



International Animal Health Division

International Disease Monitoring

Qualitative Risk Assessment



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AVIAN INFLUENZA IN CANADA (Update)

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1. Summary

The Canadian authorities have reported outbreaks of highly pathogenic avian influenza (HPAI) (type H7N3) virus in poultry flocks within two in the Fraser Valley area of the province of British Columbia, on the Pacific coast of Canada, close to the border with the USA.

The first outbreak was reported on 10 March 2004 following additional work on samples taken from a farm previously reported as infected with low pathogenic avian influenza (LPAI) virus on 17 February 2004.

The second outbreak was discovered on 12 March 2004 as a result of active surveillance around the first farm.

A total of 28 outbreaks in commercial premises have been confirmed:

- 13 in the 5 km high risk area.
- 5 in the 10 km surveillance zone.
- 10 outside the surveillance zone but within the control area.

Ten back-yard flocks with a total of 147 birds have also been found to be infected:

- 6 in the 5 km high risk area.
- 4 in the 10 km surveillance zone.

The risk of spread within the affected state and to other non-affected states in Canada and the USA is remains unclear. However, the Canadian Food Inspection Agency has provided official assurances that there are no links between poultry in the affected area, and regions in the east of Canada from where there is trade with the European Union.

The UK has therefore reviewed and modified safeguard measures in line with the EU, permitting regionalisation and restricting the suspension of imports of commodities likely to introduce infection to the designated control area only.

2. AVIAN INFLUENZA IN CANADA

2.1. Disease report

An outbreak of low pathogenic avian influenza (LPAI) was detected initially on 17 February 2004, as a result of routine provincial monitoring programme. Laboratory results indicated the presence of an H7N3 virus of low pathogenicity. The outbreak occurred in 52 week-old birds within a broiler-breeding operation in Abbotsford, British Columbia, on the Pacific coast, near the border with the USA. Figure 1 indicates the location of this outbreak and summarises the occurrence of avian influenza (AI) in North America since 1983.

Findings of low pathogenic strains of avian influenza, ascribed to the persistent circulation of virus in migratory birds and wild fowl have been reported previously and are described in the literature.

Following the discovery of LPAI on 17 February 2004, the Canadian Food Inspection Agency (CFIA) quarantined the affected farm, depopulated the flock and implemented a five kilometre radius, ring surveillance zone.

On 10 March 2004, the Canadian authorities reported that additional work on samples obtained from destroyed birds from another unit on the same premises, revealed the presence of both low-pathogenic and highly pathogenic strains of H7N3 avian influenza in 24 week-old birds. The virus isolated showed an intravenous pathogenicity index of 3.0

A “control area”, which includes a “high-risk” area of 5 km radius around the index outbreak and the surrounding 10 km radius surveillance zone was established on 11 March 2004. The control area is currently (14 April 2004) bounded by the following physical features:

- In the west: The Georgia Strait;
- In the east: A line running north-south through the Hunter Creek Weigh Scale of the Province of British Columbia territory.
- In the south: The border with the United States of America;
- In the north: The North Shore Mountain Range of the Fraser River.

The second outbreak was discovered on 12 March 2004 in a hatchery unit, two kilometres from the first outbreak, within the officially designated high-risk infected zone around the index outbreak. This outbreak was discovered as a result of active surveillance around the first farm. As a consequence of this, the surveillance zone was expanded to a 10 km radius, and a movement ban for poultry and poultry products, except under permit, was established in the designated control area.

On 19 March 2004, a third premises within the high-risk 5 km zone was found to be infected. This premises was a broiler unit close to the second infected unit.

On 23 March 2004, two additional farms within the 5 km region were found to be infected.

On 24 March, a decision was taken to pre-emptively slaughter all flocks within the 5 km radius of the index farm, a total of 275,000 birds; and an active surveillance operation is being conducted within a 10 km radius of the index farm.

By 04 April 2004, a total of 18 infected commercial premises had been identified: 12 in the high-risk region; 4 in the surveillance region; and 2 outside the surveillance region, but within the control area. A third premises is under quarantine. In addition, three back-yard flocks within the high-risk region have tested positive for H3N7 HPAI.

On 05 April 2004, it was announced that all commercial and backyard poultry within the control area established on 11 March will be depopulated (approximately 19 million birds, including turkeys, ducks and geese). Poultry meat from non infected flocks will be allowed to be processed under full inspection in registered establishments and made available for sale.

06 April 2004 – two more farms were confirmed positive, one within the 5 km high-risk region and one within the surveillance zone.

12 April 2004 – two more farms confirmed positive, bringing the total to 22 commercial poultry premises affected.

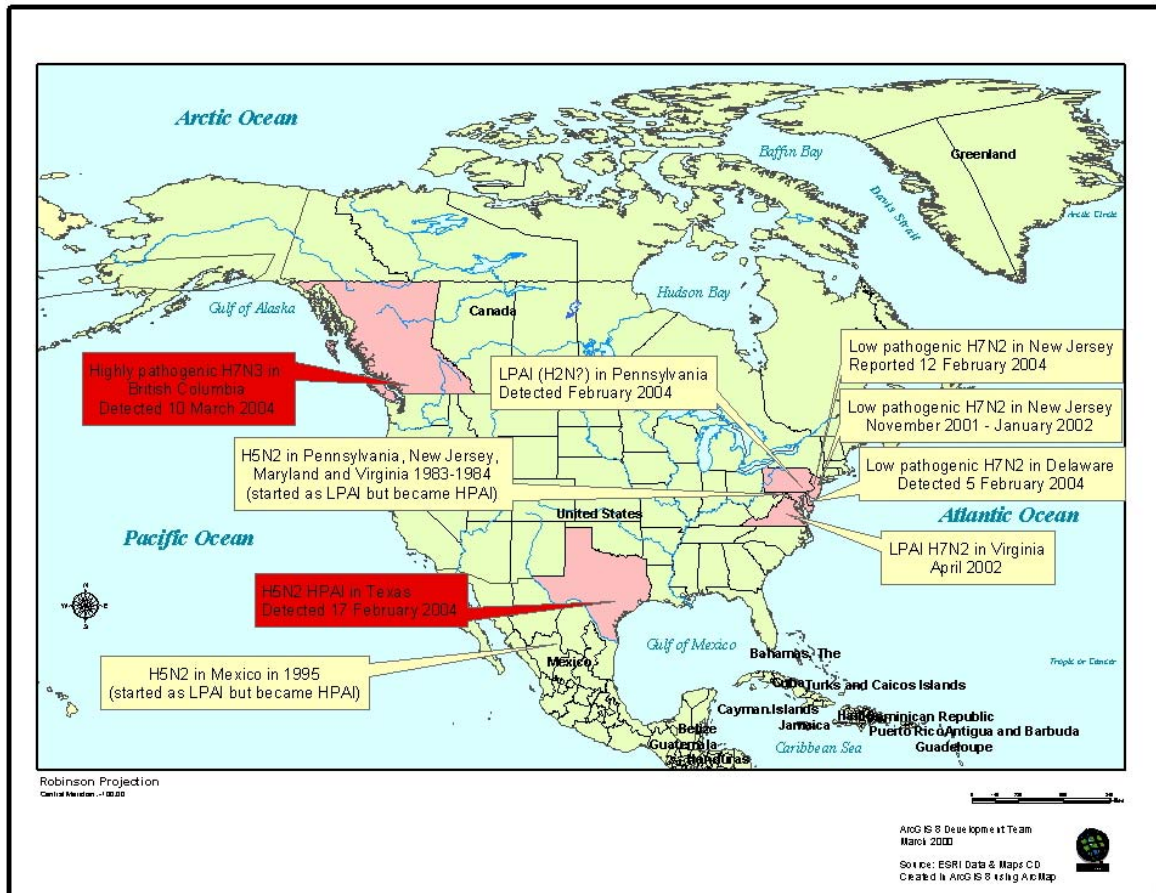
16 April 2004 - A total of 28 outbreaks in commercial premises have been confirmed:

- 13 in the 5 km high risk area.
- 5 in the 10 km surveillance zone.
- 10 outside the surveillance zone but within the control area.

Ten back-yard flocks with a total of 147 birds have also been found to be infected:

- 6 in the 5 km high risk area.
- 4 in the 10 km surveillance zone.

Figure 1: Location of current outbreak, and history of avian influenza occurrence in North America since 1983 (the recent USA and Canada HPAI outbreaks are highlighted in red)



3. LEGAL TRADE – RECENT ACTIVITY

Canada has a considerable trade in poultry and poultry products with the EU, however, official UK statistics indicate that only a very small proportion of this trade takes place directly with the UK.

3.1. Live birds

3.1.1. Poultry

Under EU rules, imports of live poultry were permitted from Canada. An official certificate was required to accompany the consignment stating that an area of 25 km radius around the farm of origin had been officially free from avian influenza and Newcastle disease for the previous 30 days.

Consignments of live poultry from any approved non-EU country are subject to 42 days post-import quarantine and frequent official inspections. All birds dying within 14 days of import are sent for virus isolation testing. The health of imported birds remains under review until the end of 42-day quarantine and any further abnormal disease or death rate is investigated.

Import records show that only one consignment of live poultry has been imported since January 2003, this last consignment being imported in November 2003.

3.1.2. Captive birds

The importation of captive birds from Canada was permitted subject to 30 days post-import quarantine, with compulsory laboratory testing for avian influenza and Newcastle disease. An official certificate was required to accompany the consignment stating that an area of 10 km radius around the place of origin had been officially free from avian influenza and Newcastle disease for the previous 30 days.

There was a regular but minimal trade in captive birds. Eight assorted birds were imported in the period since January 2003, the last being on 19 November 2003.

3.1.3. Day old chicks

Under EU rules, imports were allowed and the conditions were the same as for live poultry (refer to 3.1.1)

There was a minimal trade in day old chicks. Import records show that the most recent consignment was one of 1200 day-old chicks imported two years ago in March 2002.

3.2. Hatching eggs

Under EU rules, imports of hatching eggs were permitted. A quarantine period of 21-day post-hatching is applied to imports from any approved non-EU country and they are subject to frequent official inspections. It is compulsory that all chicks dying within 14 days post-hatching are sent for virus isolation testing. An official certificate is required to accompany the consignment, stating that an area of 25 km radius around the farm of origin has been officially free from avian influenza and Newcastle disease for the previous 30 days.

There has been minimal trade in hatching eggs. Import records show that the last consignment of hatching eggs was imported nearly one year ago, on 03 April 2003 and contained a total of 400 hatching eggs. The only previous consignment on record was for 1200 hatching eggs imported on 14 August 2001. No licences for hatching eggs have been issued since 1 January 2004.

3.3. Eggs and egg products

Under EU rules, eggs and egg products were permitted to be imported from Canada.

Egg products are required to be treated to ensure that they are free from salmonella.

There is no record indicating any importation of eggs or eggs products from Canada in the period since January 2003.

3.4. Poultry meat and meat products

Imports of poultry meat and meat products were permitted from Canada. There is only one EU approved establishment, and it is approved for both poultry meat and meat products.

A very small quantity (160 tonnes) of poultry meat was imported from Canada in June 2003. There is no record of imports of poultry meat or meat products in 2004.

3.5. Feathers

Under EU rules, unprocessed and processed feathers may be imported from Canada. In this context, processing requires that the feathers have been treated with a steam current or by some other method sufficient to ensure that no pathogens are transmitted.

Feathers are permitted for import into the UK from Canada, through a border inspection post, provided that they are securely enclosed in packaging and dry, and that the goods are sent directly to the plant of destination or a warehouse.

There is no record indicating any importation of feathers from Canada.

3.6. Game trophies

Unprocessed game trophies of birds may only be imported from countries that are authorised to export fresh meat of the species concerned. EU rules allow importation of unprocessed game trophies from establishments that are located in areas free from animal disease.

Game trophies that have undergone a complete taxidermy treatment to ensure their preservation at ambient temperature are allowed to be imported without restrictions for reasons of animal health.

There were very limited imports of bird game trophies. Imports were most likely destined for research or scientific / museum collections.

3.7. Raw pet food or feed material

Prior to 01 May 2004, the import of raw pet food is not fully harmonised under EU rules, however, Member States were allowed to import provided that animal health conditions equivalent to those required for fresh meat for human consumption were met.

Raw poultry material that does not meet the human health standard for use in pet food could only be imported under licence, and no licence has existed for this purpose.

Feed material containing avian proteins was allowed to be imported for inclusion in pet food and for feed to animals not intended for human consumption. However, such material was required to be channelled directly to an EU approved processing plant for processing, so as to achieve a high biological standard to

ensure the absence of *Salmonella* spp. and *Clostridium perfringens*. Such processing would be sufficient to inactivate the infectious agent of HPAI.

There is no record indicating any importation of poultry based raw pet food or feed material for pet food from Canada in the period since January 2003.

3.8. Manure, processed manure and processed manure products

Unprocessed manure: may only be imported from countries permitted to export fresh poultry meat. This included Canada.

Processed manure and processed manure products: must originate from approved establishments and have been heat-treated to at least 70°C for at least 60 minutes. This is monitored by microbiological sampling. Imports of processed manure from any country are permitted, and must come from approved establishments, accompanied by a health certificate confirming that treatment to achieve prescribed microbiological standards has been carried out.

There is no record of either of these commodities being imported from Canada in recent years.

3.9. Ratites

3.9.1. Live ratites

Under EU rules, imports of live ratites were permitted from Canada. An official certificate was required to accompany the consignment, stating that an area of 25 km radius around the farm of origin had been officially free from avian influenza and Newcastle disease for the previous 30 days.

Consignments of live ratites were subject to 42 days post-import quarantine and frequent official inspections. All ratites dying within the quarantine period were sent for virus isolation testing.

There is no record indicating the importation of live ratites during 2003 and until 24 February 2004.

3.9.2. Ratite meat

Imports of ratite meat was permitted from Canada.

There is no record indicating the importation of ratite meat during 2003 and until 24 February 2004.

4. Illegal trade

Seizures of illegal imports from Canada have been recorded by Customs, but only a very small proportion of these are either poultry meat or egg based.

5. Fomite

The virus is shed in faeces, where it can remain viable for long periods. There is potential for indirect virus spread over long distances via faecal contamination on clothing and shoes.

The majority travel between the UK and Canada is by air. The nature of this means of travel ensures that heavy contamination of clothing and shoes is unlikely. Although the volume of passengers is high, the majority of these are either tourists or business people. They are unlikely to have come into close contact with agriculture or to return to the UK contaminated with poultry faeces.

6. Migratory birds

A significant migratory route for several species of wild birds and waterfowl exists between Europe and sub-Arctic regions of Canada – this is known as the “Atlantic flyway”. These migratory birds (Turnstone) over-winter on the UK coast (BTO, 2004). The “Atlantic flyway” does not extend to the Pacific coast of Canada, and there are no other known direct migration routes from there to the UK. However, the possibility exists for mixing of the eastern Atlantic bird population with those arriving from the “Pacific Flyway” in the sub-Arctic breeding grounds, during the northern hemisphere summer.

7. ASSESSMENT OF THE RISK TO UK ANIMAL HEALTH

7.1. Canada

There is an unquantifiable risk of disease spread within the affected state (British Columbia) and into neighbouring states in Canada. There has been spread outside the 5 km high-risk area, but this has been confined to the control area.

The H7N3 virus has demonstrated an ability to spread rapidly in poultry and change from low pathogenicity, to a highly pathogenic strain.

On 11 March 2004 the UK took safeguard measures, in-line with action by the European Commission to ban the following imports from the Canada with effect from 17 February 2004:

- Live birds, including poultry, pet birds and captive birds.
- Hatching eggs;
- Fresh meat derived from birds;
- Meat products and meat preparations consisting of or containing meat derived from birds;
- Eggs for human consumption;
- Unprocessed manure derived from birds;
- Non-treated game trophies from birds.

On 08 April 2004, the UK reviewed and modified safeguard measures (UK Declaration IAH DEC 2004/12), in-line with action taken by the European Commission, repealing Commission Decision 2004/242/EC, to be replaced by a new Commission Decision which is yet to be published. The EU has agreed to regionalise controls to the “control area” described above. Therefore, imports of live birds, hatching eggs and meat originating in, or coming from parts of Canada other than the control area can now resume provided that each consignment is accompanied by appropriate health certification.

7.2. Legal trade

7.2.1. Live birds

Live poultry: There is negligible risk from legal trade because importation of live poultry from the affected area has been banned and any attempted imports would be stopped at the Border Inspection Post (BIP).

There is negligible risk from imports prior to the ban because the last recorded import of live poultry occurred more than one year ago in March 2003, and that was a consignment of day old chicks. This time frame is well outside the risk period, which has been assessed as starting from 17 February 2004, on the basis that the subsequent pattern of disease spread indicates that Canada was successful in identifying the outbreak at an early stage, based on clinical signs and serology. It is also likely that inspection and laboratory testing during the specified quarantine period would have detected any diseased poultry and prevented their release into the UK. There is no record of importing live poultry during the risk period.

Captive and pet birds: These are exempt from the restrictions on the control area as there is negligible risk from legal trade in captive and pet birds because the compulsory quarantine period with inspection and laboratory testing will detect any diseased birds and prevent their release into the UK.

There is a negligible risk from legal trade prior to the ban because inspection and laboratory testing during the quarantine period would have detected any diseased birds and prevented their release into the UK.

Day-old chicks: There is negligible risk from legal trade because importation of day old chicks from the affected area has been banned and any attempted imports would be stopped at the Border Inspection Post (BIP).

There is a negligible risk from legal trade prior to the ban because inspection and laboratory testing during the post-import quarantine period would have detected any diseased poultry and prevented their release into the UK. There is no record of any imports from Canada since April 2003.

7.2.2. Hatching eggs

There is negligible risk from legal trade because importation of hatching eggs from the affected area has been banned and any attempted imports would be stopped at the Border Inspection Post (BIP).

There is a negligible risk from legal trade prior to the ban because inspection and laboratory testing during the post-import quarantine period would have detected any diseased poultry and prevented their release into the UK. There is no record of any imports from Canada since April 2003.

7.2.3. Eggs and egg products

Eggs: There is negligible risk from legal trade because importation of eggs for human consumption has been banned from the affected area and any attempted imports would be stopped at the Border Inspection Post (BIP).

So far, infection has only been confirmed in broiler (meat) and breeding/hatchery birds, not laying hens, so the risk from imports during the risk period is also negligible.

Egg products: It is most likely that any AI virus contaminating an egg would be found on the outside of the shell. Egg products such as egg powder have the shell removed. Egg products are required to be treated to ensure that they are free from salmonella. Such treatment should inactivate any remaining AI virus. There is therefore negligible risk from this trade.

7.2.4. Poultry meat and meat products

There is a negligible risk from legal trade in poultry meat and meat products for human consumption because it has now also been banned from the affected area. However, poultry meat products that have been produced at a temperature of 70°C or above, or meat and meat products produced before 17 February 2004 may be imported from the affected area.

7.2.5. Feathers

There is a negligible risk from legal trade because processing either before export or after import would destroy the virus. EU by-products rules effectively require imports to go directly for processing.

7.2.6. Game trophies

Non-processed game trophies: There is negligible risk from legal trade in non-processed game trophies because it has been banned from the affected area as a consequence of the suspension of poultry meat imports on animal health grounds. Any attempted imports would be stopped at the Border Inspection Post (BIP).

On the basis of past records, imports during the risk period are assumed to be few in number and are unlikely to be contaminated with virus or to come into contact with UK poultry. The risk from this trade is assessed to be negligible.

Processed game trophies: There is a negligible risk from legal trade in processed game trophies because such processing would ensure destruction of the virus.

7.2.7. Pet food

Raw poultry meat as raw material for pet food: Meat for pet food must comply with animal health rules and is therefore also banned. There is no record of any raw poultry meat being imported for the manufacture of pet food during the risk period.

Processed pet food: Processed pet food will have been manufactured with a time / temperature process sufficient to inactivate the infectious agent. During manufacturing, pet food is monitored to ensure that these standards are met.

Poultry products are not used for the production of dog chews.

The infected flocks have been destroyed under official control so infected birds would not have entered the commercial pet food chain.

7.2.8. Manure, processed manure and processed manure products

Unprocessed manure: There is negligible risk from legal trade in unprocessed manure because it has been banned from the affected area as a result of the ban on poultry meat and any attempted imports would be stopped at the Border Inspection Post (BIP).

There is no record of recent trade in these products from Canada.

Processed manure: Processed manure and processed manure products may be imported given they meet EU rules, which require heat-treatment that is sufficient to kill the virus. They therefore present negligible risk.

7.2.9. Ratites

Live ratites: There is negligible risk from legal trade because it has been banned from the affected area and any attempted imports would be stopped at the Border Inspection Post (BIP).

There is a negligible risk from legal trade during the risk period because no imports of live ratites occurred during this period. It is also likely that inspection and laboratory testing during the specified quarantine period would have detected any diseased birds and prevented their release into the UK.

Ratite meat: There is negligible risk from legal trade because it has been banned from the affected area and any attempted imports would be stopped at the Border Inspection Post (BIP).

Any ratite meat imported during the risk period would have been subject to veterinary certification attesting that it came from healthy birds.

7.3. Illegal trade

As with many disease agents, illegal imports from infected countries give rise to a constant background risk of infection, subject to the survival of infectious agent in the illegally imported product. Seizures of illegal imports from Canada have been recorded by Customs, but only a very small proportion of these are either poultry meat or egg based.

The risk associated with the illegal personal import of poultry meat appears to be negligible because the post-mortem pH change is sufficient to inactivate the virus. Refrigeration, which may reduce the extent of the pH change, is unlikely to be applied to personal imports and would make detection of illegal commercial imports more likely.

7.4. Background risk associated with migrating birds

There is an on-going background risk of the introduction of avian influenza by migrating birds, especially waterfowl. Low pathogenic strains of avian influenza may be endemic in some European bird populations. These strains may mutate spontaneously to HPAI. There is a low (more than negligible) risk to the UK from the large numbers of migratory waterfowl and other birds that over-winter in the UK. This risk is unassociated with the outbreak in Canada and there is no proportionate action which can be taken to mitigate this risk.

8. Conclusion

The risk to UK animal health arising from the current outbreak of HPAI in Canada remains negligible. There is only a limited direct trade to the UK in poultry and poultry products from Canada. Imports to the EU of products which present a credible risk have been banned as a precautionary measure. The previously existing controls would be effective in mitigating any risk from Canadian products imported during the risk period, even if they were to have been infected.

The developing situation in Canada gives cause for concern, however, the steps taken by the Canadian authorities to mitigate the risk of spread within the province and to the remainder of Canada, are considered to be adequate to permit regionalisation.

There is a low background risk of introduction of HPAI to the UK through bird migration which is unrelated to and thus unchanged as a result of the outbreak in Canada.

Defra and the European Commission continue to monitor the situation in Canada. Further information from the Canadian authorities on control measures and surveillance may allow the current safeguard measures to be further amended.

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