Highly Pathogenic Avian Influenza in Italy

STANDING COMMITTEE ON PLANTS, ANIMALS, FOOD AND FEED
SECTION ANIMAL HEALTH AND WELFARE
2-3 MARCH 2017
HPAI H5 outbreaks in Italy

Between December 2016 and February 2017

- Outbreaks in wild birds:
  - 4 in Friuli Venezia Giulia
  - 1 in Veneto

- Outbreak in domestic poultry:
  - 6 in Veneto
  - 2 in Lombardy
  - 1 in Emilia Romagna
<table>
<thead>
<tr>
<th>Conf. Date</th>
<th>Region</th>
<th>Province</th>
<th>Species</th>
<th>N of animals</th>
<th>Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>29/12/2016</td>
<td>Friuli Venezia Giulia</td>
<td>Gorizia (Grado lagoon)</td>
<td>Eurasian Wigeon (<em>Anas penelope</em>)</td>
<td>1</td>
<td>H5N5</td>
</tr>
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<td>05/01/2017</td>
<td>Friuli Venezia Giulia</td>
<td>Gorizia (Grado lagoon)</td>
<td>Eurasian Wigeon (<em>Anas penelope</em>)</td>
<td>1</td>
<td>H5N8</td>
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<tr>
<td>10/01/2017</td>
<td>Friuli Venezia Giulia</td>
<td>Gorizia</td>
<td>Gadwal (<em>Anas strepera</em>)</td>
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<td>H5N5</td>
</tr>
<tr>
<td>21/01/2017</td>
<td>Friuli Venezia Giulia</td>
<td>Udine</td>
<td>Swan (<em>Cygnus cygnus</em>)</td>
<td>1</td>
<td>H5N8</td>
</tr>
<tr>
<td>24/02/2017</td>
<td>Veneto</td>
<td>Rovigo</td>
<td>Common shelduck (<em>Tadorna tadorna</em>)</td>
<td>1</td>
<td>H5N8</td>
</tr>
</tbody>
</table>
Map showing the location of HPAI outbreaks in wild birds
## H5N8 HPAI outbreaks in domestic birds

<table>
<thead>
<tr>
<th>Conf. Date</th>
<th>Region</th>
<th>Depopulation date</th>
<th>Province</th>
<th>Species</th>
<th>No animals</th>
<th>Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>21/01/2017</td>
<td>Veneto</td>
<td>26/01/2017</td>
<td>Venice</td>
<td>Fattening turkey</td>
<td>20,500</td>
<td>H5N8</td>
</tr>
<tr>
<td>23/01/2017</td>
<td>Veneto</td>
<td>29/01/2017</td>
<td>Padua</td>
<td>Fattening turkey</td>
<td>22,300</td>
<td>H5N8</td>
</tr>
<tr>
<td>25/01/2017</td>
<td>Veneto</td>
<td>04/02/2017</td>
<td>Rovigo</td>
<td>Laying hen</td>
<td>36,737</td>
<td>H5N8</td>
</tr>
<tr>
<td>02/02/2017</td>
<td>Emilia Romagna</td>
<td>08/02/2017</td>
<td>Parma</td>
<td>Fattening turkey</td>
<td>22,800</td>
<td>H5N8</td>
</tr>
<tr>
<td>15/02/2017</td>
<td>Lombardy</td>
<td>18/02/2017</td>
<td>Mantova</td>
<td>Fattening turkey</td>
<td>14,327</td>
<td>H5N8</td>
</tr>
<tr>
<td>17/02/2017</td>
<td>Veneto</td>
<td>21/02/2017</td>
<td>Verona</td>
<td>Fattening turkey</td>
<td>41,373</td>
<td>H5N8</td>
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<td>22/02/2017</td>
<td>Lombardy</td>
<td>25/02/2017</td>
<td>Mantova</td>
<td>Fattening turkey</td>
<td>21,820</td>
<td>H5N8</td>
</tr>
<tr>
<td>28/02/2017</td>
<td>Veneto</td>
<td>28/02/2017</td>
<td>Venice</td>
<td>Backyard</td>
<td>11</td>
<td>H5N8</td>
</tr>
<tr>
<td>28/02/2017</td>
<td>Veneto</td>
<td>28/02/2017</td>
<td>Venice</td>
<td>Backyard</td>
<td>18</td>
<td>H5N8</td>
</tr>
</tbody>
</table>

**Total depopulated birds 179,886**
Location of HPAI outbreaks
Protection and Surveillance Zones

According to the Council Directive 94/2005 EC, the following zones were defined:

- **Protection Zone**: Municipalities within 3 km from the outbreaks
- **Surveillance Zone**: Municipalities within 10 km from the outbreaks

Enhanced surveillance measures were conducted, by collecting dead animals and head and necks, to reduce the number of entries in the affected farms.
Preventive depopulation

Preventive depopulation was conducted on farms located within the Protection Zones of three outbreaks, accounting for location, species reared, and risk of disease spread.

- 7 farms depopulated;
- More than 330,000 birds culled

<table>
<thead>
<tr>
<th>Related outbreak</th>
<th>Farm depopulated</th>
<th>No. culled birds</th>
<th>Deopoulation granted on</th>
<th>End of depopulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rovigo</td>
<td>Laying hens</td>
<td>36,737</td>
<td>27/01/2017</td>
<td>03/02/2017</td>
</tr>
<tr>
<td>Verona</td>
<td>Turkeys</td>
<td>8,000</td>
<td>22/02/2017</td>
<td>22/02/2017</td>
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<tr>
<td>Mantua</td>
<td>Turkeys</td>
<td>9,280</td>
<td>24/02/2017</td>
<td>03/03/2017</td>
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<tr>
<td></td>
<td>Broiler</td>
<td>90,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turkeys</td>
<td>12,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Broiler</td>
<td>93,000</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Broiler</td>
<td>82,500</td>
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</tbody>
</table>
Preventive depopulation (Mantua province)
Control measures in the Densely Populated Poultry Area (DPPA)

1. Housing of day old turkeys is prohibited

2. Pre-movement controls on fattening turkeys (to abbatoirs):
   - clinical inspection (24 h before first loading)
   - favourable outcome of tests performed 36 h before first loading and every 36 h until the end of loading procedures

3. Pre-movement controls on ready-to-lay pullets (to laying farm):
   - clinical examination (24 h before first loading)
   - favourable outcome of tests performed 24 h before first loading

4. Pre-movement controls on other poultry:
   - clinical inspection (48 h before first loading)
   - favourable outcome of tests performed 48 h before first loading
Biosecurity measures in the Densely Populated Poultry Area (DPPA)

1. Functional separation of production between poultry companies of Lombardy, Veneto, Piedmont, and Emilia Romagna
2. Enhanced biosecurity measures in particular during vaccination/treatments/loading procedures
Control measures at a National level

1. Moving of meat turkeys to slaughter only after clinical inspection (24 h before first loading) and favourable outcome of tests performed 72 h before first loading
Phylogenetic analysis

All the H5 HPAI viruses detected in Italy between December 2016 and January 2017 group in the clade 2.3.4.4.

This clade also includes H5N8 and H5N5 viruses identified in 2016-17 in Europe, Russia, Mongolia, India, and China.
Viruses detected in wild birds

The H5N8 viruses identified in an Eurasian wigeon and in a swan resulted closely related, and showed high genetic similarity with viruses detected in turkeys in UK and in a live-decoy bird in France.

The H5N5 viruses identified in an Eurasian wigeon and in a gadwal show high similarity for HA with a virus detected in Poland and for NA with a virus detected in Singapore.
Viruses detected in domestic poultry

The viruses detected in the first three poultry farms in Veneto region, in the case in Parma and in the first case in Mantua showed low similarity, suggesting 5 separated introductions from wild population.

The H5N8 identified in the 4° case (Verona province) shows 100% similarity of HA gene with virus detected in the second outbreak, although epidemiological investigation did not found any link between the two farms.

The H5N8 identified in the 6° case (Mantua province) shows high similarity of HA gene with virus detected in the 5° outbreak (Mantua province).
HA

2016-2017 European HPAI H5N8

2016-2017 Italian HPAI H5N8/H5N5

Group A

2nd Italian case in turkey (Pieve di Sacco)

5th Italian case in turkey (Verona)

1st Italian case in laying hen (Rowigo)

4th and 5th Italian cases in turkey (Mantova)

3rd Italian case in turkey (Parma)

Backyard chicken (San Dona di Piave, VE)

Group B

Clade 2.3.4.4

H5N8/H5N5

Eurasia 2016-17
Thanks for your attention