



Ref: VITT1200/ND-BG

NEWCASTLE DISEASE OUTBREAK IN BULGARIA

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(30 December 2004)**

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Table of Contents

1. SUMMARY	3
2. INTRODUCTION	4
1. RISK ASSESSMENT	4
3. HAZARD IDENTIFICATION.....	4
3.1. NEWCASTLE DISEASE IN BULGARIA – OFFICIAL DISEASE REPORT	4
3.2. NEWCASTLE DISEASE – BACKGROUND INFORMATION	5
4. RELEASE ASSESSMENT - LEGAL TRADE (CURRENT SITUATION).....	5
4.1. LIVE BIRDS	5
4.2. POULTRY MEAT/MEAT PRODUCTS	7
4.3. HATCHING EGGS.....	8
4.4. MIGRATORY WILDFOWL AND FERAL PIGEONS	9
4.5. ILLEGAL TRADE.....	10
5. CONCLUSION	10
6. REFERENCES	11
7. ANNEX 1. BACKGROUND NOTE ON NEWCASTLE DISEASE.....	12
8. ANNEX 2. ND – DETAILED EU RULES.....	13
8.1. INITIAL INVESTIGATION	13
8.2. ND CONFIRMATION.....	13
8.2.1. <i>Protection zone</i>	13
8.2.2. <i>Affected holding</i>	13
8.2.3. <i>Surveillance zone</i>	14

1. Summary

Bulgaria has reported an outbreak of Newcastle disease (ND) in backyard poultry flocks in a village located in the south of the country (district of Kardgali) close to the border with Greece. The disease was suspected on 10 December 2004. Following clinical suspicion, the affected flock was depopulated on 16 December. The disease was officially confirmed by laboratory testing on 20 December 2004. There is no information on the intra cerebral pathogenicity index (ICPI) of the virus isolate.

Bulgaria reports that the outbreak was confined to this single flock. Control measures include ring vaccination in the protection and surveillance zone and daily clinical inspection of poultry in the district of Kardgali. There are no reports of the disease outbreak in commercial poultry. In response to this outbreak, the EU (2004/908/EC) safeguard measures now prevent imports of poultry and their specified products from Bulgaria.

The likelihood of introducing ND virus to the UK from Bulgaria via legal trade before and after this ND detection is considered negligible. The risk of ND introduction via migratory and wild birds and feral pigeons is difficult to quantify (Table 1). The evidence to support this estimates is presented in Section 4 of this document.

Table 1: Risk pathway and summary of release assessment

There is a negligible likelihood of ND introduction with imports of live birds from Bulgaria to the UK before and after the outbreak
There is a negligible likelihood of ND introduction by imports of fresh, chilled and frozen poultry meat, and poultry meat products and preparation to the UK from Bulgaria before and after the outbreak
There is a negligible likelihood of ND introduction by imports hatching eggs from Bulgaria to the UK before and after the outbreak
There is an indeterminable likelihood of ND introduction to the UK by feral pigeons and migratory waterfowl
There is an indeterminable likelihood of ND introduction to the UK by illegal trade

An outbreak of ND in any country neighboring the EU is of concern. However, the Veterinary Directorate considers the risk of ND spread from this outbreak to UK through legal trade to be negligible. The Veterinary Directorate continues to monitor developments and will provide an update on the situation if considered to be required.

2. Introduction

This qualitative risk analysis was undertaken to assist the process of identifying appropriate Sanitary and Phytosanitary (SPS) measures to manage the risk of importing Newcastle disease in poultry meat, poultry meat preparations and hatching eggs from Bulgaria to the UK. According to the SPS Agreement, these measures must not be restrictive to trade while maintaining appropriate levels of protection (ALOP).

1. Risk assessment

For the purpose of the release assessment section (Section 5) of this qualitative risk analysis, 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

3. HAZARD IDENTIFICATION

3.1. Newcastle disease in Bulgaria – Official Disease Report

Bulgaria has reported an outbreak of Newcastle disease (ND) in backyard poultry flocks in a village located in the south of the country (district of Kardgali) close to the border with Greece (OIE, 2004; European Commission, 2004).

The disease was suspected on 10 December. Following clinical suspicion, all 32 affected flocks were depopulated on 16 December. The disease was confirmed by laboratory testing on 20 December 2004.

Disease control measures include ring vaccination in the protection (3 km) and surveillance (10 km) zone around the affected holdings. Epidemiological investigation revealed that the first cases of the disease were observed in a backyard poultry flock owned by a family that had visitors from Turkey in mid November. There are no reports of the disease in commercial poultry.

The last reported outbreak of ND in Bulgaria in 1993. Bulgaria permits routine vaccination of poultry against ND. Bulgaria has EU accession status and is encouraged to apply ND disease control measures as per EU rules (92/66/EEC)(European Commission, 1992) (refer to Annex 2).

3.2. Newcastle disease – background information

ND is present in many countries worldwide in many wild and domestic bird species. Vaccination against ND is used in many countries worldwide.

Depending on the severity of the disease in chicken, there are three pathotypes of the virus: lentogenic (usually do not cause disease); mesogenic (cause respiratory disease), and velogenic (neurotropic and viscerotropic forms of virus that cause high mortality) (various authors quoted in Seal and others, 2000). Refer to Annex 1 for more details on the disease. The last outbreak of ND in the UK occurred in 1997 and the most recent in the EU occurred in Finland and Sweden in 2004.

4. RELEASE ASSESSMENT - LEGAL TRADE (CURRENT SITUATION)

This release assessment considers the trade in risk commodities between the UK and Bulgaria to date including the six weeks before 10 December, the date when the ND virus infection was first suspected. This estimated risk period is just over twice the time of the maximum incubation period for ND, as specified by the OIE.

4.1. Live birds

Conclusion:

There is a negligible likelihood of ND introduction with imports of live birds from Bulgaria to the UK before and after the outbreak

Key factors:

- a) *Trade in live poultry is subject to EU rules;*
- b) *The EU (2004/908/EC) safeguard measures now prevent imports of susceptible poultry,*
- c) *There have been no imports of live poultry during the past two months (estimated risk period),*
- d) *There have been no imports of captive or pet birds into the UK quarantine during the past two months (estimated risk period).*

Supporting evidence:

Import of live poultry to the EU from Bulgaria was allowed (European Commission, 2004) subject to veterinary certification that includes a statement on ND freedom.

EU rules (92/66/EEC)(European Commission, 1992) define control measures against ND in poultry, racing pigeons and other birds in captivity. In response to this outbreak the EU (2004/908/EC)(European Commission, 2004a) safeguard measures now prevent imports of live poultry from Bulgaria.

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 no direct imports of susceptible live poultry or other birds from Bulgaria to the UK. This is within the period starting six weeks before 10 December, the date when the ND virus infection was first suspected. This period is twice the time of the maximum incubation period for ND, as specified by the OIE.

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

Import of pet birds to the UK from countries outside EU is allowed. These birds are subject to veterinary inspection prior to export and must be found free from clinical signs of infectious and contagious diseases and must come from premises on which there no case of ND has been confirmed in the last 42 days. The birds are also subject to post-import quarantine that includes at least two veterinary visits for clinical examination.

4.2. Poultry meat/meat products

Conclusion:

There is a negligible likelihood of ND introduction by imports of fresh, chilled and frozen poultry meat, and poultry meat products to the UK from Bulgaria before and after the outbreak

Key factors:

- a) *Trade in fresh poultry meat, and poultry products is subject to EU rules;*
- b) *The UK, and the EU (2004/908/EC) safeguard measures will prevent imports of these commodities due to the disease outbreak,*
- c) *There have been no imports of fresh poultry meat and poultry meat products during the past two months (estimated risk period)*
- d) *There have been no imports of frozen poultry meat during the past nine months.*

Supporting evidence:

Import of fresh, chilled and frozen poultry meat, and poultry meat products to the EU was allowed from Bulgaria (European Commission, 2004). These commodities come from birds that are subject to veterinary inspection.

EU rules (92/66/EEC)(European Commission, 1992) regulate trade in fresh poultry meat and poultry products from areas under restriction for ND. The EU (2004/908/EC) (European Commission, 2004a) safeguard measures now prevent imports of fresh, chilled and frozen poultry meat, and poultry meat products.

At this stage, it appears that this outbreak is limited to a limited number of back-yard flocks in one village only. The actions taken by the Bulgarian veterinary authority to control the outbreak appear to be swift.

TRACES shows no imports of these commodities from Bulgaria directly to the UK for the past two months.

Virus may be present in fresh and frozen meat. The virus is stable at pH between 3 to 9. Its survival is unlikely to be affected by pH changes of meat after slaughter. The virus is susceptible to various heat treatments (56⁰C/5 minutes to 6 hours; 60⁰C/7-30 minutes; 70⁰C/50 seconds; 100⁰C/1 second) (various reports in Christensen et al., 1999)

Historic data (quoted in Kinde and others, 2004) indicate that ND virus could survive on skin and bone marrow of chilled chicken carcasses for 98 to 134 days. The virus may survive for months if present in frozen poultry carcasses.

4.3. Hatching eggs

Conclusion:

There is a negligible likelihood of ND introduction by imports of hatching eggs from Bulgaria to the UK before and after the outbreak

Key factors:

- a) *Trade in hatching eggs is subject to EU rules;*
- b) *The EU rules (2004/908/EC) now prevent imports of these commodities due to the disease outbreak,*
- c) *There have been no imports of hatching eggs during the past two months (estimated risk period)*

Supporting evidence:

Import of hatching eggs to the EU from Bulgaria was allowed (European Commission, 2004). Hatching eggs must come from birds that are subject to veterinary inspection.

EU rules (92/66/EEC)(European Commission, 1992) regulate trade in hatching eggs from areas under restriction for ND. The EU (2004/908/EC) (European Commission, 2004a) safeguard measures now prevent imports of poultry hatching eggs.

ND virus replicates in the intestine and may be transmitted by ingestion of contaminated faeces. In infected breeder farms, presence of ND virus contaminated faeces on the surface of eggs is considered a major mechanical source of the virus to progeny (Chen and Wang, 2002). Vertical transmission of the virus through the reproductive tract is believed not to occur (Alexander, 1997).

TRACES shows no imports of these commodities from Bulgaria to the UK for the past two months.

4.4. Migratory wildfowl and feral pigeons

Conclusion:

There is an indeterminable likelihood of ND introduction to the UK by feral pigeons and migratory waterfowl

Key factors:

- a) *ND has a worldwide distribution and a wide host range,*
- b) *Wild and migratory birds and feral pigeon are often considered to be the most likely source of infection for back-yard or commercial poultry*
- c) *ND introductions into domestic poultry are a chance event and difficult to predict.*

Supporting evidence:

ND is a viral disease affecting a wide range of bird species, including domestic poultry and many wild and migratory birds in which a long-term carrier state may exist (Seal and others, 2000).

Pigeon paramyxovirus type 1 (PPMV-1) is an antigenic and host variant of ND virus of chickens. PPMV-1 has possibly originated as a result of multiple chicken to pigeon transmissions (Ujvari and others, 2003). A summary of data from the literature indicates that the virus was isolated for the first time from pigeons in the Middle East in 1978, from where it spread rapidly throughout Northern Africa. In 1981, it was isolated from racing pigeons in Italy. Within the next three years, the virus spread throughout Europe. In 1984, the PPMV-1 virus was epidemiologically linked to outbreaks of ND in chickens in the UK (Seal and others, 2000).

PPMV-1 has been isolated from doves and ornamental birds, in addition to isolates from commercial and feral pigeons. Vaccination of commercial pigeons against PMV-1 is used as a prophylactic measure to control the infection, however, the use of this vaccine is sporadic. PPMV-1 strain circulation among racing and show pigeons is possible (Ujvari and others, 2003).

The risk of the introduction of ND strain to the UK by wildfowl is difficult to quantify. However, the type of risk posed is unlikely to exceed the level of the existing risk posed by wild birds migrating to, or through, the UK.

4.5. Illegal trade

There is an indeterminable likelihood of ND introduction to the UK by illegal trade

Assumption:

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

We cannot rule out the possibility that fresh poultry meat may be imported illegally to the UK from any country and may contain ND virus. However, cooking of poultry meat for human consumption destroys the virus.

5. CONCLUSION

Bulgaria reported an outbreak of Newcastle disease (ND) in backyard poultry flocks in a village located in the south of the country (district of Kardgali) close to the border with Greece. The disease was suspected on 10 December 2004. Following clinical suspicion, the affected flock was depopulated on 16 December. The disease was officially confirmed by laboratory testing on 20 December 2004.

Bulgaria reported that the outbreak was confined to this single flock. Control measures include ring vaccination in the protection and surveillance zone and daily clinical inspection of poultry in the district of Kardgali. There are no reports of the disease outbreak in commercial poultry.

The likelihood of introducing ND virus to the UK from Bulgaria via legal trade before and after this ND detection is considered negligible. The risk of ND introduction via migratory and wild birds and feral pigeons is difficult to estimate.

An outbreak of ND disease in any country neighboring the EU is of concern. However, the Veterinary Directorate considers the risk of ND spread from this outbreak to UK through legal trade to be negligible. The Veterinary Directorate continues to monitor developments and will provide an update on the situation if considered to be required.

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7. Annex 1. Background note on Newcastle Disease

ND causes respiratory and/or nervous signs with gasping and coughing, drooping wings, dragging legs, twisting of the head and neck, circling, depression, inappetence and complete paralysis. There may be swelling of the tissues around the eyes and in the neck and a partial or complete cessation of egg production. Eggs from diseased birds may be misshapen, rough-shelled, thin-shelled and contain watery albumen. The birds may have a greenish watery diarrhoea.

The degree to which birds become affected and the mortality within a flock depend on virulence of the virus strain, degree of vaccinal immunity, environmental conditions, and condition of the flock .

Like avian influenza (to which the Newcastle disease virus is NOT related), the disease is primarily spread by contact with faeces or respiratory secretions from infected birds. Contaminated feed or water may also spread the disease. It is the movement of contaminated people, vehicles and things between flocks that is most likely to spread disease. Flock owners should always follow the principles of good biosecurity already published on the Defraweb <http://defraweb/animalh/biosecurity/farmguidance/poultrybiosec.pdf>

Unlike avian influenza, an effective commercial vaccine is available. Because of the constant threat of introduction of disease by wild birds, breeding flocks and commercial egg laying flocks (which have a life expectancy of some 60 – 72 weeks) are invariably vaccinated in the UK. Broiler flocks tend not to be for two reasons: first the cost and effectiveness of vaccination set against their relatively short life; second, the potential adverse effect on bird health of adding to the list of vaccines these birds are already subject to and which have to be given when they are newly hatched.

To a large extent, therefore, the National flock has a good degree of protection against incursion of disease. There are a number of Newcastle Disease vaccines authorised for use on the market in the UK and there are no restrictions on their use in accordance with any Marketing Authorisation.

8. Annex 2. ND – Detailed EU rules

The Council Directive (92/66/EEC) defines control measures against ND in poultry, racing pigeons and other birds in captivity. It does not apply if ND is detected in wild birds.

8.1. Initial investigation

Following a suspicion of ND, an affected holding is quarantined and movement of poultry, poultry meat, animal feed and litter/manure from the affected holding is prohibited. During this phase, transport of eggs destined for further processing in an approved establishment may be allowed. These measures remain in place until the disease is either ruled out or confirmed.

8.2. ND confirmation

If ND is confirmed (any PMV1 with an intracerebral pathogenicity index in day-old chicks greater than 0.7), the following measures apply:

8.2.1. Protection zone

A Protection zone must be established around the infected holding. This zone has a minimum radius of 3km.

8.2.2. Affected holding

All birds on the affected holding must be killed and destroyed. The meat of slaughtered poultry during the presumed incubation period must be traced and destroyed. The same applies to hatching eggs and table eggs. Poultry that have already been hatched are subject to official surveillance. Table eggs may be exempted from destruction if proper disinfection was carried out. Any waste is subject to traceability and appropriate treatment to destroy the virus. If that is not possible, such waste is destroyed. Cleaning and disinfection of the holding, equipment and transport vehicles must be thoroughly carried out. Any neighbouring and other identified traceforward holdings may be subject to the above measures.

If the virus has an intracerebral pathogenicity index (ICPI) of >0.7 and <1.2 , the holding may be exempted from above measures if the European Community Reference laboratory considers that an outbreak was caused by a vaccinal strain of the virus. In these cases, the affected holding is placed under official surveillance for 30 days, and remains quarantined with restrictions imposed on all movements. Appropriate cleaning and disinfection is required. Poultry may be sent to slaughter, however they must be kept and slaughtered separately. Meat of such poultry is given a special health mark

and must be subjected to a specified heat treatment, or sold only on the national market.

8.2.3. Surveillance zone

The surveillance zone that surrounds a protection zone must be established taking into account geographical, administrative, ecological and epidemiological factors relevant to ND. This zone includes the protection zone and has a radius of at least 10km from the affected holdings.

All poultry holdings within surveillance zone must be subjected to clinical examination and laboratory testing. Movement restrictions must apply to poultry handlers, poultry, poultry meat, hatching eggs, litter/manure, and transport vehicles. Poultry may be sent directly to slaughter at an approved establishment. This poultry meat is subject to a special health mark and must be subjected to a specified heat treatment, or sold only on the national market. Cleaning and disinfection activities must be carried out under official supervision. Fairs, markets, shows or other gatherings of poultry and other birds are prohibited.

Vaccination of poultry and commercial pigeons is subject to authorisation of the competent authority.