

# Highly Pathogenic Avian Influenza (H5N8) in Italy

**STANDING COMMITTEE ON PLANTS, ANIMALS,  
FOOD AND FEED**

***Section Animal Health & Welfare***

**13 -14 January 2015**

# H5N8 HPAI Outbreak in Italy

- Fattening turkey farm, located at Porto Viro, Veneto Region
- 35,000 male meat-turkeys
- **10 December 2014** – unspecific gastro-intestinal symptoms observed in shed no. 3
- **12 Dec** –increased mortality in shed no. 3, samples were collected and sent to the laboratory

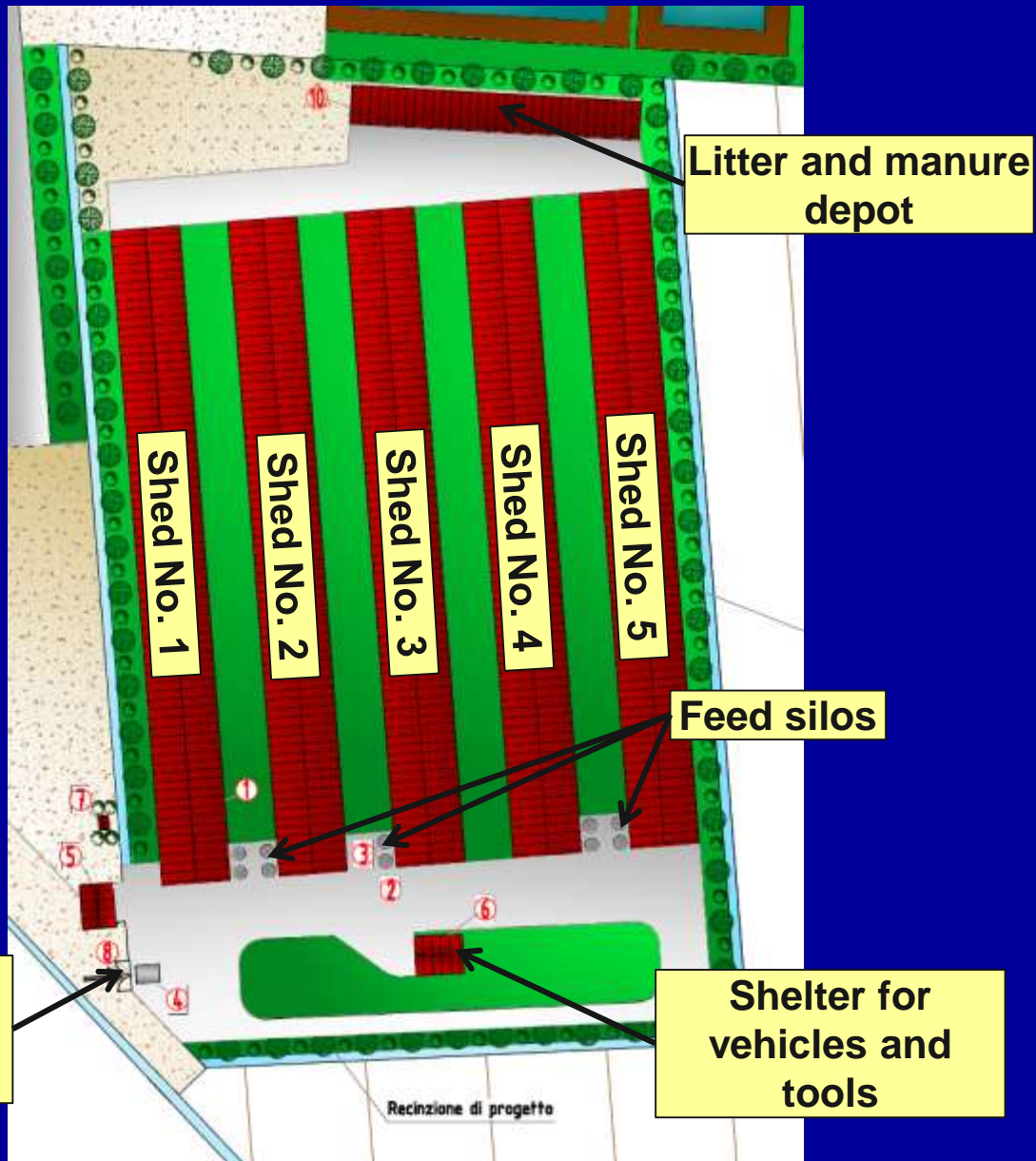
# H5N8 HPAI Outbreak in Italy

- **13 Dec** – increased mortality is observed also in other sheds
- **13-15 Dec** – An antibiotic therapy is administered to turkeys
- **15 Dec** – The National Reference Laboratory confirms the positivity for Avian Influenza H5N8. Restriction measures enforced
- **17 Dec** – Beginning of depopulation and carcasses disposal
- **21 Dec** – End of depopulation and carcasses disposal

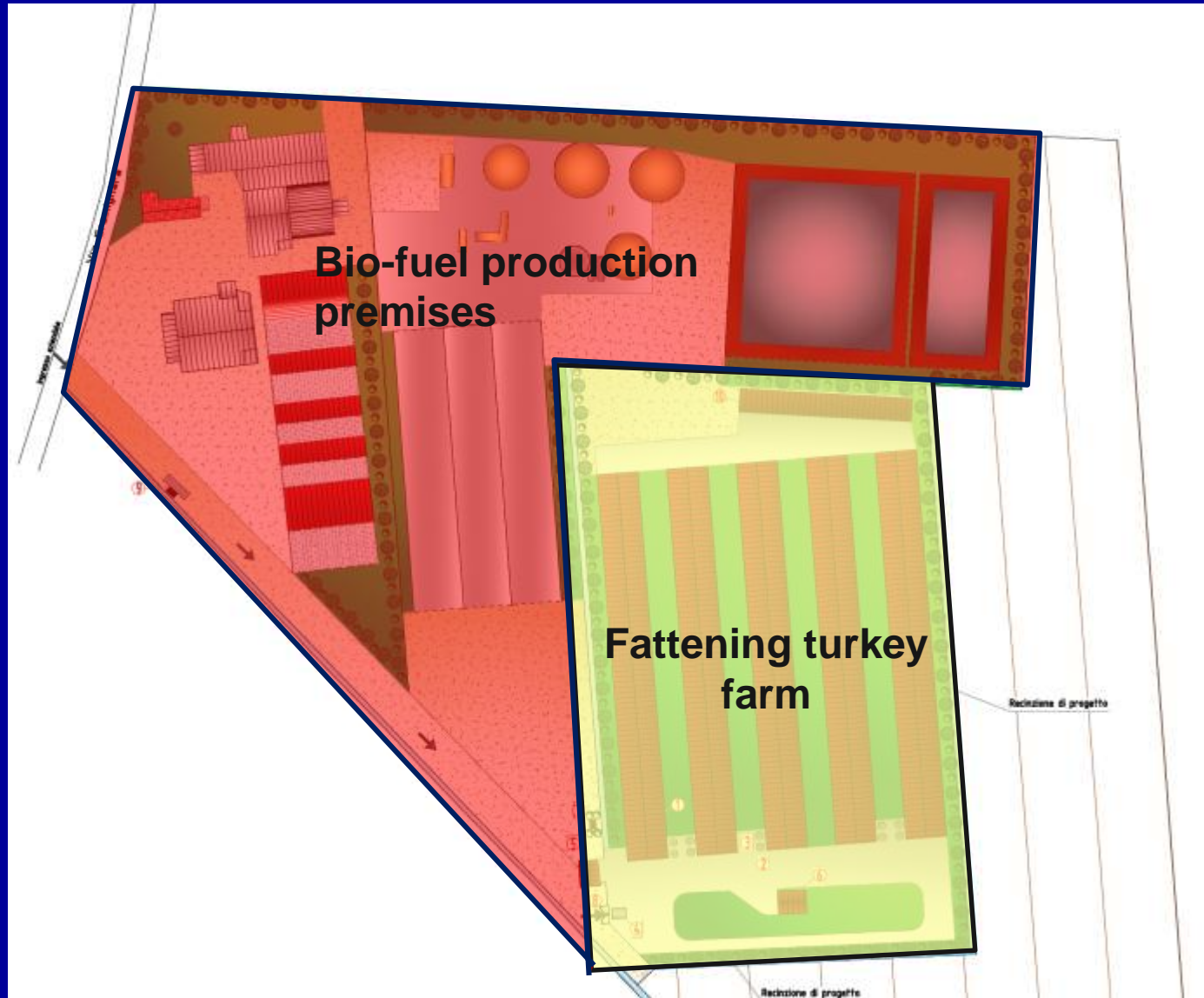
**Culling has been carried out directly in the sheds using CO<sub>2</sub>**



# H5N8 HPAI Outbreak



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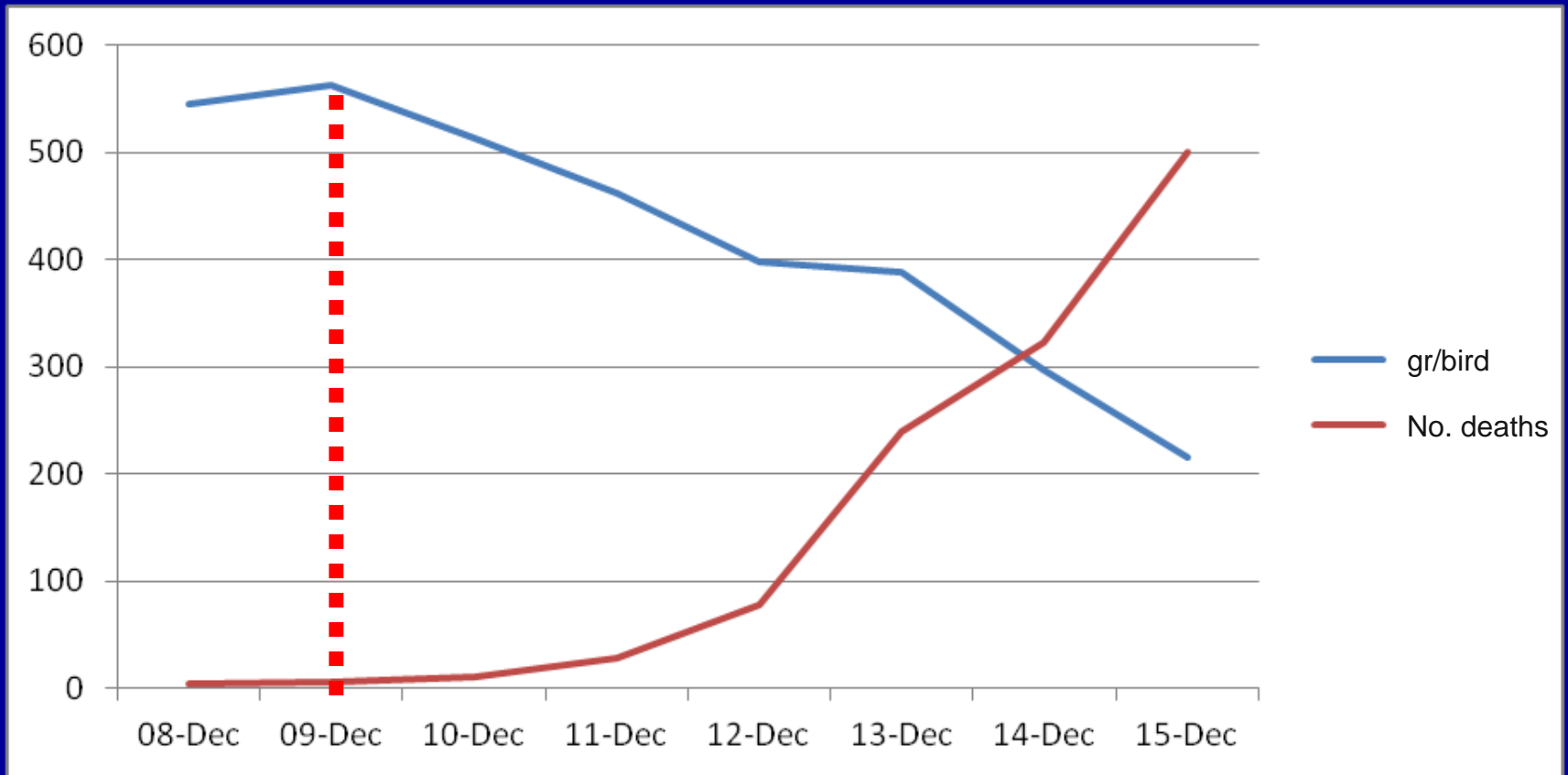
# H5N8 HPAI Outbreak in Italy

## Mortality rates in sheds

| Day       | Date       | Shed 1 | Shed 2 | Shed 3 | Shed 4 | Shed 5 |
|-----------|------------|--------|--------|--------|--------|--------|
| Sunday    | 2014-12-07 | 1      | 3      | 1      | 0      | 2      |
| Monday    | 2014-12-08 | 4      | 2      | 4      | 7      | 1      |
| Tuesday   | 2014-12-09 | 3      | 4      | 6      | 7      | 7      |
| Wednesday | 2014-12-10 | 2      | 4      | 10     | 2      | 5      |
| Thursday  | 2014-12-11 | 3      | 1      | 28     | 2      | 0      |
| Friday    | 2014-12-12 | 1      | 4      | 78     | 2      | 5      |
| Saturday  | 2014-12-13 | 2      | 2      | 240    | 4      | 8      |
| Sunday    | 2014-12-14 | 1      | 108    | 392    | 6      | 21     |
| Monday    | 2014-12-15 | 7      | 495    |        | 9      | 203    |

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## Feed consumption vs Mortality rates





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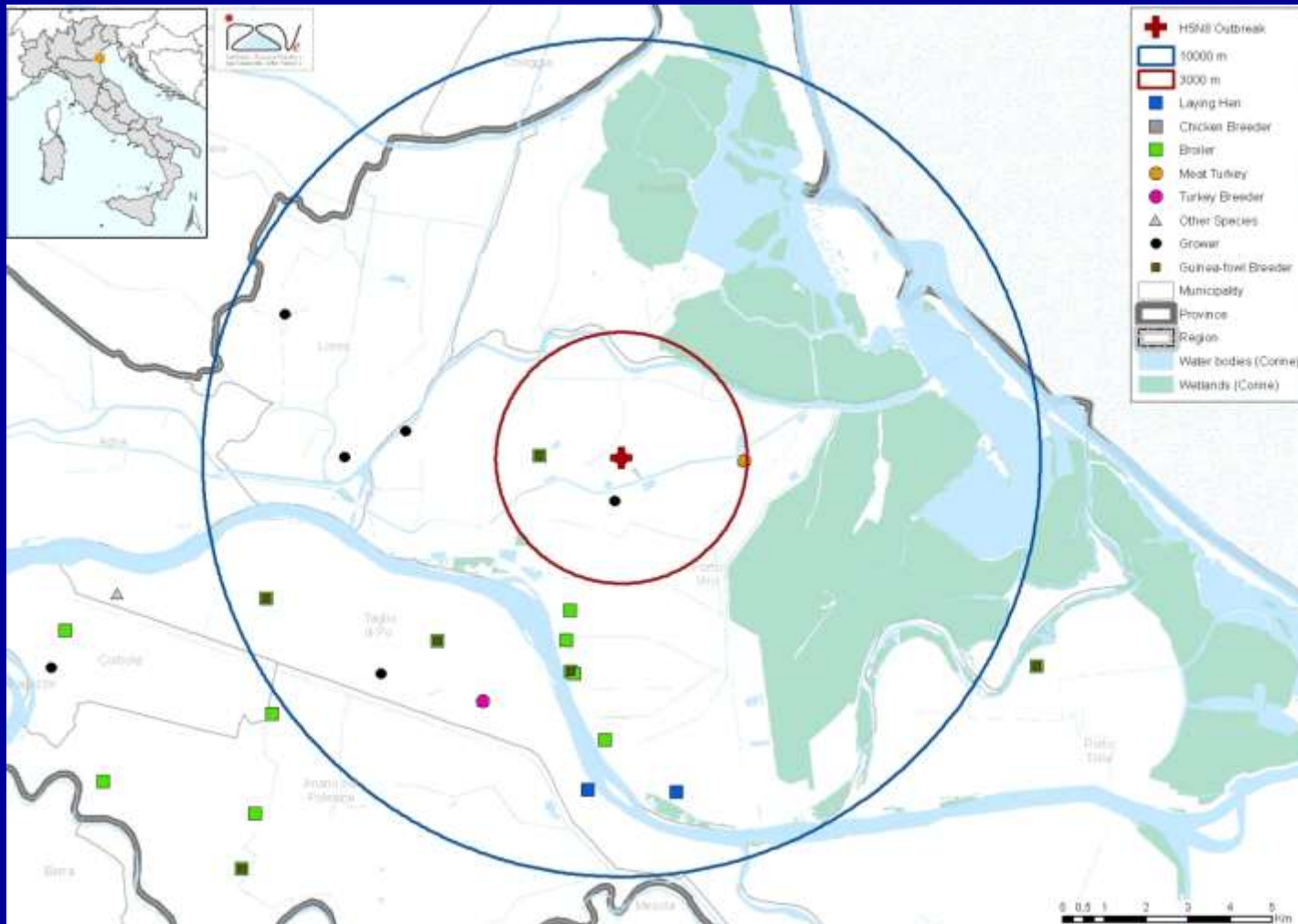
Result of epidemiological enquiry

## **Identification of risk factors for disease introduction**

Epidemiological data and phylogenetic analysis suggest that the virus was introduced in the farm via wild birds, possibly through contamination of clean litter kept outside and then used in the sheds (the first week of December)

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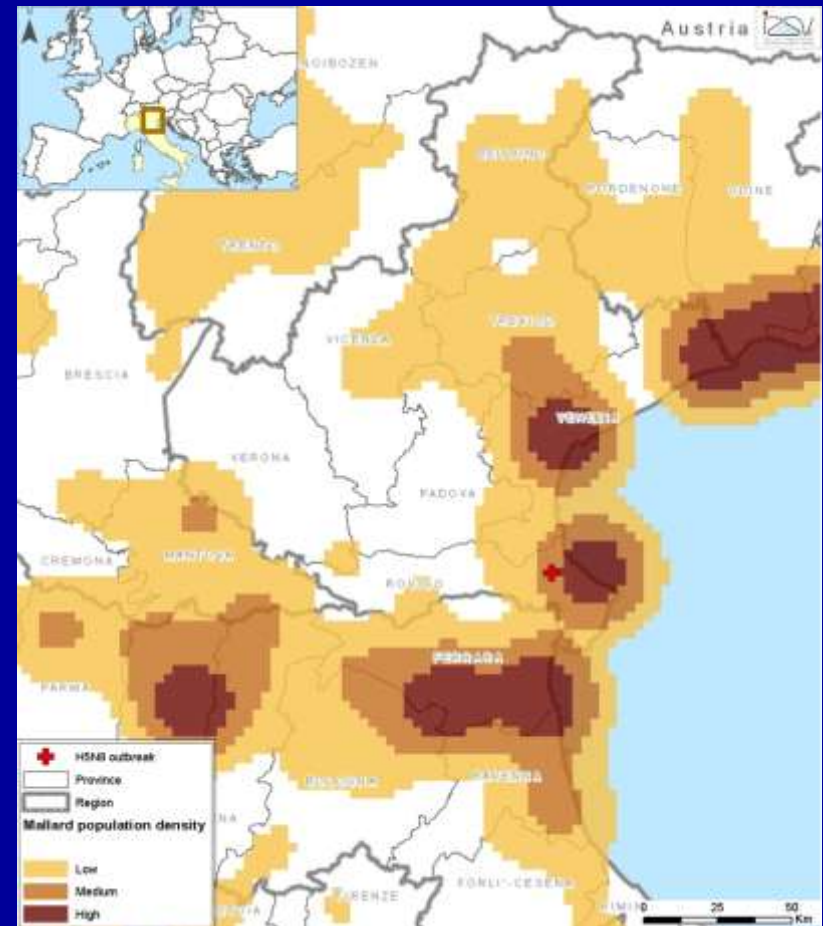
## Territory – Wetlands



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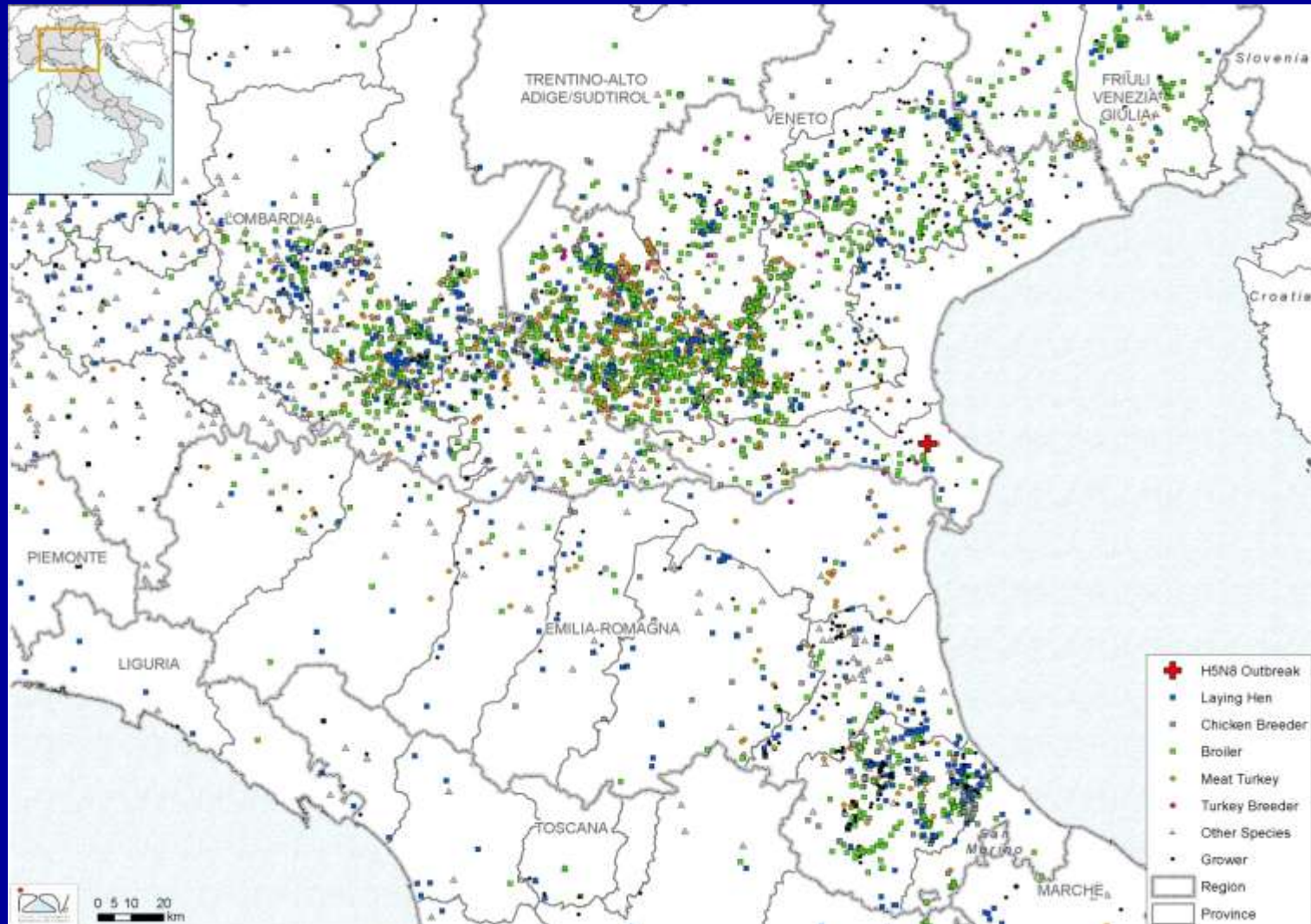
## Density of migratory birds

- The case farm is located in close proximity to wetlands and marshlands (Po river delta)
- This is one of the most populated wintering site for migratory birds and wild waterfowl



# H5N8 HPAI Outbreak in Italy

## Territory – Poultry farm population



# H5N8 HPAI Outbreak in Italy

## Control measures at National level

- **Movements**

- Fattening turkeys loaded for slaughter in Densely Populated Poultry Areas (DPPAs) in northern Italy were:

- Subjected to official inspection within 72 hours before loading
- Virologically tested (at least 10 tracheal swabs per shed), within 72 hours before loading and every 72 hours up to the conclusion of loading

# H5N8 HPAI Outbreak in Italy

## Control measures at National level

- **Control measures**

- Fattening turkey farms located in **DPPAs**:

- 10 tracheal swabs per shed (up to 60 total swabs) for virological tests
    - Clinical inspection and submission of 10 dead birds in case of increased mortality
    - 3 controls (every 10 days)
    - For farms belonging to the “affected Company” : three weekly controls

# H5N8 HPAI Outbreak in Italy

## Control measures at National level

- **Control measures – Other regions:**
  - Farms belonging to the “affected Company” : three weekly controls
    - 10 tracheal swabs per shed (up to 60 total swabs) for virological tests
    - Clinical inspection and submission of 10 dead birds in case of increased mortality
  - Remaining Fattening Turkey farms:
    - Controls provided for in the National Monitoring Plan (to be carried out within 10 days)

# H5N8 HPAI Outbreak in Italy

## Control measures at National level

- **Control measures – Whole Territory:**
  - Pullets and laying hens
    - Clinical inspection
    - Virological sampling (10 tracheal swabs per shed, up to 60 swabs)
    - Within 96 hours before loading
  - Enhanced biosecurity measures
  - Clear and defined functional separation among regions (DPPAs)



# H5N8 HPAI Outbreak in Italy

- **Control measures – Contact holdings:**
  - Census of farms
  - Measures to limit the contact with wild birds
  - Ban on movements of birds from and to the farms
  - Controls:
    - Serological and virological samples (30 tracheal swabs per shed)
    - 10 dead birds (in case of increased mortality)

# H5N8 HPAI Outbreak in Italy

## Control measures at National level

- **Control measures – Biosecurity measures**

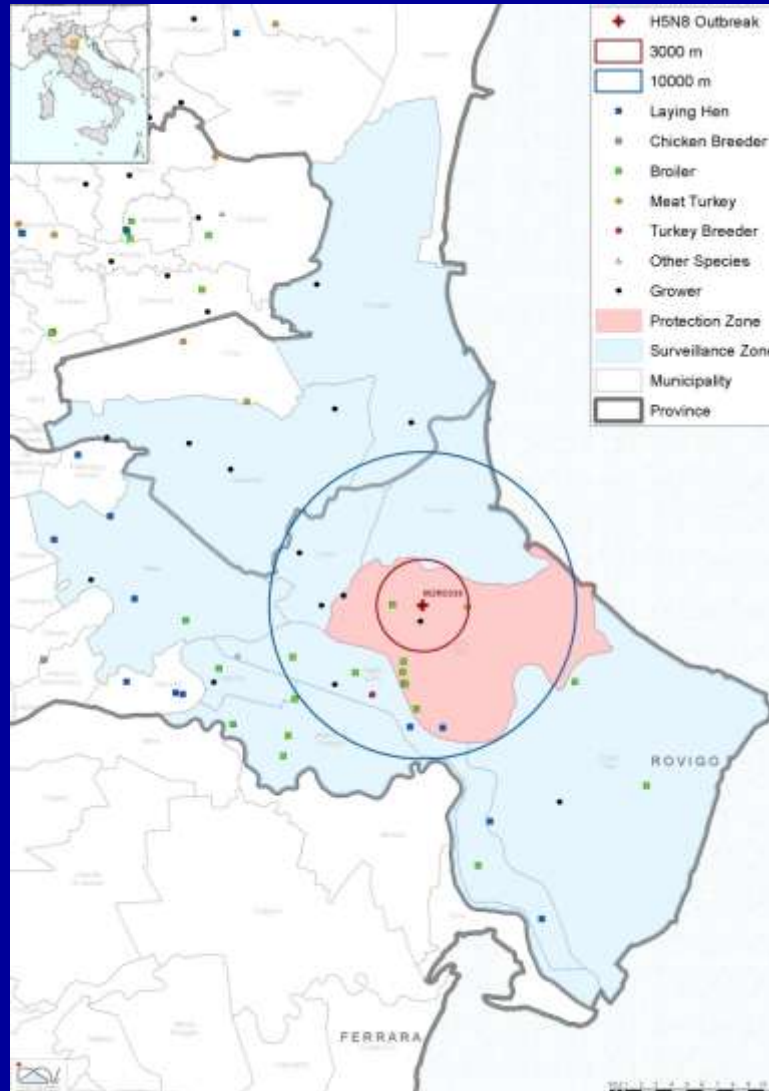
Free-range poultry transferred and kept within a close building to limit any possible contact with wild birds

Bird fairs, exhibitions and live bird markets banned in regions with a DPPA

Derogation to the ban on the use of decoy birds has been revoked in the whole territory of Italy

# H5N8 HPAI Outbreak in Italy

## Protection and Surveillance Zones



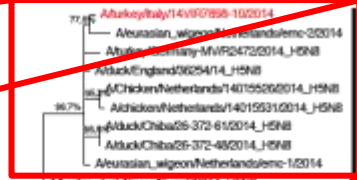
# Poultry farms with animals within Protection and Surveillance Zones

| Species            | Protection Zone |              | Surveillance Zone |              |
|--------------------|-----------------|--------------|-------------------|--------------|
|                    | No. Farms       | Tested farms | No. Farms         | Tested farms |
| Broilers           | 4               | 4            | 6                 | 6            |
| Guinea fowls       | -               | -            | 2                 | 2            |
| Laying hens        | 1               | 1            | 3                 | 3            |
| Quails             | -               | -            | 1                 | 1            |
| Turkey (fattening) | -               | -            | -                 | -            |
| Growers            | 1               | 1            | 2                 | 2            |
| TOTAL              | 6               | 6            | 14                | 14           |

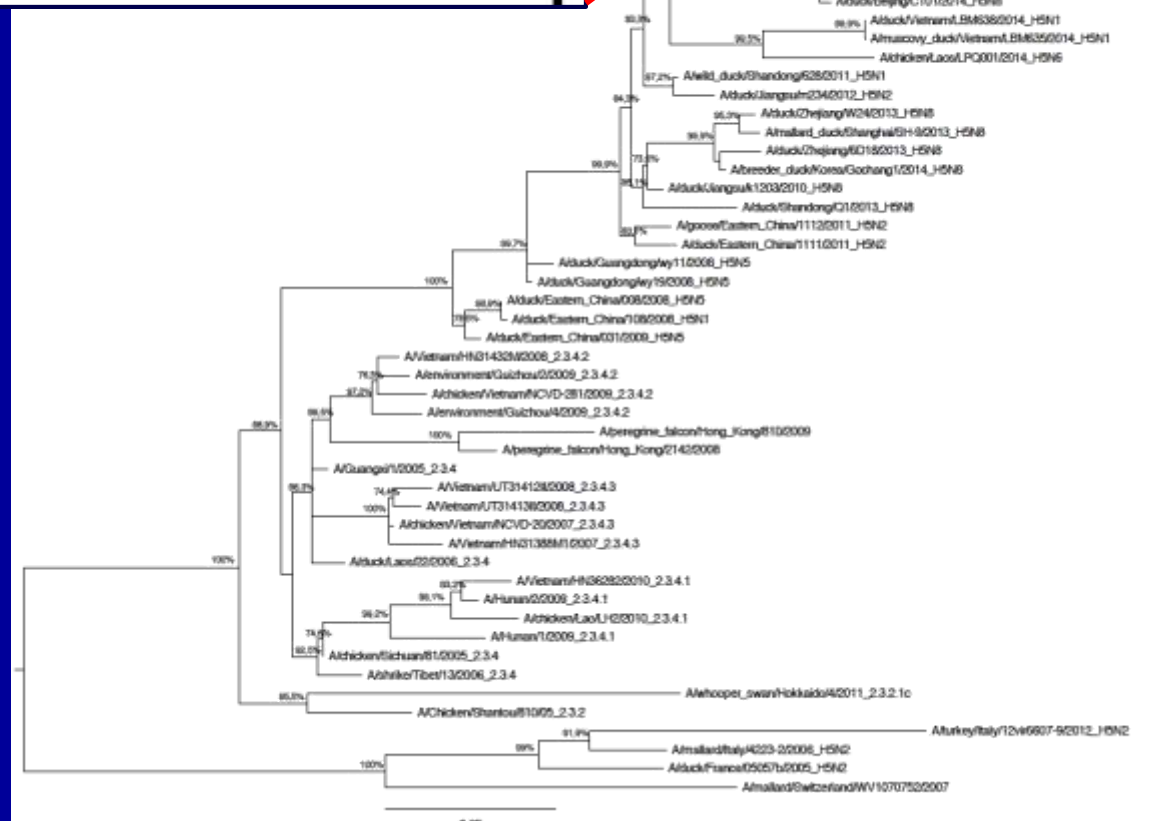
# Phylogenetic analyses

- The HA gene of the sample **A/turkey/Italy/14VIR7898-10/2014 (H5N8)** clusters with H5N8 viruses collected in The Netherlands, Germany and UK in November 2014
- High nucleotide similarity (99.8%) with the strain isolated in UK and in eurasian wigeons in the Netherlands
- No additional glycosylation sites or molecular markers of adaptation to mammalian hosts have been identified

# ML phylogenetic tree of the HA gene



clade  
2.3.4.6



0.02

# Final Remarks

- All of virological samples in the frame of the official control system resulted negative
- So far, H5N8 HPAI virus has not been cause of human cases

Thanks for your attention