Avian influenza surveillance in the European Union in 2009

Andrew Breed, David Rae, Nicole Batey, Kate Harris, Alex Cook and Ian Brown
EU Reference Laboratory, VLA Weybridge, UK
Poultry surveillance 2009
Surveillance for AI in poultry in EU

- Objectives in 2009
  - To detect sub-clinical infections with low-pathogenicity Avian Influenza (LPAI) of subtypes H5 and H7
  - Complement early detection systems
  - Contribute to demonstration of disease free status of country/region/compartment from notifiable AI
2009 results

- In 2009 a total of 35,016 holdings sampled (2008 - 34,985)
  - the most frequently sampled poultry types were backyard flocks (26.7%) and laying hens (24.1%)

- Antibodies to H5 or H7 avian influenza were detected in 90 holdings (0.26%) of the total holdings sampled
  - H5 52 positive (52 in 2008, 97 in 2007)
    - 5 of 52 were found to be virus positive on follow-up testing
  - H7 38 positive (21 in 2008, 36 in 2007)
    - 16 of 38 were found to be virus positive on follow-up testing

- The detection rate was highest in breeder ducks (9.1%) and breeder geese (8.3%)
### Total holdings positive by serology

<table>
<thead>
<tr>
<th>Country</th>
<th>H5</th>
<th>H7</th>
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<td>EU Total</td>
<td>52</td>
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</table>
Positive poultry samples 2009

Intensity of Surveillance H7 Positives H6 Positives
Low Med High Very High
No Submissions
Non-EU Countries

1 1
2 2
3-4 3-4
5-18 5-11

Map showing distribution of positive poultry samples across Europe with different intensities of surveillance.
Positive poultry samples 2008

Intensity of surveillance
- Low
- Medium
- High
- Intense

H7 Positives
- 1
- 2
- 3 - 4
- 5 - 7

H5 Positives
- 1
- 2
- 3
- 4 - 5
- 6 - 7

Kilometres

National Boundaries

Working for public and animal health
Total positive holdings for LPNAI

<table>
<thead>
<tr>
<th>Country</th>
<th>Chicken Breeders</th>
<th>Laying Hens</th>
<th>Free range laying hens</th>
<th>Fattening Turkeys</th>
<th>Backyard flocks</th>
<th>Fattening Ducks</th>
<th>Breeder Ducks</th>
<th>Breeder Geese</th>
<th>Game birds</th>
<th>Others</th>
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</tbody>
</table>
2009 results

- Antibodies to H5 or H7 avian influenza were detected in 90 holdings (0.26%) of the total holdings sampled
  - Similar overall detection rate to 2008 (0.21%)

- The detection rate was highest in breeder ducks (9.1%) and breeder geese (8.3%)

- H5 was mostly detected in ducks and geese and game birds – consistent with 2008 and 2007

- H7 was less aggregated by poultry type, but was detected most frequently in backyard flocks and “others”
Future perspectives – revised guidelines 2010/367/EU

- Objectives –
  - inform on circulating H5 and H7 with view to control
  - annual detection

- Change to number of waterfowl to be sampled per holding, reduced from 40-50 to 20
  - Bayesian analysis of HI and ELISA data – future work in collaboration with NRLs on potential use of ELISA in poultry survey
Future perspectives – revised guidelines 2010/367/EU

- Opportunity to move further towards “risk-based surveillance”
  - Criteria: factors for direct or indirect exposure to wild birds (e.g. proximity to areas where migratory water birds aggregate, free range, low biosecurity)
  - Criteria: factors for risk of virus spread within and between poultry holdings and the impact of spread (e.g. holdings with multiple poultry species, long lived poultry types, high density areas)

- Risk pathways and relative importance will vary among Member States
Wild bird surveillance 2009
Surveillance for AI in wild birds in EU

- Purpose (Decision 2007/268/EC)
  - To detect incursion of HPAI H5N1
  - Monitor LPAI H5 & H7 strains
  - Inform risk assessments
  - Protect EU poultry
Total number of Wild birds sampled in 2009 by MS
Jan-Mar 25%
Apr-Jun 19%
Oct-Dec 35%
Jul-Sep 21%
Active surveillance, 84.5%

Passive surveillance, 15.5%
54,086 (43,253) Birds sampled in 2009 (2008) belonging to 22(22) Orders and 356 (321) species

<table>
<thead>
<tr>
<th>ORDER</th>
<th>2009</th>
<th>2008</th>
<th>2007</th>
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<tbody>
<tr>
<td>Anseriformes</td>
<td>34,171</td>
<td>34,732</td>
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<td>Charadriiformes</td>
<td>8,465</td>
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<td>Falconiformes</td>
<td>1,565</td>
<td>1,362</td>
<td>2,111</td>
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</table>
Active surveillance in EU 2009

2009 Intensity of Submissions from Active Surveillance

- None
- Low
- Medium
- High
- Very high

Non-EU Countries

Kilometres
Passive surveillance in EU 2009
HPAI and H5 & H7 LPAI 2009
HPAI and H5 & H7 LPAI 2008
Total number of birds sampled during 2009 showing the incident of H5N1 HPAI
LPAI H5 and H7

- **Number of positive birds**
  - **Y-axis:** Number of positive birds
  - **X-axis:** Months from January to December
  - **Data Points:**
    - 2007
    - 2008
    - 2009

- **Number of birds sampled**
  - **Y-axis:** Number of birds sampled
  - **X-axis:** Months from January to December
  - **Data Points:**
    - 2007
    - 2008
    - 2009
Future perspectives – revised guidelines 2010/367/EU

- Passive surveillance more effective for HPAI
- Active surveillance more effective for LPAI

- Move towards
  - timely detection of HPAI H5N1 only
  - Passive surveillance and risk-based
  - “Higher Risk Species” HRS – increased to “Target Species” TS
Acknowledgements:

Support and contribution from all participating NRLs and competent veterinary authorities in Member States
Thank you for your attention