Ministero della Salute

# HPAI outbreaks in Italy

PAFF Committee – Animal health and welfare

22-23 January 2025

PF1

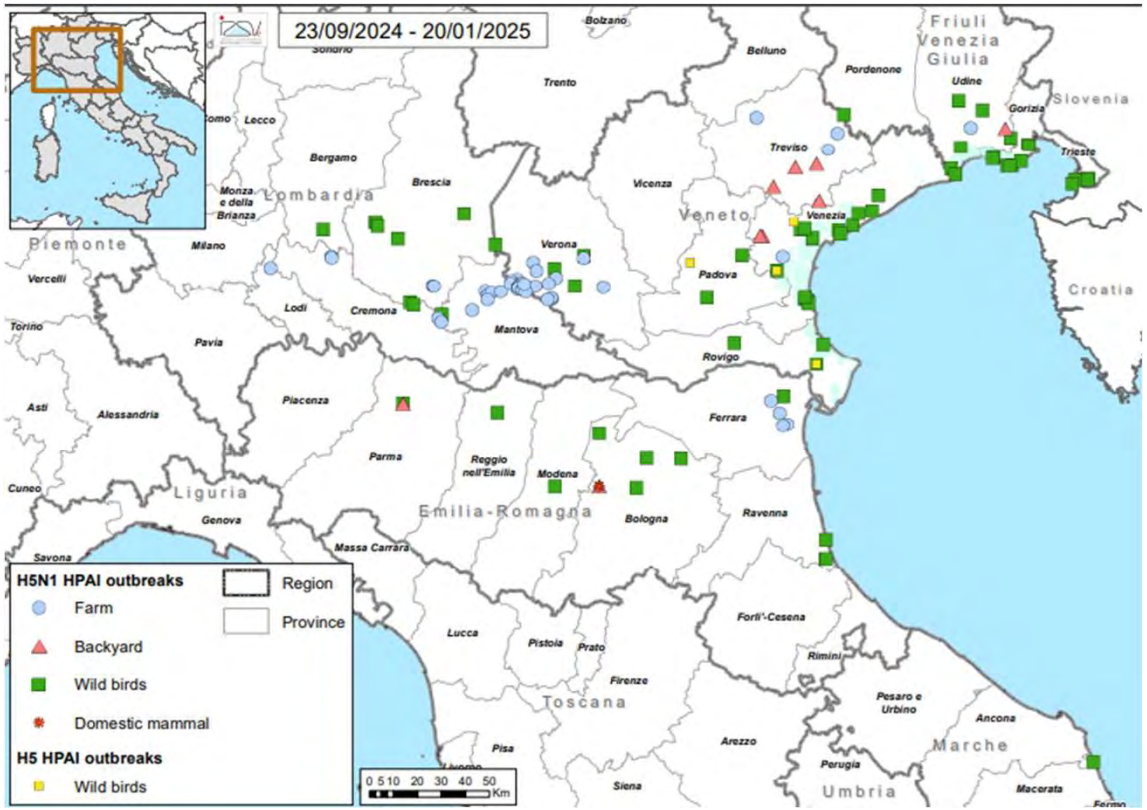
# HPAI H5N1 in Italy

- ✓ **36** HPAI outbreaks in poultry 2024 + **18** in 2025 (20/01/2025)
  - **14** Veneto + **10** in 2025
  - **14** Lombardia + **8** in 2025
  - **6** Emilia-Romagna
  - **2** Friuli Venezia Giulia

+ 25 since the last PAFF

- ✓ **84** HPAI positive cases in wild birds + **1** in 2025 (20/01/2025)
  - **24** Friuli-Venezia Giulia
  - **37** Veneto + **1** in 2025
  - **11** Lombardia
  - **11** Emilia Romagna
  - **1** Marche

+ 28 since the last PAFF




Regular update on: https://www.izsvenezie.com/reference-laboratories/avian-influenza-newcastle-disease/italy-update/
https://eurlaidata.izsvenezie.it/

## Slide 2

**PF1** Plasmati Francesco, 13/12/2024

# HPAI H5N1 in domestic poultry

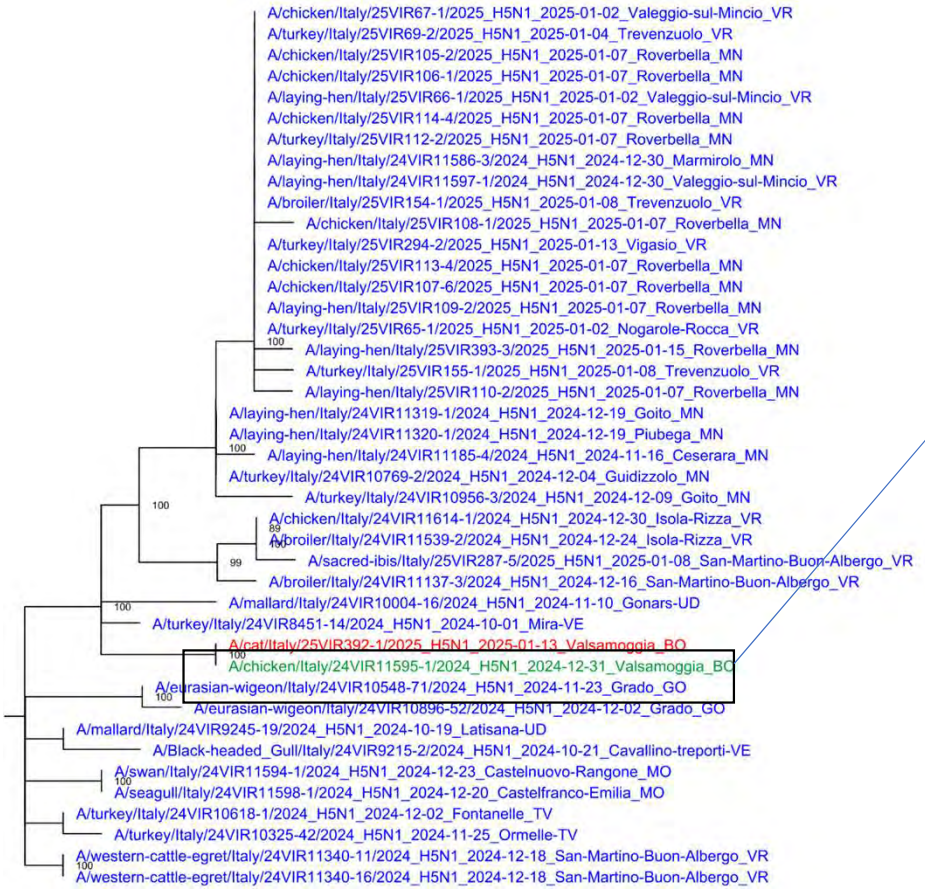
+ 25 since the last PAFF

- Laying hens
- Fattening turkeys
- Broilers

N. 2 **domestic cats** found H5N1 positive in backyard outbreak. One died on 13/01/2025 with respiratory symptoms. The other one is recovering. Laboratory tests carried out twice on operators were negatives.

| ADIS Reference | National reference | Disease type | Region | Province | Municipality | Species | Susceptible |
|---|---|---|---|---|---|---|---|
| IT-HPAI(P)-2025-00018 | 2025-18 | H5N1 | Veneto | Verona | Vigasio | Laying hens | 868120 |
| IT-HPAI(P)-2025-00017 | 2025-17 | H5N1 | Lombardia | Mantua | Roverbella | Laying hens | 30100 |
| IT-HPAI(P)-2025-00016 | 2025-16 | H5 (N untyped) | Veneto | Verona | Vigasio | Fattening turkeys | 10862 |
| IT-HPAI(P)-2025-00015 | 2025-15 | H5N1 | Veneto | Verona | Sommacampagna | Fattening turkeys | 12783 |
| IT-HPAI(P)-2025-00014 | 2025-14 | H5 (N untyped) | Veneto | Verona | Villafranca Di Verona | Fattening turkeys | 37860 |
| IT-HPAI(P)-2025-00013 | 2025-13 | H5 (N untyped) | Veneto | Verona | Trevenzuolo | Fattening turkeys | 9956 |
| IT-HPAI(P)-2025-00012 | 2025-12 | H5 (N untyped) | Veneto | Verona | Trevenzuolo | Broiler | 39204 |
| IT-HPAI(P)-2025-00011 | 2025-11 | H5N1 | Lombardia | Mantua | Roverbella | Fattening turkeys | 17100 |
| IT-HPAI(P)-2025-00010 | 2025-10 | H5N1 | Lombardia | Mantua | Roverbella | Laying hens | 150100 |
| IT-HPAI(P)-2025-00009 | 2025-9 | H5N1 | Lombardia | Mantua | Roverbella | Laying hens | 90100 |
| IT-HPAI(P)-2025-00008 | 2025-8 | H5N1 | Veneto | Verona | Trevenzuolo | Fattening turkeys | 27370 |
| IT-HPAI(P)-2025-00007 | | H5 (N untyped) | Veneto | Verona | Valeggio Sul Mincio | Laying hens | 214630 |
| IT-HPAI(P)-2025-00006 | 2025-6 | H5 (N untyped) | Veneto | Verona | Nogarole Rocca | Fattening turkeys | 16352 |
| IT-HPAI(P)-2025-00005 | 2025-5 | H5N1 | Veneto | Verona | Valeggio Sul Mincio | Broiler | 74902 |
| IT-HPAI(P)-2025-00004 | 2025-4 | H5N1 | Lombardia | Mantua | Roverbella | Laying hens | 40100 |
| IT-HPAI(P)-2025-00003 | 2025-3 | H5N1 | Lombardia | Mantua | Roverbella | Laying hens | 150100 |
| IT-HPAI(P)-2025-00002 | 2025-2 | H5N1 | Lombardia | Mantua | Roverbella | Laying hens | 280100 |
| IT-HPAI(P)-2025-00001 | 2025-1 | H5N1 | Lombardia | Mantua | Roverbella | Laying hens | 50100 |
| IT-HPAI(P)-2024-00036 | 2024-36 | H5N1 | Veneto | Verona | Valeggio Sul Mincio | Laying hens | 13105 |
| IT-HPAI(P)-2024-00035 | 2024-35 | H5N1 | Emilia-Romagna | Bologna | Crespellano | Laying hens | 32 |
| IT-HPAI(P)-2024-00034 | 2024-34 | H5N1 | Lombardia | Mantua | Marmirolo | Laying hens | 48791 |
| IT-HPAI(P)-2024-00033 | 2024-33 | H5N1 | Veneto | Verona | Isola Rizza | Broiler | 32000 |
| IT-HPAI(P)-2024-00032 | 2024-32 | H5N1 | Lombardia | Mantua | Goito | Laying hens | 87520 |
| IT-HPAI(P)-2024-00031 | 2024-31 | H5N1 | Lombardia | Mantua | Piubega | Laying hens | 133322 |
| IT-HPAI(P)-2024-00030 | 2024-30 | H5N1 | Veneto | Verona | San Martino Buon Albergo | Broiler | 58769 |
| IT-HPAI(P)-2024-00029 | 2024/0029 | H5N1 | Lombardia | Mantua | Ceresara | Laying hens | 58835 |

# Genome analysis of the H5N1 virus identified in a dead cat in the municipality of Valsamoggia (BO)



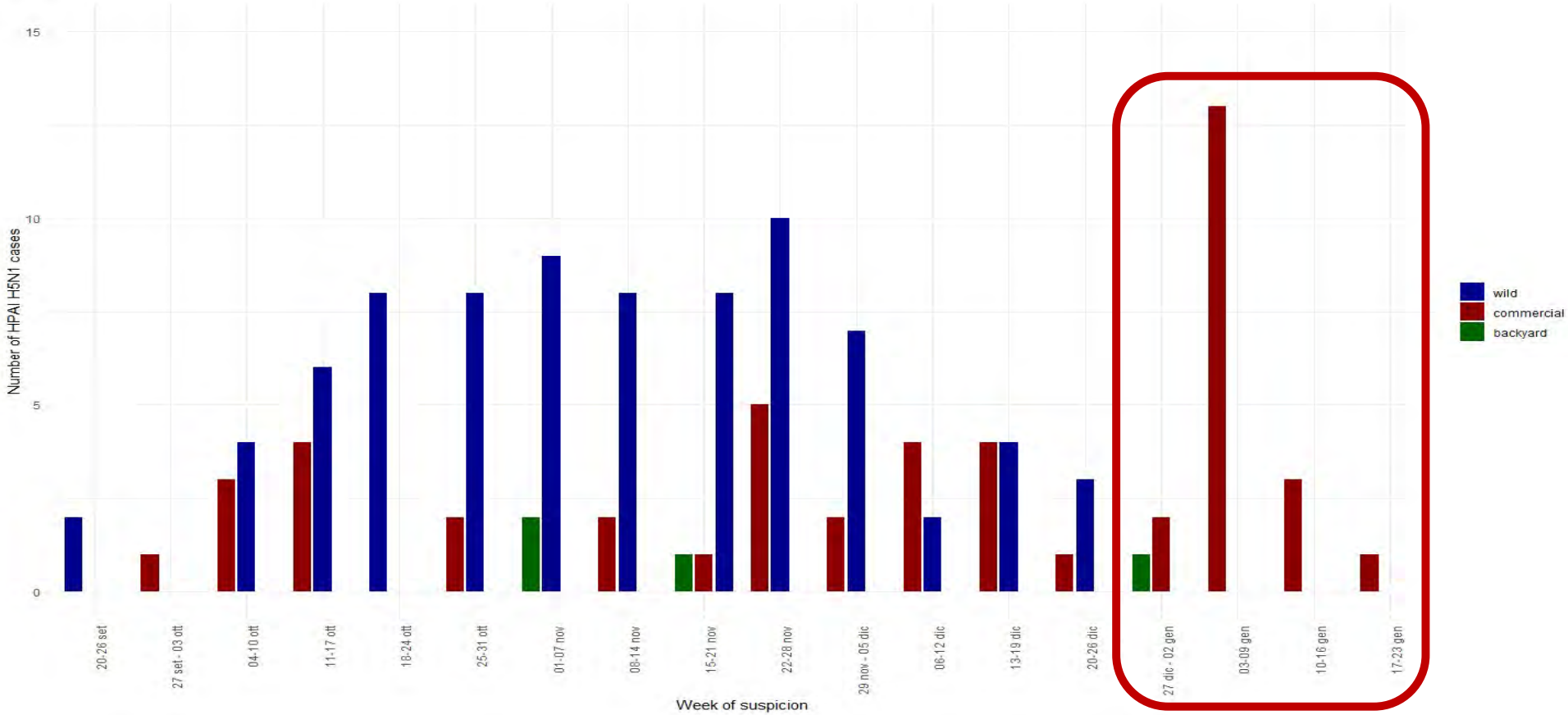

- The genome of the H5N1 virus identified in the domestic cat found dead on 13 January 2025 at the backyard poultry farm in the municipality of Valsamoggia (BO) shows the highest similarity to the H5N1 virus collected from chickens at the same farm on December 31;
- These findings suggest that **the cat was infected following exposure to infected poultry at the same farm where it was found dead**;
- Across the entire 13,000-base genome, only three nucleotide differences were observed between the cat and poultry viruses. One of them resulted in the emergence of the **627K mutation** in the PB2 segment. This substitution enhances the virus's adaptation to mammals as it results in increased polymerase activity and replication in mammalian cell line.

# Positive cases in wild birds

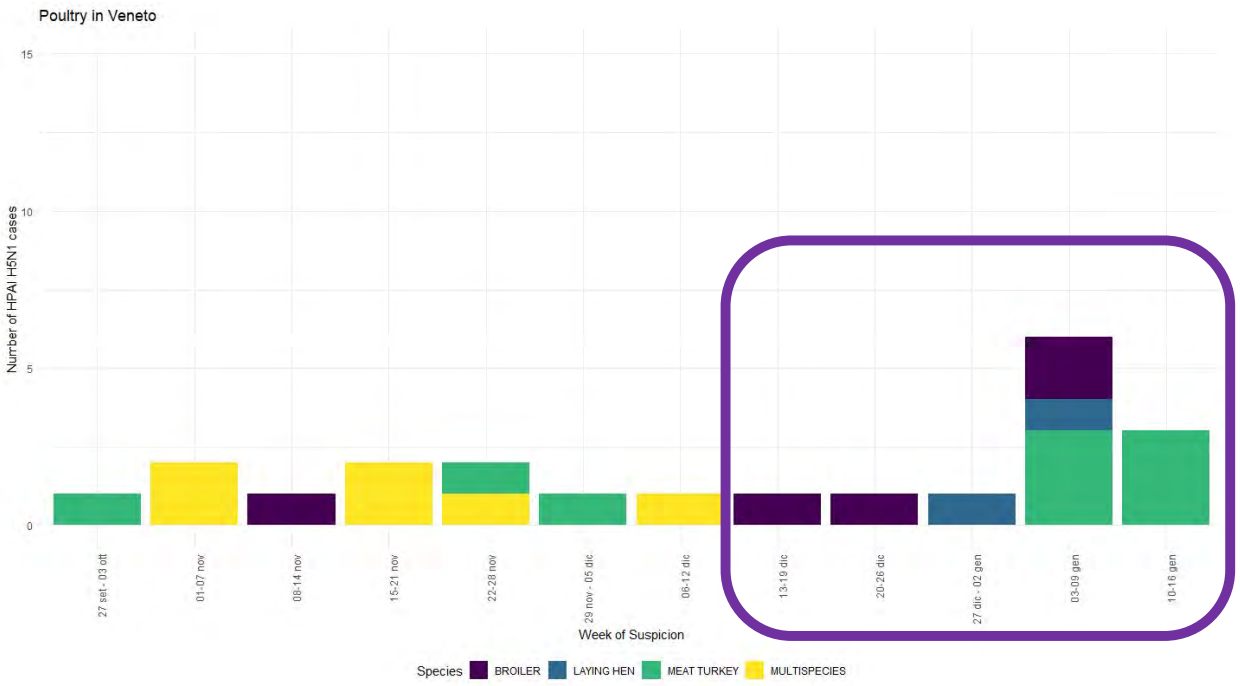
+ 28 since the last PAFF

| Reference | Disease type | Region | Province | Municipality | Species | Cases | Additional info |
|---|---|---|---|---|---|---|---|
| IT-HPAI(NON-P)-2025-00001 | H5N1 | Veneto | Verona | San Martino Buon Albergo | Western Cattle Egret | 2 | Hunted |
| IT-HPAI(NON-P)-2024-00084 | H5N1 | Veneto | Venezia | Chioggia | Herring Gull | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00083 | H5N1 | Veneto | Venezia | Venezia | Peregrin falcon | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00082 | H5N1 | Emilia-Romagna | Modena | Castelnuovo Rangone | Mute Swan | 3 | Hunted |
| IT-HPAI(NON-P)-2024-00081 | H5N1 | Emilia-Romagna | Ravenna | Cervia | Eurasian Wigeon | 2 | Found dead |
| IT-HPAI(NON-P)-2024-00080 | H5N1 | Friuli-Venezia | Gorizia | Grado | Greater Flamingo | 1 | Hunted |
| IT-HPAI(NON-P)-2024-00079 | H5N1 | Friuli-Venezia | Gorizia | Grado | Eurasian Wigeon | 7 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00078 | H5N1 | Emilia-Romagna | Bologna | Bologna | Yellow-legged Gull | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00077 | H5N1 | Veneto | Rovigo | Porto Viro | Mallard | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00076 | H5N1 | Veneto | Venezia | Venezia | Eurasian green woodpecker | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00075 | H5N1 | Veneto | Padua | Padova | Little Cormorant | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00074 | H5N1 | Veneto | Venezia | Chioggia | Common Starling | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00073 | H5N1 | Veneto | Venezia | Chioggia | Yellow-legged Gull | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00072 | H5N1 | Veneto | Venezia | Cavallino-Treporti | Yellow-legged Gull | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00071 | H5N1 | Veneto | Rovigo | Villadose | Barn Owl (Common Barn- | 1 | Hunted |
| IT-HPAI(NON-P)-2024-00070 | H5 (N untyped) | Veneto | Padua | Rovolon | Eurasian Woodcock | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00069 | H5N1 | Veneto | Venezia | Musile Di Piave | Yellow-legged Gull | 1 | Hunted |
| IT-HPAI(NON-P)-2024-00068 | H5N1 | Veneto | Verona | Isola Della Scala | Mallard | 1 | Found dead |
| IT-HPAI(NON-P)-2024-00067 | H5N1 | Veneto | Verona | San Martino Buon Albergo | Western Cattle Egret | 2 | Hunted |
| IT-HPAI(NON-P)-2024-00066 | H5N1 | Friuli-Venezia | Gorizia | Grado | Common Teal | 10 | Found dead |
| IT-HPAI(NON-P)-2024-00065 | H5N1 | Veneto | Verona | Castel d' Azzano | Yellow-legged Gull | | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00064 | H5 (N untyped) | Marche | Ancona | Loreto | Yellow-legged Gull | 1 | Alive with clinical signs (including injured) |
| IT-HPAI(NON-P)-2024-00063 | H5N1 | Friuli-Venezia | Gorizia | Grado | Mallard | 13 | Found dead |
| IT-HPAI(NON-P)-2024-00062 | H5N1 | VENETO | VERONA | Peschiera Del Garda | Eurasian Wigeon | 6 | Found dead |
| IT-HPAI(NON-P)-2024-00061 | H5N1 | EMILIA-ROMAGNA | REGGIO NELL'EMILIA | Cadelbosco Di Sopra | Common Teal | 1 | Hunted |
| IT-HPAI(NON-P)-2024-00060 | H5N1 | LOMBARDIA | MANTOVA | Casalromano | Eurasian Wigeon | 1 | Hunted |
| IT-HPAI(NON-P)-2024-00059 | H5N1 | LOMBARDIA | BRESCIA | Muscoline | Little Owl | 1 | Found dead |
| IT-HPAI(NON-P)-2024-00058 | H5N1 | LOMBARDIA | BERGAMO | Romano Di Lombardia | Grey Heron | 1 | Found dead |
| IT-HPAI(NON-P)-2024-00057 | H5N1 | FRIULI-VENEZIA GIULIA | UDINE | Talmassons | Western Marsh Harrier | 1 | Found dead |

# HPAI 2024-25 epidemic season in Italy

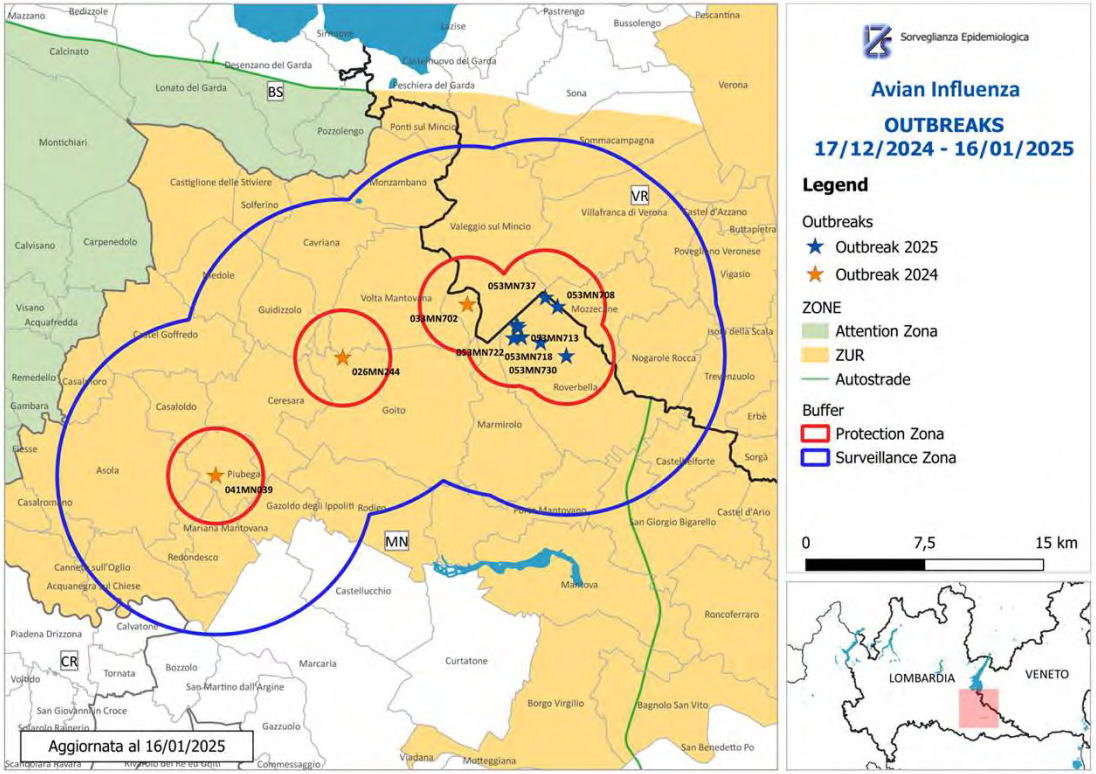


# HPAI in poultry in Veneto




- 14 outbreaks from beginning of December, 12 in Verona
  - *What*: mainly highly susceptible species affected (meat turkeys and laying hen)
  - *Where*: close to the border with Lombardia, in a high density poultry area - HDPA
  - *When*: within a short timeframe (10 days)
- proximity to vast wetlands where numerous positive cases in wild birds have been reported since September
- possibile instances of secondary spread/presence of common sources of infection despite good biosecurity measures
- phylogenetic analyses provide support for secondary spread hypothesis but further investigations are needed to establish with more certainty the primary or secondary origin of the outbreak

# HPAI evolution of epidemiological situation in Lombardia




10 HPAI outbreaks were detected in the last month in a restricted area of the province of MN, on the border with Verona (Veneto)

- All the outbreaks were located in the PZ of other outbreaks, and
- 6 were less than 1 km away
- 2 were 200 mt away.

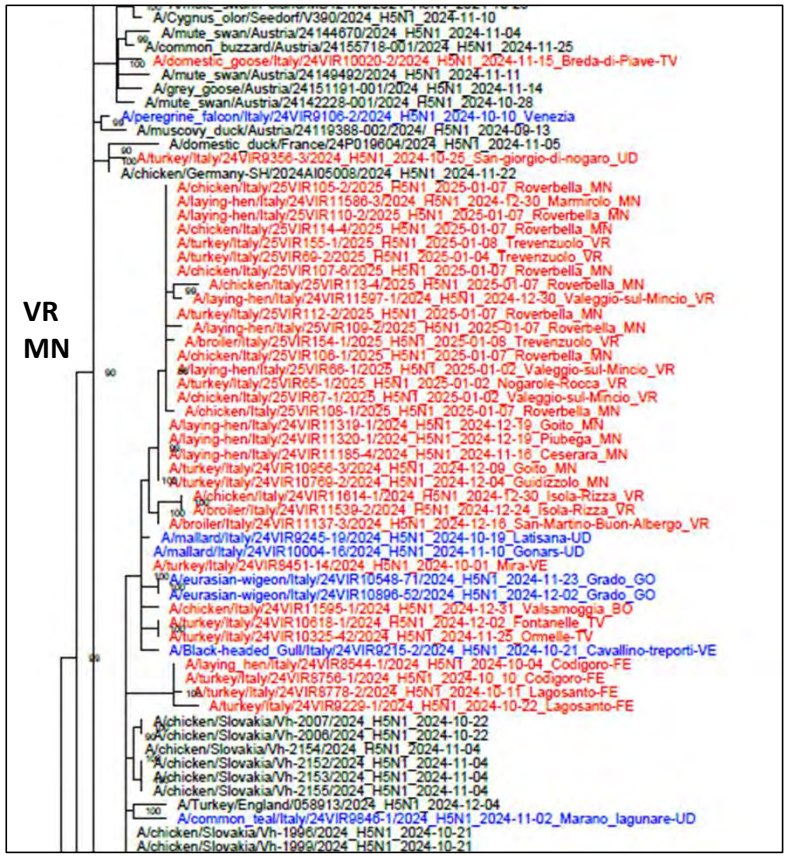
Furthermore:

- 2 of the above-mentioned outbreaks had a risk contact trough the feed truck
- 2 trough the egg truck
- 2 were managed by the same keeper

- Some outbreaks occurred in Mantua province are even closer to the ones occurred in Verona province (Veneto region) and epidemiological investigations are being carried out to identify possible contacts.

# PHYLOGENETIC ANALYSES OF VIRUSES IDENTIFIED IN ITALY

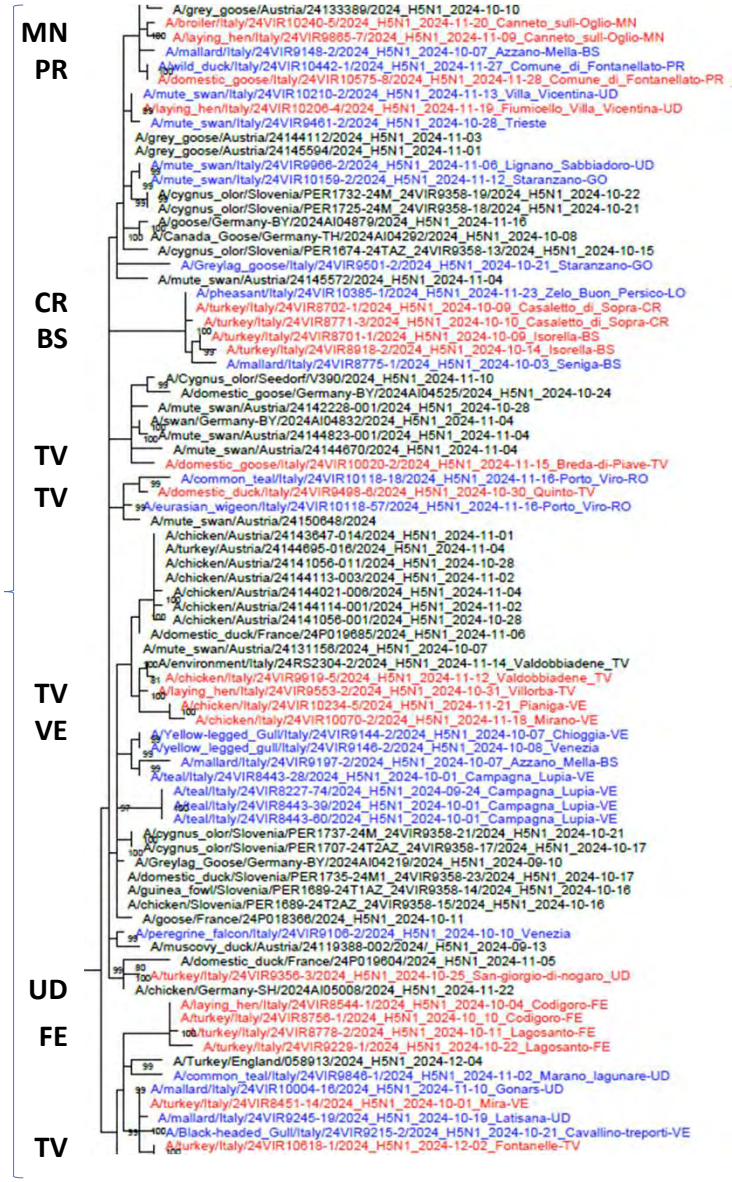
Viruses identified in outbreaks occurred in December and January in Mantua and Verona suggest possible secondary spread among laying hen and meat turkey holdings



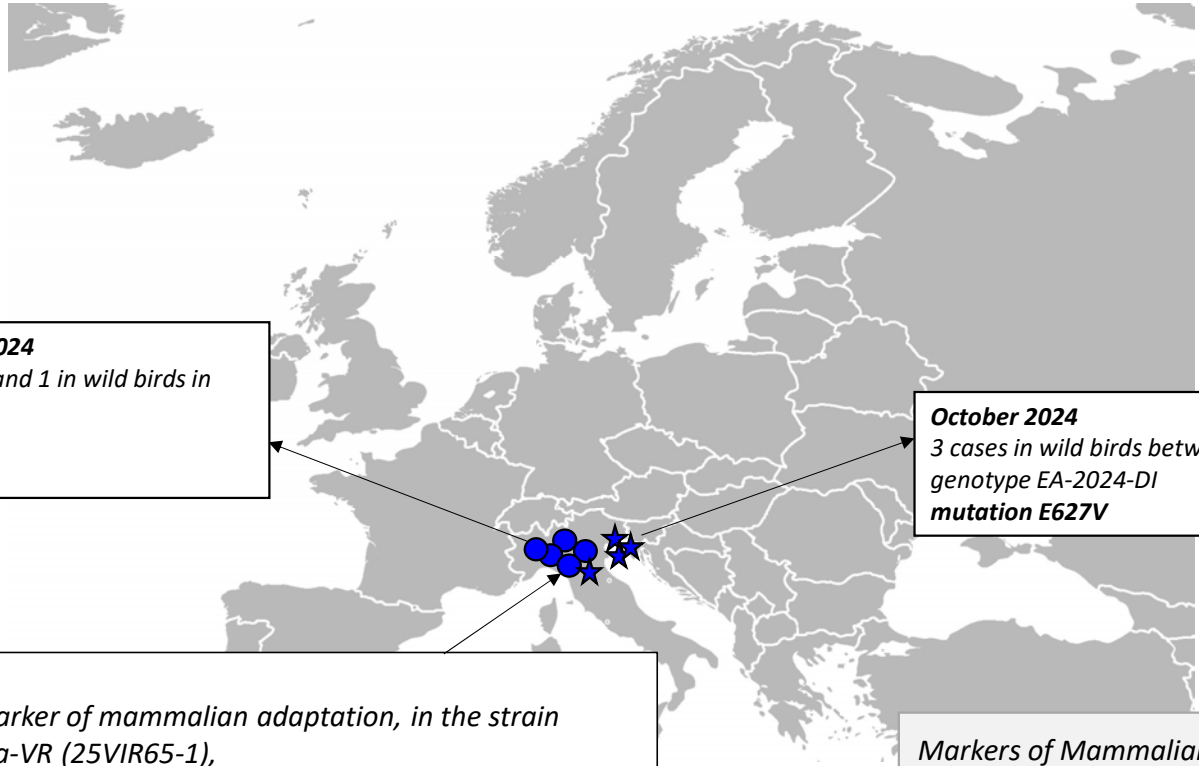

Wild birds

Poultry

Viruses identified in outbreaks occurred in October and November suggest several primary introductions from wild birds in different provinces



# Mutations of interest in viruses identified in Italy in epidemic wave 2024-2025



*October and **November 2024***
*5 cases in domestic birds and 1 in wild birds in Lombardy (single cluster)*
*genotype EA-2024-DI*
***mutation D701N***

***October 2024***
*3 cases in wild birds between Trieste and Grado*
*genotype EA-2024-DI*
***mutation E627V***

*Two cases in **January 2025***
***Mutation in PB2:D701N** marker of mammalian adaptation, in the strain identified in Nogarole Rocca-VR (25VIR65-1),*
***Mutation PB2:A588V** with the following effects reported in the literature ' Increased polymerase activity in mammalian cells, Increased replication in mammalian cells, Increased virulence in mice' found in strain 24VIR11614-1 from Isola Rizza-VR;*

*Markers of Mammalian Adaptation:*
*Genotype DI*
*Poultry*
*Wild birds*

# Measures in Further Restricted Zone

**Further measures adopted in FRZ in addition to those provided for in the current provision:**

- **New municipalities** in the province of Mantua and Verona in FRZ, other provinces (Brescia, Padua, Venice, Rovigo, Ferrara) moved to ZA.
- **Broilers**:

✓ Pre-moving control on the dead within 48 hours.

✓ Emptying of already stabled herds only if loading is done in one go per shed within a maximum of 48 hours.

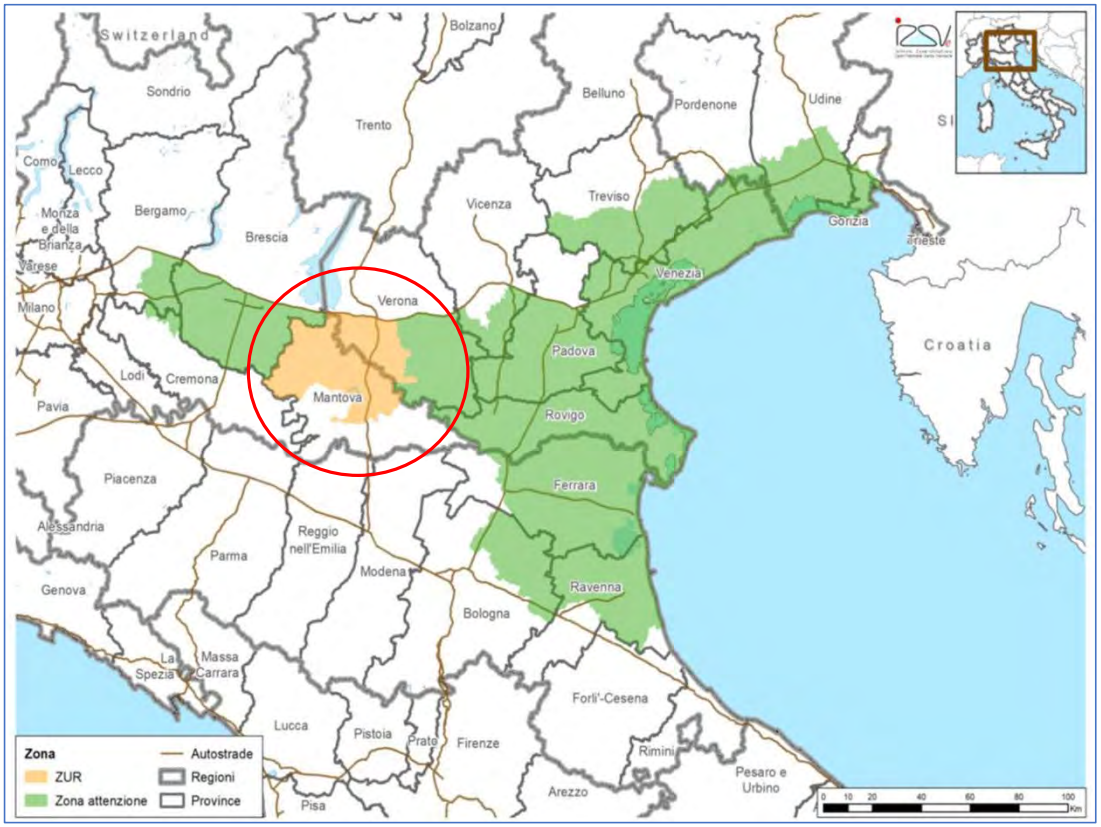
✓ Housing authorisation according to the local epidemiological situation and only if complete emptying is guaranteed in single solution.

✓ Strengthening the criteria for identifying cases requiring laboratory investigation (equal or greater than 2 times the number of animals that died on the previous day in the individual shed).

- **Laying hens**:

✓ Checking for deaths at least weekly.

✓ For housing (complete or partial) minimum distance (1,500 metres) from other laying hen or fattening turkeys farms must be guaranteed.




**New provision was signed on 13 January 2025 and will be in place until 28/02/2025**

Ministero della Salute

# Thank you