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HEALTH & CONSUMERS DIRECTORATE-GENERAL

Unit 04 - Veterinary Control Programmes

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*Programmes for the eradication, control and monitoring of certain
animal diseases and zoonoses*

**Survey programme for Avian Influenza in
poultry and wild birds**

Approved* for 2010 by Commission Decision 2009/883/EC

United Kingdom

* in accordance with Council Decision 2009/470/EC

Standard requirements for the submission of national surveillance programmes for avian influenza in poultry and wild birds as referred to in Article 1(d)

1. Identification of the programme

Member State: United Kingdom
Disease: Avian Influenza
Year of implementation: 2010
Reference of this document: UK AI survey plan 2010
Contact (name, phone, fax, e-mail): Balazs Toth; tel.: +44 207 238 6346, fax: +44 207 238 5822; balazs.toth@defra.gsi.gov.uk
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2. Description of the surveillance programme in poultry

The UK poultry survey for avian influenza viruses of subtype H5 and H7 is a stratified and targeted serological survey. Eligible premises are selected randomly from the Great Britain and Northern Ireland poultry registers.

The survey is targeted to higher risk premises and poultry in order to maximise the likelihood of detecting low pathogenicity avian influenza (LPAI) viruses; this includes outdoor free range premises, older birds and premises with a variety of domestic poultry species and birds of different age.

Serum samples are screened for the presence of antibodies to avian influenza viruses of subtypes H5 and H7. Following a positive serological result, movement restrictions are served on the premises and an investigation is carried out to establish whether active infection is present.

2.1 Objectives, general requirements and criteria

The objectives of avian influenza surveillance in domestic poultry are to:

- Detect subclinical infections of avian influenza viruses of subtypes H5 and H7.
- To target this surveillance at higher risk poultry populations, relating to their husbandry and species susceptibility.
- Contribute to the demonstration of 'disease free status' in the frame of international trade according to OIE rules.

2.2 Design and implementation

Regionalisation of the UK and the poultry species to be targeted

- For the purposes of the survey, the UK is considered as one region. The survey will be stratified to account for variations across the region.
- The following types of poultry are included in the survey:
 - Domestic chicken (breeder and layer flocks, including free-range) - broilers are not included
 - Turkeys (breeder and fatterer flocks)
 - Ducks (breeder, meat and layer flocks)
 - Geese (breeder, meat and layer flocks)
 - Feathered game classified as poultry

Survey design

- **Number of premises to be selected across the UK**
 - For domestic chicken and feathered game premises, the UK will select a random sample of 60 eligible premises; for turkeys, ducks and geese the number is 90 (see table 2.2.1.). This number will be reduced if data is available demonstrating that there are fewer than 250 eligible premises in the UK for domestic chicken (or 350 for turkeys, ducks and geese).
 - Wherever possible identified commercial premises containing game birds shall be sampled.
- **Selection of premises in England, Wales, Scotland and Northern Ireland (stratification)**
 - Premises in each class of poultry are (as far as is possible) selected randomly within each devolved administrative area of the UK.
 - The number of premises of each type selected in England, Northern Ireland, Scotland and Wales are stratified according to the total number in each of the four areas so that the sample chosen for each area is representative. This is based on the best available data for each area. No further stratification will be done, since the restricted sample size implies that no stratum-level analysis is likely to be feasible.
 - Stratification and random selection of premises is carried out by the Centre for Epidemiology and Risk Analysis (CERA) at the Veterinary Laboratories Agency (VLA), Weybridge for England, Scotland and Wales, and by the Department for Agriculture and Rural Development (DARD) for Northern Ireland.
 - Separate sampling frames are prepared for each of the poultry types from available databases.

- **Criteria for selecting premises (including exemptions)**

- Premises containing at least 50 birds (in the case of ducks, geese and feathered game), 500 birds (in the case of turkeys) and 1000 birds (in the case of domestic chicken) are selected as eligible for the survey. Premises are selected by the total number of birds on the premises, for a given species, even when they are in separate flocks.
- Flocks above the "parent" level in the production hierarchy (i.e. grandparent) are excluded from the survey because they have high levels of biosecurity.
- Wherever possible, flocks that have been managed outdoors will be selected for sampling.
- Premises containing more than one type of bird are deemed to be higher risk. If selected, then only the type of birds for which the selection has been made will be sampled. There will be no sampling of other, secondary species on the premises from that selection.

- **Sampling**

- Blood samples for serological testing are collected from a minimum of 10 birds on each premises except in the case of ducks, geese and feathered game where all birds, up to a maximum of 40 will be sampled (because the laboratory test is less sensitive in these species).
- The timing of sampling is informed by the seasonality of production, especially for turkeys, geese and feathered game.
- Birds are sampled as close to slaughter age as practicable, and where appropriate.
- Samples may be collected on farms or at slaughterhouses.
- Where several sheds are present on one holding the sample size shall be increased so that a minimum of 5 birds are tested per shed (or in the case of ducks, geese and feathered game the sample up to a maximum of 40. If the samples are to be collected in a slaughterhouse, then the birds are selected at random from the entire batch.

Table 2.2.1 POULTRY HOLDINGS^(a) (except ducks and geese) TO BE SAMPLED

Serological investigation according to point B of Annex I to Commission Decision 2007/268/EC¹ on holdings of laying hens/free range laying hens

NUTS (2) code ^(b)	Total number of holdings ^(c)	Total number of holdings to be sampled	Number of samples per holding	Total number of tests to be performed per method	Methods of laboratory analysis.
England	1419	42	10-15	420-630	H5 & H7 HI test
Scotland	134	4	10-15	40-60	H5 & H7 HI test
Wales	84	3	10-15	30-45	H5 & H7 HI test
Northern Ireland	372	11	10-15	110-165	H5 & H7 HI test
Total	2009	60	n/a	600-900	

- (a) Holdings or herds or flocks or establishments as appropriate.
 (b) Refers to the location of the holding of origin. In case NUTS (Nomenclature of Territorial Units for Statistics) 2 cannot be used, coordinates (long/lat- to write out) are requested.
 (c) Total number of holdings of one category of poultry in concerned NUTS 2 region.

Serological investigation according to point B of Annex I to Commission Decision 2007/268/EC² on holdings of chicken breeders

NUTS (2) code ^(b)	Total number of holdings ^(c)	Total number of holdings to be sampled	Number of samples per holding	Total number of tests to be performed per method	Methods of laboratory analysis.
England	384	35	10-15	350-525	H5 & H7 HI test
Scotland	83	8	10-15	80-120	H5 & H7 HI test
Wales	36	3	10-15	30-45	H5 & H7 HI test
Northern Ireland	159	14	10-15	140-210	H5 & H7 HI test
Total	662	60	n/a	600-900	

1 OJL 115, 3.5.2007, p. 3.
 2 OJL 115, 3.5.2007, p. 3.

Serological investigation according to point B of Annex I to Commission Decision 2007/268/EC³ on holdings of fattening turkeys

NUTS (2) code ^(b)	Total number of holdings ^(c)	Total number of holdings to be sampled	Number of samples per holding	Total number of tests to be performed per method	Methods of laboratory analysis.
England	653	69	10-15	690-1035	H5 & H7 HI test
Scotland	11	1	10-15	10-15	H5 & H7 HI test
Wales	45	5	10-15	50-75	H5 & H7 HI test
Northern Ireland	55	6	10-15	60-90	H5 & H7 HI test
Total	764	81	n/a	810-1215	

(a) Holdings or herds or flocks or establishments as appropriate.

(b) Refers to the location of the holding of origin. In case NUTS (Nomenclature of Territorial Units for Statistics) 2 can not be used, coordinates (long/lat- to write out) are requested.

(c) Total number of holdings of one category of poultry in concerned NUTS 2 region.

Serological investigation according to point B of Annex I to Commission Decision 2007/268/EC⁴ on holdings of turkey breeders

NUTS (2) code ^(b)	Total number of holdings ^(c)	Total number of holdings to be sampled	Number of samples per holding	Total number of tests to be performed per method	Methods of laboratory analysis.
England	72	8	10-15	80-120	H5 & H7 HI test
Scotland	2	0	10-15	0	H5 & H7 HI test
Wales	3	0	10-15	0	H5 & H7 HI test
Northern Ireland	8	1	10-15	10-15	H5 & H7 HI test
Total	85	9	n/a	90-135	

(a) Holdings or herds or flocks or establishments as appropriate.

(b) Refers to the location of the holding of origin. In case NUTS (Nomenclature of Territorial Units for Statistics) 2 cannot be used, coordinates (long/lat- to write out) are requested.

(c) Total number of holdings of one category of poultry in concerned NUTS 2 region.

³ O J L 115, 3.5.2007, p. 3.

⁴ O J L 115, 3.5.2007, p. 3.

Serological investigation according to point B of Annex I to Commission Decision 2007/268/EC⁵ on holdings of farmed feathered game (pheasants, partridges, ducks reared for shooting)

NUTS (2) code ^(b)	Total number of holdings ^(c)	Total number of holdings to be sampled	Number of samples per holding	Total number of tests to be performed per method	Methods of laboratory analysis.
England	3827	51	36-40	1836-2040	H5 & H7 HI test
Scotland	545	7	36-40	252-280	H5 & H7 HI test
Wales	175	2	36-40	72-80	H5 & H7 HI test
Northern Ireland		0	36-40	0	H5 & H7 HI test
Total	4547	60	n/a	2160-2400	

- (a) Holdings or herds or flocks or establishments as appropriate.
 (b) Refers to the location of the holding of origin. In case NUTS (Nomenclature of Territorial Units for Statistics) 2 cannot be used, coordinates (long/lat- to write out) are requested.
 (c) Total number of holdings of one category of poultry in concerned NUTS 2 region.

Table 2.2.2 DOMESTIC DUCK HOLDINGS TO BE SAMPLED^(a) according to point C of Annex I to Decision 2007/268/EC

Serological investigation

NUTS 2 code ^(b)	Total number of duck and geese holdings	Total number of duck and geese holdings to be sampled	Number of samples per holding	Total number of tests to be performed per method	Methods of laboratory analysis.
England	352	80	36-40	2880-3200	H5 & H7 HI test
Scotland	6	1	36-40	36-40	H5 & H7 HI test
Wales	20	5	36-40	180-200	H5 & H7 HI test
Northern Ireland	16	4	36-40	144-160	H5 & H7 HI test
Total	394	90	n/a	3240-3600	

(a) Holdings or herds or flocks or establishments as appropriate.

(b) Refers to the location of the holding of origin. In case NUTS 2 code can not be used, coordinates (long/lat – to write out) are requested.

Table 2.2.2 DOMESTIC GEESE HOLDINGS TO BE SAMPLED^(a) according to point C of Annex I to Decision 2007/268/EC

Serological investigation

NUTS 2 code ^(b)	Total number of duck and geese holdings	Total number of duck and geese holdings to be sampled	Number of samples per holding	Total number of tests to be performed per method	Methods of laboratory analysis.
England	256	72	36-40	2592-2880	H5 & H7 HI test
Scotland	12	3	36-40	108-120	H5 & H7 HI test
Wales	9	3	36-40	108-120	H5 & H7 HI test
Northern Ireland	6	2	36-40	72-80	H5 & H7 HI test
Total	283	80	n/a	2880-3200	

(a) Holdings or herds or flocks or establishments as appropriate.

(b) Refers to the location of the holding of origin. In case NUTS 2 code can not be used, coordinates (long/lat – to write out) are requested.

2.3 Laboratory testing: description of the laboratory tests used

Laboratory tests conducted for the AI surveillance programme in domestic poultry will be conducted at the UK's National Reference Laboratory (NRL) for Avian Influenza, Veterinary Laboratories Agency (VLA), Weybridge. Serum samples are screened for the presence of antibodies to avian influenza viruses of subtypes H5 and H7 by haemagglutination inhibition (HI) tests. If a positive serological result is recorded by the screening HI tests, confirmatory HI serological testing (using a heterologous neuraminidase component) is performed. All testing is performed in accordance with extant, specified EU guidelines (Annex I to Commission Decision 2007/268/EC on the implementation of surveillance programmes for avian influenza in poultry and wild birds to be carried out in the Member States and amending Decision 2004/450/EC). If positive confirmatory serological (HI) test results are recorded, further laboratory investigations are undertaken on samples submitted from follow-up field sampling of the flock. This is carried out to establish whether active AI virus infection is present, and forms part of local epidemiological investigations.

The diagnostic tests utilised comprise serological (HI) tests, molecular real time reverse transcription polymerase chain reaction (RT-PCR) methods, and attempted virus isolation in embryonated fowls' eggs. If a virus is isolated serological, molecular and virus characterisation methods used will be consistent with procedures laid down in the EU diagnostic manual/Commission guidelines.

In summary, the laboratory test portfolio utilised at VLA Weybridge comprises:

- Haemagglutination Inhibition (HI) tests for orthomyxoviruses - presence of antibodies to influenza A virus subtypes H5 and H7 in serum (poultry).
- Real time RT-PCR for Avian Influenza - screening test for matrix gene of all influenza A virus: for the detection of the matrix gene of any influenza A virus in clinical specimens and amplified samples.
- Real time RT-PCR for Avian Influenza - detects Eurasian H5 AI virus: for the detection of the H5 subtype of avian influenza (AI) virus in clinical specimens and amplified samples.
- Real time RT-PCR for Avian Influenza - detects Eurasian H7 AI virus (HA2 region amplification): for the detection of the H7 gene (HA2 region) of any H7 influenza A virus in clinical specimens and amplified samples.
- Virus isolation and detection in embryonated fowls' eggs.
- Determination and analysis of nucleotide sequence (and deduced amino acid sequence) of specific regions of the genome of AI viruses.

3. Description of the surveillance programme in wild birds:

The UK AI wild bird surveillance (AIWBS) programme is risk based and targeted. It is a virological survey and is targeted to higher risk species of birds, higher risk areas (based on the abundance of poultry species and water birds) and to higher risk seasons (to account for wild bird migration patterns).

Species targeting is based on a list of wild bird species compiled by the European Food Safety Authority (EFSA) that are thought to present a higher risk in relation to the spread of highly pathogenic avian influenza (HPAI) H5N1 viruses. The list is subject to regular review. In addition, in Great Britain expert ornithological and epidemiological advice and assessments have determined further higher risk wild bird species that are also targeted.

Seasonal targeting is based on migratory patterns and abundance of these higher risk migratory species.

Surveillance in Great Britain (GB) is targeted to geographical areas (high priority surveillance areas, defined by County) where there is a greater risk of exposure of poultry to the higher risk species of wild birds (as defined by EFSA and UK ornithologists and experts).

The AIWBS programme involves screening samples taken from the following:

- Live-trapped birds: caught and sampled at specific wetland sites throughout the UK.
- Wild birds found dead during regular warden patrols of targeted selected wetland areas.
- Unusually high mortality events in wild birds (so-called 'mass mortality incidents') reported by warden patrols or by members of the public in high priority surveillance areas in GB or any area of Northern Ireland (NI).

In addition, provisions are made for specific targeted or enhanced AIWBS activities in response to outbreaks of notifiable avian influenza in poultry, in particular H5N1 HPAI, or incidents of H5N1 HPAI in wild birds in GB. Such measures would be implemented based on current scientific, epidemiological and ornithological expert opinion and advice.

N.B. The strategy for UK AIWBS is informed by the prevailing national and international disease situation and current scientific opinion. It is possible that any significant changes to either of these will lead to changes in survey design.

3.1 Objective, general requirements and criteria

- To protect domestic poultry from H5N1 HPAI infection derived from wild birds by detecting a change in risk to domestic poultry due to H5N1 HPAI incidents in wild birds.

3.2 Design and implementation

Routine wild bird surveillance activity is adapted to two main periods based on the migratory activity of water birds:

- The autumn migration and over wintering period for water birds migrating from northerly latitudes (approximately September to April). This period is considered to be higher risk for the introduction of avian influenza viruses to the UK by wild birds.
- The summer period when the majority of migratory water birds have left the UK for their breeding grounds. Only relatively small numbers of migratory water birds will be migrating to the UK during this period.

There are likely to be small variations in the dates of these periods and overall number of resident migrating water birds. The UK government relies on expert advice from ornithologists to inform the seasonality of surveillance activities.

Sampling of live caught birds:

1. Wild waterfowl are trapped and sampled at specific wetland sites throughout the UK. Oropharyngeal (buccal) and cloacal swabs are collected from each bird.
2. Water birds will be trapped and sampled at sites within Wild Bird Monitoring and/or Control Areas or other disease control zones during incidents/outbreaks of H5N1 HPAI in wild birds or domestic poultry in the UK. Oropharyngeal (buccal) and cloacal swabs are collected from each bird.

Birds found dead:

1. Active patrolling of wetland reserves:
Sites have been chosen throughout the UK based on the abundance of higher risk species of water birds, proximity to poultry areas and the presence of a site warden. Sites are patrolled on a regular basis by wardens to detect dead wild birds belonging to the higher risk species. Based on a risk assessment the frequency of these patrols and number of sites may be increased or decreased. The frequency and number of patrols may be increased in an area following a detection of notifiable avian influenza, particularly H5N1 HPAI in wild birds or domestic poultry.
2. Public reporting:

A reporting system allows members of the public to report unusually high mortality events in wild birds (so-called 'mass mortality incidents') to government veterinary services. Tissues from a sample of dead gulls, swans, geese and ducks found in good condition within priority surveillance areas in GB or any where in NI are submitted for laboratory screening for AI viruses.

Following a report being made from a priority area of GB by a member of the public or staff at a wetland site carcass collection is arranged by government veterinary services. The carcass is georeferenced and couriered to a VLA regional laboratory where specialisation is carried out and tissue samples extracted for screening; these are sent to the National Reference Laboratory in GB. In NI samples are submitted to AFBI Stoney Road, Belfast with any positive findings sent to VLA NRL for further testing. For reports that are made by a member of the public or staff at a wetland site that is outside a priority area, the 'mass mortality incident' will be assessed by veterinary staff at the VLA Regional Laboratories (or SAC Disease Surveillance Centres in Scotland). Investigations are then progressed on a case-by-case basis against standardised selection criteria.

Mortality levels and detection rates are likely to vary in wild birds. To allow for resource planning a weekly ceiling is set for the number of birds submitted in GB. The system allows for targeting surveillance effort to specific regions based on a risk assessment; regionally ceilings may be set within the GB ceiling or in certain regions the ceiling may be abolished i.e. following a case of a detection of H5N1 HPAI where enhanced surveillance is required. In NI the number of submissions is monitored to ensure resource capability is not exceeded.

Table 3.2.1 WILD BIRDS - investigation according to the surveillance programme for avian influenza in wild birds set out in Annex II to Decision 2007/268/EC

NUTS (2) code/region ^(a)	Wild birds to be sampled ^(b)	Total number of birds to be sampled	Estimated total number of samples to be taken for active surveillance	Estimated total number of samples to be taken for passive surveillance
	8,000	8,000	1,500	13,000
Total	8,000	8,000	1,500	13,000

- (a) Refers to the place of collection of birds/samples. In case NUTS 2 code cannot be used, region as defined in the programme by the Member State is requested
- (b) General description of the wild birds are intended to be sampled in the framework of the active and passive surveillance.

3.3 Laboratory testing: description of the laboratory tests used

Laboratory tests conducted for the AI surveillance programme in domestic poultry will be conducted at the UK's National Reference Laboratory (NRL) for Avian Influenza, Veterinary Laboratories Agency (VLA), Weybridge. The diagnostic tests utilised comprise real time reverse transcription polymerase chain reaction (RRT-PCR) methods, and attempted virus isolation in embryonated fowls' eggs. If a virus is isolated serological, molecular and virus characterisation methods used will be consistent with procedures laid down in the EU diagnostic manual/Commission guidelines.

In summary, the laboratory test portfolio utilised at VLA Weybridge comprises:

- Real time RT-PCR for Avian Influenza - screening test for matrix gene of all influenza A virus: for the detection of the matrix gene of any influenza A virus in clinical specimens and amplified samples.
- Real time RT-PCR for Avian Influenza - detects Eurasian H5 AI virus: for the detection of the H5 subtype of avian influenza (AI) virus in clinical specimens and amplified samples.
- Real time RT-PCR for Avian Influenza - detects N1 component of AI virus: for the detection of the N1 subtype of avian influenza (AI) virus in clinical specimens and amplified samples.
- Virus isolation and detection in embryonated fowls' eggs.
- Determination and analysis of nucleotide sequence (and deduced amino acid sequence) of specific regions of the genome of AI viruses.

4. Description of the epidemiological situation of the disease in poultry during the last five years

In the last five years there have been five outbreaks of notifiable avian influenza in poultry, where virus has been isolated. Below is a list of the most recent outbreaks, in descending chronological order:

- Outbreak of H7N7 HPAI in Oxfordshire, England in June 2008 was confirmed on 4 June 2008 on a single premises of free-range laying hens. Clinical evidence from the farm's records supports virological data that the HPAI infection derived from a pre-existing LPAI H7 virus present on the premises.
- Outbreak of H5N1 HPAI on a large scale free range turkey/duck/geese holding in Redgrave, Suffolk, England (confirmed on 13 November 2007). On IP1, infection was confirmed in turkeys and ducks but not in geese. Epidemiological links were established and as a result of this another infected turkey premises was identified. The maximum prevalence of infection in this group was 10%. Genetic analyses of the virus isolates from the poultry on the two IPs indicated that the birds were infected from a single source. The isolate had the closest genetic identity to an isolate from wild birds in the Czech Republic detected in mid-2007.
- An outbreak of H7N2 LPAI in backyard poultry in Corwen, Wales (confirmed on 24 May 2007). The outbreak also had a second linked infected premises in England (St Helens, Merseyside). The second IP was found as a result of market tracing carried out by the veterinary authorities.
- An outbreak of H5N1 HPAI Asian lineage in an intensive turkey premises in Holton, Suffolk (confirmed February 3 2007). The farm consisted of 22 enclosed, fan-ventilated houses, which held a total of 159,000 birds. The farm was adjacent to a complex of plants including a slaughterhouse, cutting plant, meat products plant and a cold store. The isolated virus was sequenced and shown to be notably similar (almost 100% homologous) to that recovered from outbreaks of H5N1 HPAI in Hungary in domestic geese in January 2007.

- An outbreak of H7N3 LPAI in chickens in Dereham, Norfolk (confirmed 28 April 2006). The outbreak affected three poultry premises. The first flock to be affected in this outbreak was an outdoor chicken layer flock; it is believed that a likely source of virus introduction was wild birds. Spread to the other two flocks is believed to have occurred through fomite transmission and wildlife vectors.

There have been detections of antibodies to avian influenza viruses of subtypes H5 and H7 during the course of the poultry survey. In 2008, eight premises (three duck flocks and five geese flocks) were identified as showing a serological response against H5 or H7 antibodies by HI test. In 2007, antibodies to avian influenza viruses of subtypes H5 and H7 were detected in flocks of free-range ducks and geese. Three premises with ducks, six premises containing geese and a single quail premises had low levels of serological response. All cases were followed up, re-sampled and underwent further testing. None of the further tests showed positive results indicating the absence of active infection on these premises. In 2006 antibodies to H5 were detected in a flock of free-range geese and antibodies to avian influenza viruses of subtypes H5 and H7 were detected in a flock of free-range ducks. In each case further investigation revealed that active infection with avian influenza viruses was not present. The most likely explanation is that these birds had prior exposure to LPAI viruses of subtypes H5 and H7.

4.1 Measures included in the programme for surveillance in poultry

4.1.1 Designation of the central authority in charge of supervising and coordinating the departments responsible for implementing the programme

Defra coordinates the departments and agencies responsible for implementing the programme and is responsible for making policy decisions.

The National Reference Laboratory for Avian Influenza & Newcastle Disease at VLA Weybridge is responsible for all aspects of laboratory testing, reporting of laboratory results to Defra and provision of technical advice.

The Centre for Epidemiology and Risk Analysis (CERA) at VLA Weybridge is responsible for epidemiological analysis of poultry data for survey design and for analysis of results.

In NI, DARD Veterinary Service is responsible for collecting samples for submission to AFBI Stoney Road, with any positive findings sent to VLA Weybridge for further testing. All results are sent to VLA Weybridge for collation into the UK return.

In GB, the Animal Health agency (formerly known as the State Veterinary Service) is responsible for collecting of samples within the designated timeframe and submitting these for laboratory testing at VLA Weybridge.

4.1.2 System in place for the registration of holdings

In Great Britain registration is compulsory for owners keeping 50 or more poultry on a premises; this includes premises that are stocked with more than 50 birds for only part of the year. Owners of smaller flocks may register on a voluntary basis. In Northern Ireland (NI) all poultry owners must register with the NI bird register.

4.1.3 Data on vaccination carried out

At the time of writing voluntary vaccination of zoos is permitted in England, but not in Wales or Scotland.

5. Description of the epidemiological situation of the disease in wild birds during the last five years

A programme of AIWBS has been active since October 2005. Since then there have been two unrelated incidents where H5N1 HPAI (Asian lineage) has been detected in wild birds in the UK. In April 2006, virus was detected and isolated from a Whooper swan (*Cygnus cygnus*) found dead in Cellardyke harbour, Fife, Scotland. Further investigations during the course of this incident revealed that there had been no evidence of further spread of the virus to the local wild bird or poultry populations. In January/February 2008, HPAI H5N1 Asian lineage was detected in three Mute swans (*Cygnus olor*) in Abbotsbury, Dorset. During the course of this incident virus was detected from a total of ten Mute swans and one Canada goose (*Branta canadensis*) within the 3km Wild Bird Control Area. No evidence of spread to the local poultry population was detected.

As expected evidence of influenza A virus infection and isolation of numerous LPAI viruses of varying subtypes have been identified from a variety of wild birds, predominately waterfowl (*Anatidae* spp), as part of the AI wild bird surveillance programme.

5.1. Measures included in the programme for surveillance in wild birds

5.1.1 Designation of the central authority in charge of supervising and coordinating the departments responsible for implementing the programme

Defra coordinates the departments responsible for implementing the programme and is responsible for making policy decisions.

The National Reference Laboratory for Avian Influenza & Newcastle Disease at VLA Weybridge is responsible for all aspects of laboratory testing, reporting of laboratory results to Defra and provision of technical advice.

The Centre for Epidemiology and Risk Analysis (CERA) at VLA Weybridge is responsible for epidemiological analysis of wild bird survey and sampling data.

Technical ornithological advice is provided by a panel of ornithological experts from government agencies and from non-governmental organisations.

In NI, all samples are sent to AFBI Stoney Road, with any positive findings sent to VLA Weybridge for further testing. All results are sent to VLA Weybridge for collation into the UK return.

5.1.2 Description and delimitation of the geographical and administrative areas in which the programme is to be applied

This is based on a risk assessment and may vary annually based on current expert scientific advice.

5.1.3 Estimation of the local and/or migratory wildlife population

Expert ornithological advice has been sought on details of the migrating wild bird population. Wetland Bird Survey (WEBs) data has been used as a baseline for any statistical analyses.

6. Measures in place as regards the notification of the disease

It is a legal obligation for anyone suspecting the presence of an avian notifiable disease in poultry or other captive birds to contact Government Veterinary Authorities. Anyone suspecting a notifiable disease must report this to a local Animal Health Office.

7. Costs

7.1. Detailed analysis of the costs: VLA costs⁶ for the implementation of survey programmes for avian influenza in poultry during 2010 - Poultry⁷

Methods of laboratory analysis	Number of holdings to be tested	Number of samples to be taken per holding	Total number of samples (incl. 5% re-testing)	Total cost of one test	Total cost of all tests	Comments ³
Haemagglutination-inhibition-test (HI) for H5/H7	440	20-50 depending upon category of bird	12,112	£5.00	£121,120	
Virus isolation test			10	£58.00	£580	VLA's test code TC0815
PCR tests			500	£16.28	£8,140	VLA's test code TC0695
Av 'Flu H7 (HA2) PCR			500	£16.28	£8,140	VLA's test code TC0716
1.1. Total Laboratory testing costs					£137,980	
1.2. Other - staff time					£63,710	VLA epidemiological expertise, data management, admin and expert advice.
1.3. Other – exceptional costs					£5,000	Postage, Kits, travel, etc
1.4. Sampling costs					£438,338	
1.4.1. Total					£645,028	

⁶ Data to be given in national currency. VAT excluded. From this amount testing costs will be reimbursed according provisions of Article 3 of Commission Decision 2005/464/EC
⁷ A separate table shall be used for each type of poultry category (in accordance with the requirements of the Annex I to Commission Decision 2005/464/EC). For wild birds shall be used separate table. The number of samples and the total costs per method of laboratory analyses shall be provided.

7.1.2 Wild birds - VLA costs ⁸ for the implementation of survey programmes for avian influenza in wild birds during 2010 - Wild birds

Methods of laboratory analysis	Total number of samples	Total cost of one test	Total cost of all tests	I.4.2. Comments
Virus isolation test	60	£58.00	£3,480	TC0815
Av 'flu H7 (HA2) PCR	50	£16.28	£814	TC0716
Av 'flu H7 (CS) PCR	50	£16.28	£814	TC0717
PCR tests	10,000	£16.28	£162,800	TC0691
Av' flu H5 virus PCR	250	£16.28	£4,070	TC0695
Av' flu sequence	40	£194.25	£7,770	TC1312
IVPI	10	£181.65	£1,816.50	TC1273
Post mortem sampling	1,100	£82.00	£90,200	TC0001/0575/0600/0649
Total laboratory testing costs			£271,764.50	
Others (VLA staff costs)			£180,752.10	
Sampling costs				
Total costs			£452,516.60	

⁸ Data to be given in national currency, VAT excluded.

7.2 Summary of the costs

7.2.1 Poultry surveillance

Measures eligible for co-financing surveillance in poultry			
Methods of laboratory analysis	Number of tests to perform per method	Unitary test cost (per method)	Total cost
Serological pre-screening ⁹	-	-	-
Haemagglutination-inhibition-test (HI) for H5/H7 ¹⁰	12,112 (incl. 5% re-testing)	£5.00	£121,120
Virus isolation test	10	£58.00	£580
PCR test	1,000	£16.28	£16,280
Other measures to be covered	Specify activities		
Sampling	Veterinary sampling costs		£438,338
Others	VLA staff time, admin, technical advice, data management, postage		£68,710
Total			£645,028

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Specify the laboratory test to be used.
Specify number of tests for H5 and for H7.

7.2.2 Wild bird surveillance

Measures eligible for co-financing surveillance wild birds			
Methods of laboratory analysis	Number tests to perform per method	Unitary test cost (per method)	Total cost
Virus isolation test	60	£58.00	£3,480
Av 'flu H7 (HA2) PCR	50	£16.28	£814
Av 'flu H7 (CS) PCR	50	£16.28	£814
PCR tests	10,000	£16.28	£162,800
Av' flu H5 virus PCR	250	£16.28	£4,070
Av' flu sequence	40	£194.25	£7,770
IVPI	10	£181.65	£1,816.50
Post mortem sampling	1,100	£82.00	£90,200
Other measures to be covered	Specify activities		
Sampling			
Others	VLA staff costs		£180,752.10
Total			£452,516.60