



Ref: VITT1200/HPAI - RUSSIA

HIGHLY PATHOGENIC AVIAN INFLUENZA (H5N1)
IN
RUSSIA

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1 Summary

The Russian veterinary authorities have confirmed an outbreak of highly pathogenic avian influenza (HPAI) caused by H5N1 virus on 5 August 2005. The outbreak occurred in non-commercial mixed free-range poultry (geese, ducks, turkeys and chicken) in five villages in the southern part of the country (Novosibirsk district). The disease was first suspected in late July 2005. Russia has introduced control measures in the affected area. There are no reports of disease in commercial poultry operations.

Russia is not on the EU list of approved countries for export of poultry, ratites, day old chicks, hatching eggs, poultry meat and poultry meat preparations into the EU. Imports of captive and pet birds and unprocessed feathers have now been suspended. The current estimates of the likelihood of the disease introduction via various major pathways from Russia to the UK are summarised in Table 1. The evidence to support these estimates is presented in Section 4.1 of this document.

Table 1: Risk pathway and summary of release assessment

Imports not permitted - Russia is not an EU approved country for import live poultry and specified poultry products and commodities, live pigs and pig meat products. Therefore, there is no risk of the introduction of H5N1 to the EU and the UK via legal trade in these commodities.
Legal trade - there is a negligible likelihood of the introduction of H5N1 by trade of specific pathogen free eggs, egg products for human consumption and processed game trophies either before or after the outbreak
Legal trade - there is a low likelihood of the introduction of H5N1 by trade of captive and pet birds after the outbreak. These imports have now been suspended.
Legal trade - there is a negligible likelihood of the introduction of H5N1 by trade of processed game trophies of birds from Russia to the UK before or after the outbreak.
Legal trade - there is a low likelihood of the introduction of H5N1 by imports of unprocessed feathers after the outbreak. These imports have now been suspended.
Illegal imports - There is an indeterminable likelihood of the introduction of H5N1 virus to the UK by illegal imports.
Migratory waterfowl - There is a low likelihood of introduction of any avian influenza virus to the UK by migratory waterfowl. This outbreak in southern Russia could indicate an increased (but still low) likelihood of the introduction of H5N1 virus from Russia to the UK by migratory waterfowl during migratory season
Arriving passengers - there is a negligible likelihood of H5N1 virus introduction by faecal contamination on clothing and shoes of arriving passengers from Russia to the UK

An outbreak of HPAI in any country bordering with EU is of concern. The International Animal Health Division (IAHD) continues to monitor developments and will provide an update on the situation if required.

2 Introduction

This qualitative risk analysis considers the likelihood of the introduction of highly pathogenic avian influenza (HPAI) H5N1 to the UK via various pathways following an outbreak in Russia.

3 Hazard identification

3.1 HPAI (H5N1) in Russia – Official Disease Report

On 22 July 2005, the Russian veterinary authorities reported an outbreak of avian disease in a non-commercial mixed free-range poultry (geese, ducks, turkeys and chicken) in five villages in the southern part of Russia (Novosibirsk district, see map). This event, characterised by a low mortality

rate was detected on 15 July 2005 and investigations began on 18 July 2005. Disease control measures (including stamping out) have been put in place (Nepoklonov, 2005).



On 5 August 2005 August, the Russian authorities confirmed that this outbreak was caused by HPAI (H5N1) virus (OIE, 2005a).

4 Risk assessment

4.1 Release Assessment – Legal trade (Current situation)

This release assessment considers the trade in risk commodities between Russia and the UK to date including the six weeks before mid July, at which point avian influenza virus infection was included in the differential diagnosis. This estimated risk period is just over twice the time of the maximum incubation period for HPAI, as specified by the OIE.

For the purpose of the release assessment section (Section 4.1) of this qualitative risk analysis, the following definitions will apply (OIE, 2005c):

Term	Definition
HPAI	<i>"... notifiable avian influenza (NAI) is defined as infection of poultry caused by any influenza virus A of the H5 or H7 subtypes or by any AI virus with an intravenous pathogenicity index (IVPI) greater than 1.2 (or as an alternative at least 75% mortality..."</i>
Incubation period for HPAI	21 days

For the purpose of the release assessment section (Section 4.1) of this qualitative risk assessment, the following terminology will apply (OIE, 2004):

Term	Definition
Likelihood	Probability; the state or fact of being likely
Likely	Probable; such as well might happen or be true; to be reasonably expected
High	Extending above the normal or average level
Highly	In a higher degree
Low	Less than average; coming below the normal level
Negligible	Not worth considering; insignificant
Remote	Slight, faint
Would	To express probability; past of Will: expressing a wish, ability, capacity, probability or expectation

4.1.1 Imports not permitted

Conclusion: Russia is not an EU approved country for import live poultry and specified poultry products and commodities, live pigs and pig meat products. Therefore, there is no risk of the introduction of H5N1 to the EU and the UK via legal trade in these commodities

Key factors:

The following animals and products (which may also harbour HPAI virus) cannot be legally exported from Russia to the EU:

- a) *Live poultry, ratites, or day old chicks,*
- b) *Hatching eggs*
- c) *Poultry meat and poultry meat preparations*
- d) *Table eggs for human consumption*
- e) *Pet food that may contain chicken meat*
- f) *Unprocessed game trophies of birds*
- g) *Unprocessed poultry manure*

- h) *Processed poultry manure and processed poultry manure products*
(Note: *Although EU allows the import of these commodities from any country in principle, there is no established certificates to allow imports from any country)*
- i) *Pigs and pig meat products*
(Note: *Literature data indicate that HPAI virus has been detected in pigs in China and Indonesia during the on-going outbreak of HPAI in South East Asia. However, transmission from a pig to pig has not been demonstrated).*

4.1.2 Legal trade - current

4.1.2.1 Captive and pet birds

Conclusion: There is a low likelihood of the introduction of H5N1 by imports of captive and pet birds from Russia to the UK after the outbreak

Key factors:

- a) *The possibility remains that H5N1 could be active in other areas in Russia, therefore, imports of captive and pet birds are now suspended;*
- b) *There has been one import of great bustards within the last two months (estimated risk period) from a non-affected area of Russia into quarantine in the UK;*
- c) *All these birds were subjected to tests to detect virus as a part of the standard quarantine procedure; the tests were all negative.*

Supporting evidence:

EU rules allow for imports of captive birds from all countries that are members of the World Organisation for Animal Health (OIE), subject to veterinary certification that includes a statement on avian influenza freedom. That is, the disease must be notifiable; the birds must not come from areas subject to restrictions for avian influenza (AI); the area within a radius of 10km must be free from AI for at least 30 days.

TRACES, (the European Commission electronic system for notification of movements of live animals, their products and germplasm - within the European Union and from third countries) shows one record of an import of great bustards after 15 July 2005. The birds were subject to veterinary clinical examination and laboratory tests for avian influenza virus with negative result.

EU rules allow for imports of pet birds (i.e. those accompanying their owners) from countries outside EU. These birds are subject to veterinary inspection prior to export and must be found free from clinical signs of infectious and contagious diseases. The birds are also subject to post-import quarantine that includes at least two veterinary visits for clinical examination.

TRACES shows no records of import of pet birds from Russia for the past two months.

4.1.2.2 Specific pathogen free (SPF) eggs

Conclusion: There is a negligible likelihood of the introduction of H5N1 by imports of SPF eggs from Russia to the UK before or after the outbreak

Key factor:

- a) *Import of SPF eggs is subject to veterinary certification confirming that testing for avian influenza has been carried out within 30 days of despatch.*

4.1.2.3 Egg products for human consumption

Conclusion: There is a negligible likelihood of the introduction of H5N1 by imports of these commodities from Russia to the UK before or after the outbreak

Key factors:

- a) *Processing is considered sufficient to destroy the virus.*

Supporting evidence

Egg products for human consumption - Egg products from poultry may be imported from Russia subject to agreed certificates confirming that products have been prepared in establishments approved by the competent authority and have been subject to heat-treatment of at least 70°C throughout their substance) which is considered sufficient to destroy the HPAI.

Composite products containing eggs - EU rules do not cover imports of composite products containing egg. They are subject to import rules set by the UK. Imports of these products are permitted only if they do not present a risk of transmitting the disease; for example, if they have been subject to processing conditions that would destroy the virus, and if there is only a low proportion of egg in the composite product.

4.1.2.4 Unprocessed feathers

Conclusion: There is a low likelihood of the introduction of H5N1 by imports of unprocessed feathers from Russia to the UK after the outbreak

Key factors:

- a) *H5N1 could be present in faeces of infected birds and contaminate feathers, therefore, imports of unprocessed feathers are now suspended.*

Supporting evidence

There remains a possibility that HPAI could be active in other areas of Russia. Therefore, imports of unprocessed feathers from Russia to the UK are now suspended.

4.1.2.5 Processed game trophies of birds

Conclusion: There is a negligible likelihood of the introduction of H5N1 by imports of processed game trophies of birds from Russia to the UK before or after the outbreak.

Key factors:

- a) *Processing of game trophies is considered sufficient to destroy the virus.*

Supporting evidence

These commodities may be imported provided that they meet EU rules concerning taxidermy treatment, which ensures the destruction of the HPAI agent.

4.1.3 Other relevant pathways

4.1.3.1 Illegal imports

Conclusion: There is an indeterminable likelihood of the introduction of HPAI virus to the UK by illegal trade

Assumption:

- a) *Illegal movements of poultry meat/meat products pose a risk for the introduction of the disease from any infected countries worldwide,*
- b) *The likelihood of the HPAI introduction to the UK exists and is difficult to estimate.*

Supporting evidence

We cannot rule out the possibility that poultry and poultry products may be imported illegally to the UK from any country and may contain HPAI virus.

Attempts to illegally import meat as personal imports have been recorded from many countries. As with all disease agents, illegal imports from infected countries worldwide give rise to a constant, background risk of infection. Refrigeration, which may reduce the effectiveness of this inactivation, is unlikely in illegally imported meat and makes detection by enforcement authorities more likely. The risk associated with the illegal personal import of poultry meat appears to be negligible because it is highly likely that the meat will be cooked. The virus has been recovered from fresh duck meat (Tumpey and others, 2002). However, cooking temperatures for consumption purposes (usual temperature above 70°C) are considered sufficient to destroy the virus.

Large-scale commercial illegal imports of poultry may be attempted from any country using false or forged documentation. However, thorough documentary checks and awareness at Border Inspection Posts (BIPs) that this may happen are likely to mitigate this type of risk. The information on these intercepted consignments must also be entered in TRACES.

4.1.3.2 Migratory waterfowl

Conclusion: There is a low likelihood of any avian influenza virus introduction to the UK by migratory waterfowl. This outbreak in southern Russia could indicate an increased (but still low) likelihood of the introduction of HPAI virus from Russia to the UK by migratory waterfowl during migratory season

Key factors:

- a) *Wild aquatic birds are considered the reservoir of avian influenza viruses;*
- b) *HPAI virus introduction to domestic poultry is often attributed to contact with aquatic birds;*
- c) *Therefore, it is tempting to attribute the dissemination of the virus over geographic distances to movements of these birds;*
- c) *HPAI introductions into domestic poultry are a chance event and difficult to predict.*

Supporting evidence:

Wild aquatic birds, shorebirds and gulls are considered to be the natural host of AI virus without showing clinical signs of the disease (Suarez, 2000). In wild aquatic birds, the AI virus replicates in the cells lining the intestinal tract and is excreted in high concentrations in the faeces (up to $10^{8.7}$ 50% egg infectious doses/gram)(Webster, 1998). “*The complete host ecology of influenza is unlikely ever to be fully understood*” (Tollis and Di Trani, 2002, p.204) because of the complex interactions between the virus and the aquatic birds.

Russia has never before reported an outbreak of HPAI (OIE, 2005a). Previous outbreaks of HPAI (H5N1) in wild waterfowl and migratory birds have been reported in May (domestic poultry) and in June 2005 (waterfowl) in China. Kazakhstan reported an outbreak of AI (H5) in domestic ducks and geese in a village in north-east of the country (Irtysh district, Pavlodar region) at the end of July 2005. Outbreaks in domestic poultry, characterised by high mortality in the affected birds, have often been attributed to contact with wild waterfowl and wild birds.

These events may also indicate that the virus is being spread relatively rapidly and it is tempting to attribute this situation to the geographic dissemination of the virus by migratory waterfowl. However, this must remain questionable because no information is currently available on whether a detailed epidemiological analysis has been carried out to determine if this is the case. No information is currently available on whether other potential causes of death of wild waterfowl or migratory birds (e.g. other diseases, a natural die-

off or a natural ecological impact) have been excluded. It is also possible that wild birds were infected conventionally at source with H5N1 (China, Russia) or H5 (Kazakhstan) or from locally infected poultry that has either gone undetected or unreported. Illegal trade would also have to be considered.

Wetland habitat in Russia supports large numbers of breeding birds, many of which migrate to East and South-East Asia in winter (BirdLife International, 2005). Any significant wild waterfowl migration is likely to have occurred south to north during April/May so it may be possible that infection could have been carried to the region and gone undetected for two months. It is, however, uncertain at this stage if there is any significant geographic overlap in northern Russia and if there is any mixing of waterbird populations that migrate from both European and Asian overwintering grounds to the breeding grounds in Russia.

Wild waterfowl are considered to be a reservoir of avian influenza infection, therefore, there is an on-going risk that any avian influenza virus may be introduced by these birds. There is a theory that some of these low pathogenic strains of avian influenza (H5 or H7) may mutate spontaneously to high pathogenicity; if introduced into domestic poultry populations.

Defra continues to advise industry and poultry farmers on disease surveillance, reporting and reiterates the importance of biosecurity in preventing contact between domestic poultry and migratory or wild birds.

4.1.3.3 Arriving passengers

Conclusion: There is a negligible likelihood of HPAI virus introduction by faecal contamination on clothing and shoes of arriving passengers from Russia to the UK

Key factors:

- a) *The virus can remain viable for long periods in faecal material;*
- b) *Due to the distance of the UK from Russia, the majority of the movement of people is likely to be by air-travel;*
- c) *Due to the nature of air-travel, heavy contamination of clothing and shoes is unlikely.*

Supporting evidence

Inhalation and ingestion are considered the main route of transmission from bird to bird and between birds and mammals. However, the potential for the

spread of virus via faecal contamination on clothing and shoes cannot be excluded.

The volume of passengers may be high. However, the majority of these are either tourists or business people who would be unlikely to have come into close contact with agriculture or to return to the UK contaminated with bird faeces.

There is heightened awareness of HPAI due to the level of publicity about the outbreaks in south-east Asian countries. Defra and industry advice to poultry farmers on disease and biosecurity should ensure that anyone associated with poultry, and who has travelled to the region, would be unlikely to break normal biosecurity arrangements at poultry farms or put their stock at risk.

4.2 RISK ESTIMATE AND CONCLUSION

Russia is not an EU approved country for exports of live poultry and their products into the EU. The IAHD considers that the risk of HPAI virus being introduced from this outbreak from Russia to the UK through legal trade to be negligible. The likelihood of introducing the disease to the UK via imports of pet and captive birds and unprocessed feathers since the outbreak of HPAI in Russia is considered low. Therefore, imports of these commodities are now banned.

As with all disease agents, illegal imports from infected countries worldwide give rise to a constant, background risk of infection, subject to the survival of the infectious agent in the illegally imported product. The risk of transmission of viable virus in non-commercial poultry meat is difficult to quantify.

There is an on-going risk that any of the many avian influenza (AI) viruses may be introduced to the UK by migratory birds, especially waterfowl. This outbreak in southern Russia could indicate an increased (but still low) likelihood of the introduction of H5N1 virus by migratory waterfowl to the EU and possibly the UK during migratory seasons. However, this estimate should be taken in the context of the lack of detailed epidemiological information and the uncertainty regarding the situation in the breeding grounds in northern Russia

An outbreak of HPAI in any country is of concern. The IAHD continues to monitor developments and will provide an update on the situation if considered to be required.

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