13	FUR_149832	ob_85203	Slagelse	16.03.2021	H5N8	Contact	27.600	Poultry	Slaughter turkey	23.3.2021
14	FUR_149865	ob_85419	Lejre	21.03.2021	H5N5	Clinic	4	Other captive birds	Hens	22.3.2021
15	FUR_149832	ob_85205	Holstebro	20.04.2021	H5N8	Clinic	19.000	Poultry	Slaughter ducks and geese	25.4.2021
16	FUR_150846	ob_87268	Sønderborg	05.07.2021	H5N8	Clinic	40.470	Poultry	Breeding establishment	9.7.2021

3. Control and eradication measures HPAI

Avian influenza H5/H7 is notifiable in Denmark according to national legislation: Order no. 1444 of 12.12.2019 on control of highly pathogenic avian influenza and Order no. 1468 of 8.12.2015 on preventive measures in outbreaks of low pathogenic avian influenza H5 or H7 in poultry and other captive birds. Veterinarians and farmers are obligated to notify the Danish Veterinary and Food Administration (DVFA) immediately upon observation of clinical signs of avian influenza.

All suspected holdings were put under official movement restrictions during the suspicion period.

After HPAI confirmation, the DVFA established a 3 km protection zone and a 10 km surveillance zone around the infected holdings and implemented the necessary measures in accordance with Council Directive 2005/94/EC and the national legislation Order no. 1444 of 12.12.2019 on control of highly pathogenic avian influenza. After 21 April, measures were implemented in accordance with Regulation (EU) 2016/429.

The Danish contingency plans comprise an overall eradication strategy, tools for eradication, a crisis organization and a crisis communication plan. This plan was followed during the sixteen outbreaks in order to achieve a quick and professional handling of the outbreaks.

Measures at the infected holdings:

- All poultry were immediately culled and the carcasses were disposed by rendering.
- Cleaning and disinfection of buildings, equipment, vehicles etc. were started immediately after the culling.
- An epidemiological investigation was conducted.
- All contacts were traced and investigated.

Strengthened biosecurity measures in general due to the HPAI epidemic

Please see section *5. Measures implemented to maintain freedom*

Stamping out policy:
Denmark has handled the HPAI outbreak according to the EU Council Directive 2005/94/EC and Regulation (EU) 2016/429 and has culled all the poultry at the infected holdings.

4. Surveillance and early warning system

Poultry
Avian influenza is notifiable in Denmark according to national legislation: Order no. 1381 of 11.12.2019 on lists of infectious diseases for the act on the keeping of animals, Order no. 1444 of 12.12.2019 on control of highly pathogenic avian influenza and Order no. 1468 of 8.12.2015 on preventive measures in outbreaks of low pathogenic avian influenza H5 or H7 in poultry and other captive birds. Veterinarians and farmers are obligated to notify the Danish Veterinary and Food Administration immediately upon observation of clinical signs of avian influenza.

Apart from passive surveillance Denmark has a comprehensive active risked based surveillance programme for avian influenza in accordance with Articles 10.4.26. to 10.4.30. and Chapter 1.4. of the *Terrestrial Code*.

According to national legislation: Order no. 1456 of 12.12.2019 on the requisite of surveillance of Avian influenza in poultry and farmed game birds, all commercial holdings in the target group having more than 100 animals are included in the programme. Breeder hens (central rearing flocks) and pullets are tested before release to egg production, outdoor layers four times a year and outdoor slaughter poultry (broilers, ducks and geese) before slaughter. In addition, fattening turkeys are tested before slaughter. Breeder ducks and geese are required to be tested once a year.

Farmed game birds for restocking (gallinaceous birds and waterfowl) are tested four times during the production season. Breeding animals undergo serological testing, and their offspring virological testing.

When traded, poultry and game birds have to be accompanied by a certificate stating that the flock of origin has been tested negative for avian influenza within the preceding three and two months, respectively.

The surveillance programme is mainly based on serology. PCR testing is used only for offspring from gamebirds. Additionally, PCR testing is used in case of a positive serological result to confirm whether the relevant flock is infected by a virus. All laboratory testing is carried out at Statens Serum Institute (National Reference Laboratory).

The result of the Danish avian influenza surveillance in poultry and game birds for restocking in 2020 is available in Table 2 provided as Annex II.

Furthermore, the results of the Danish surveillance is available on the EU website
https://ec.europa.eu/food/animals/animal-diseases/control-measures/avian-influenza_en

As a supplement to the surveillance programme a special programme for early warning of AI in commercial poultry and hobby poultry has been in place since 2005.

The AI early warning parameters requiring the owner of the animals to notify are:

- Drop in feed and water intake by more than 20% in 24 hours.
- Drop in egg production by more than 5% for more than two consecutive days.
- Mortality rate higher than 3% in any unit during a three-day period.

Early warnings are notified to the DVFA, and samples are collected from ten birds of the flock for virological (PCR) examination.

Surveillance for avian influenza in 2021 (until 6 August 2021)

In accordance with Article 10.4.28. of the *Terrestrial Code*, Denmark has conducted active surveillance for avian influenza in poultry and game birds for restocking the period 1 January – 6 August 2021. The results are available in Table 3.

Table 3: Results of the Danish active surveillance programme for avian influenza in poultry and game birds for restocking, 2021 (until 6 August)

Poultry category	Holdings (h)/ flocks (f) in Denmark[1]	Holdings (h)/ flocks (f) tested[2]	Serologically positive holdings/flocks (H5, H7)			Virologically positive holdings/flocks	
			H5	H7	H5 and H7	H5	H7
Chicken breeders	186 (f)	82(f)	0	0	0	-	-
Free-range laying hens	167 (f)	87 (f)	0	0	0	-	-
Free-range broilers	51 (h)	23 (h)	0	0	0	-	-
Fattening turkeys	37 (h)	10 (f)	0	0	0	-	-
Fattening geese	10 (h)	0 (h)	0	0	0	-	-
Fattening ducks	51 (h)	3 (h)	0	0	0	-	-
Mallards bred for restocking of game birds	21(h)						
- Breeding animals		7 (h)	**1**[3]	0	0	**1**[3]	0
- Offspring		15 (h)	-	-	-	0	0
Pheasants, partridges, rock partridges and red-legged partridges	76 (h)						
- Breeding animal		34 (h)	0	0	0	0	0
- Offspring		51 (h)	-	-	-	0	0
Total positives			**1**	**0**	**0**	**1**	**0**

[1] All holdings/flocks with more than 100 animals are registered. The holdings/flocks do not necessarily have active production throughout the year.

[2] Some flocks/holdings are tested more than once a year; the figures only include one testing per flock/holding in the period 1 January – 9 June 2021.

[3] HPAI outbreak on 17 March 2021, outbreak no. 12 in table 1.

Source: The Poultry Database of the Danish Agriculture & Food Council, 2021.

Wild birds

Since January 2011, the surveillance programme for avian influenza in wild birds has been divided into an EU-coordinated passive surveillance programme for HPAI in wild birds found dead or sick and a national active surveillance for AI in live birds with an increased risk of exposure to AI and hunted game birds. Birds sourced from passive surveillance are tested individually, and birds sourced from active surveillance are tested by cloacal swabs in pools taken from up to five birds of the same species at the same time and location.

Table 4 presents the results of the surveillance in wild birds in 2020 can be found as Annex III. The monitoring of dead wild birds covered the whole country.

In the period between January to July 2021, 245 cases of HPAI in wild birds have been detected in the passive surveillance of avian influenza in Denmark. The last HPAI positive wild bird was found on 14 May.

Further results of the passive surveillance programme in wild birds are available on this website: https://ai.fvst.dk (Click on "undersøgte fugle").

5. Measures implemented to maintain freedom

The DVFA followed a pre-determined strategy for the implementation of measures in case of a HPAI epidemic. Following a rapid risk assessment performed after findings of HPAI in several wild birds in the northern part of Germany, the risk level for HPAI introduction from wild birds was raised from very low to high.

Consequently, a compulsory housing order was introduced on 6 November 2020, requiring all poultry and other captive birds to be housed indoors or confined under roof, net or wire to protect the poultry from contact with wild birds. The housing order applied to the whole country and to all categories of poultry and other captive birds with certain exemptions for animal welfare reasons. In addition, fairs, markets, shows or other gatherings of poultry or other captive birds were prohibited across the country. The housing order was lifted on 29 May 2021 following a rapid risk assessment, which downgraded the risk level from high to low.

After the HPAI outbreak on 5 July 2021, another risk assessment was conducted. It concluded that the risk from wild birds was still low, based on: the declining number of HPAI-detections in wild birds in European countries, the end of the migratory season for wild birds and the course of HPAI epidemics in previous years.

On 8 December 2020, Denmark imposed random checks on the cleansing and disinfection standards of foreign poultry transport vehicles and crates. Under the control campaign, checks were performed on empty foreign poultry vehicles headed towards Danish poultry farms to collect parts of broiler flocks for slaughter in other EU Member States. The purpose was to reduce the potential risk of introducing avian influenza into poultry houses through exposure to transport crates contaminated with faeces. The campaign ended in April 2021. The campaign seemed successful in an overall improvement of the cleaning and disinfection of the transport vehicles and equipment.

The following risk mitigation measures must According to Danish order no. 522 of 6.6.2012 on preventive measures against avian influenza, always be observed at poultry farms regardless of the AI situation:

- Poultry or other captive birds must be fed and watered indoors or under fixed roofs or fixed coverings, ensuring that larger wild birds cannot get into contact with the feed and water.
- Poultry and other captive birds are not allowed to have access to surface water or rainwater.
- Ponds/lakes in outdoor poultry areas must be shielded from larger wild birds.
- Ducks and geese must be kept separated from other poultry.

The DVFA continuously informs the public and stakeholders about the AI situation in wild birds using press releases, news and facts updates on the DVFA homepage.

DVFA uses the app for smartphones called "FugleinfluenzaTip" ("Bird flu Tip") in order to make it easier for the public to notify the DVFA in case of findings of dead wild birds. This app allows citizens to send exact data about findings of dead wild birds including the location and a photo. The submitted data are directly transferred to the DVFA wild bird database and allocated for collection by the Veterinary Inspection Units. The avian influenza situation in wild birds can be followed on the Danish avian influenza database.

Import of poultry and poultry products is done in accordance with the relevant EU regulation which include the requirements in Regulation (EU) 2016/429 and in accordance with Articles 10.4.7. to 10.4.22. of the *Terrestrial Code.*

6. Conclusion

Considering that:

- Thirteen outbreaks of high pathogenicity avian influenza in poultry and three outbreaks of infection of influenza A viruses of high pathogenicity in birds other than poultry have been detected in the period November 2020 - July 2021. All outbreaks have been handled according to Council Directive 2005/94/EC, Regulation (EU) 2016/429, the national legislation Order no. 1444 of 12.12.2019 on control of highly pathogenic avian influenza and the Danish contingency plan for avian influenza;
- Stamping out measures were adopted including cleaning and disinfection of the infected holdings. (The last cleaning and disinfection was approved by the Danish Veterinary and Food Administration on 9 July 2021);
- 28 days have elapsed since the end of the cleaning and disinfection approval of the last HPAI outbreak in accordance with Article 10.4.6. of the OIE *Terrestrial Code* adopted on 28 May 2021.
- Surveillance has been carried out in accordance with Articles 10.4.26. to 10.4.30 of the OIE *Terrestrial Code* adopted on 28 May 2021;
- There are regular ongoing awareness programs in place on avian influenza to encourage prompt reporting of HPAI suspicions;

The OIE Delegate of Denmark declares that the country complies with the requirements for a country free from infection with high pathogenicity avian influenza viruses (HPAI) in poultry as of 9 August 2021, in compliance with the provisions of Chapter 1.6. and Article 10.4.6. of the *Terrestrial Code (2021)* and consistent with the information provided in OIE-WAHIS.

Annex I

Statement to be included in the self-declaration document.

I, the undersigned, Hanne Larsen

Delegate of... Denmark

to the World Organisation for Animal Health (OIE), takes responsibility for the self-declaration of freedom from

High pathogenicity avian influenza in accordance with the provisions of chapter 10.4 of the Terestrial Animal Health Code (disease)

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Drawn up on 9/8/2021.

Signature of the Delegate: Hanne Larsen

Annex II:

Table 2: Results of the active Danish surveillance programme for avian influenza in poultry and game birds for restocking, 2020

Poultry category	Holdings (h)/ flocks (f) in Denmark[1]	Holdings (h) /flocks (f) tested[2]	Serologically positive holdings/flocks (H5, H7)			Virologically positive holdings/flocks	
			H5	H7	H5 and H7	H5	H7
Chicken breeders	195 (f)	99 (f)	0	0	0	-	-
Free-range laying hens	160 (f)	143 (f)	**5**[3]	0	0	**1**[5]	0
Free-range broilers	47 (h)	17 (h)	0	0	0	-	-
Fattening turkeys	52 (h)	12 (f)	0	0	0	-	-
Fattening geese	10 (h)	4 (h)	0	0	0	-	-
Fattening ducks	82 (h)	21 (h)	0	0	0	-	-
Other captive birds[4]	-	-	**1**	0	0	**1**[6]	0
Mallards bred for restocking of game birds	19(h)						
- Breeding animals		10 (h)	**2**	0	0	0	0
- Offspring		16 (h)	-	-	-	0	0
Pheasants, partridges, rock partridges and red-legged partridges	74 (h)						
- Breeding animal		32 (h)	**1**	0	0	0	0
- Offspring		51 (h)	-	-	-	0	0
Total positives			**9**	**0**	**0**	**2**	**0**

[1] All holdings/flocks with more than 100 animals are registered. The holdings/flocks do not necessarily have active production throughout the year.

[2] Some flocks/holdings are tested more than once a year; the figures only include one annual testing per flock/holding, except that all positive results are included even in case the same holding tested positive more than once in the year under review.

[3] One holding tested serologically positive twice in the year under review.

[4] This category is normally not included in the surveillance, but one holding of ornamental birds was included this year due to a large number of birds on this holding.

[5]LPAI outbreak on 29 January 2020.

[6]HPAI outbreak on 9 December 2020, outbreak no. 2 in table 1.

Source: The Poultry Database of the Danish Agriculture & Food Council, 2021.

Annex III:

Table 4: Results of the Danish surveillance programme for avian influenza in wild birds, 2020		
	Passive surveillance (dead or sick wild birds)	**Active surveillance (live wild birds)**
Birds sampled	288	786
Samples/pools	288 samples	220 pools[1]
Influenza A-positive birds	93	63 pools[2]
LPAI H5-positive birds	0	7 pools[2]
LPAI H7-positive birds	0	1 pool[2]
HPAI H5/H7-positive birds	92	2 birds
[1] Pools of cloacal swabs taken from up to five birds of the same species at the same time and location. [2] The actual number of positive birds is not known. If a pool is positive, at least one of the pooled birds is positive.		

Source: Danish Veterinary Consortium, 2021.