EFSA outputs on Avian Influenza

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AI conference, 4 Oct 2017, Rome

efsa
European Food Safety Authority

RISK ASSESSMENT ON

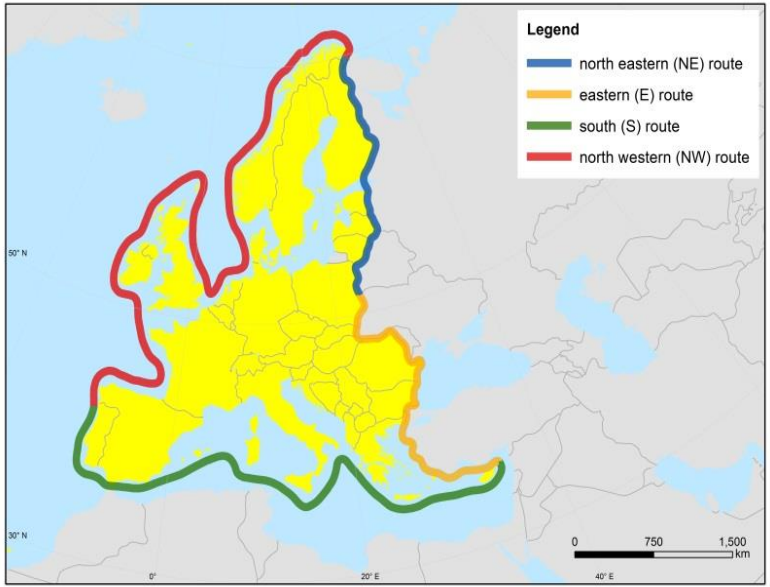
- AI introduction into the EU and into poultry holdings
- AI transmission and spread
- Mutation from LPAI to HPAI
- AI surveillance
- Biosecurity

EFSA scientific opinion

EFSA Journal 2017;15(10):4991 d oi:10.2903/j.efsa.2017.4991

AI INTRODUCTION

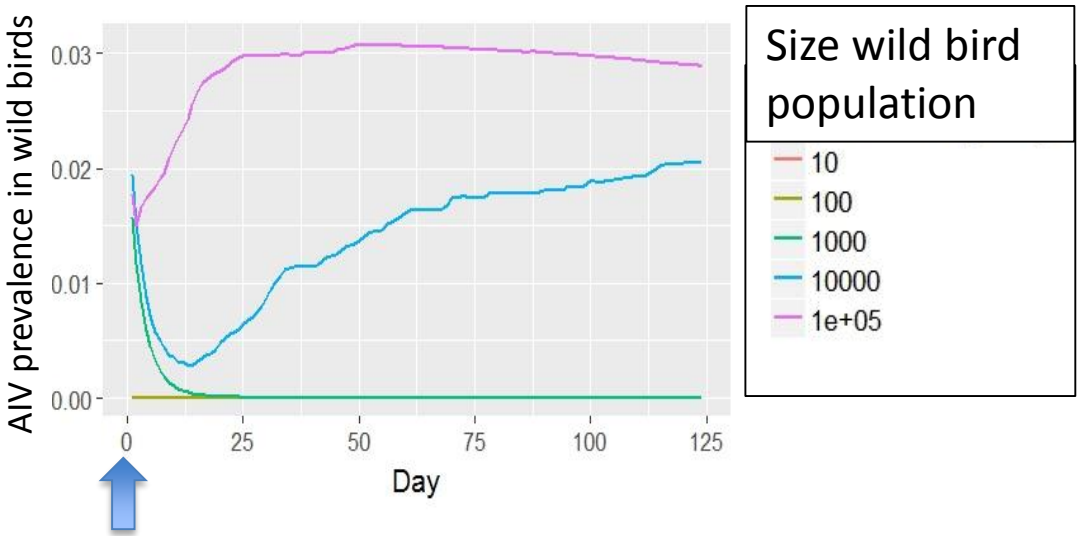
- **Migratory water birds** represent the most likely pathway of AIV introduction into the EU
- Mainly via the **north eastern and eastern migratory routes**



Clade	NE route	E route	S route	NW route
2.3.4.4	**Benchmark**	Slightly lower	Much lower	Much lower
2.2.1.2	Much lower	Much lower	Lower	Extremely low
2.3.2.1c	Similar	Similar	Lower	Extremely low

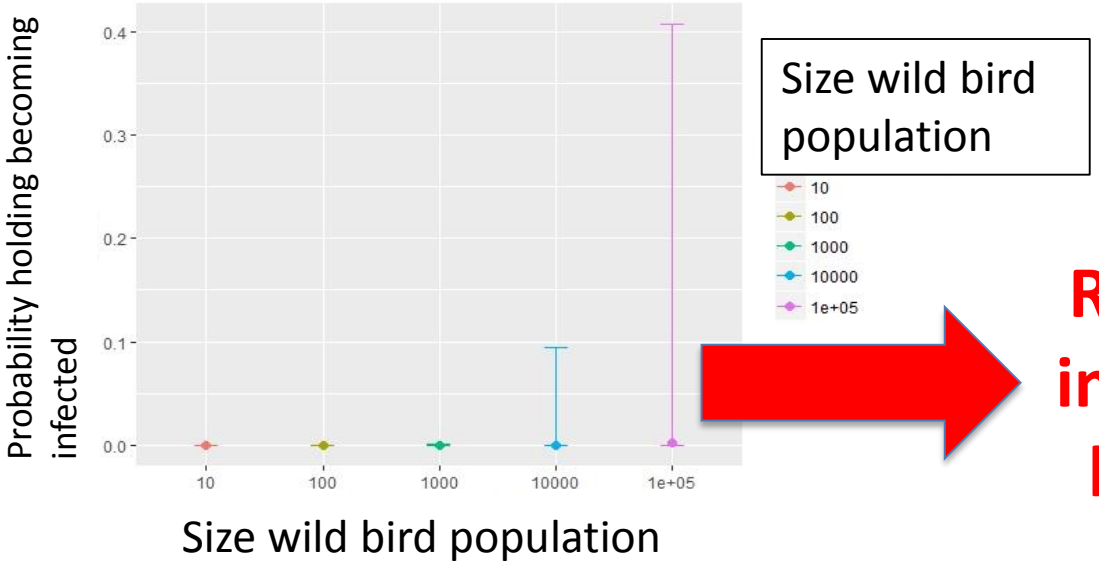
AI INTRODUCTION

- According to a mathematical model, **AIV amplification and spread** takes place when **wild bird populations of sufficient size** within the EU become infected



AI INTRODUCTION

- The **AIV prevalence** in water birds as well as the **size and composition of the wild bird reservoir** are determining the probability of a holding to become infected



Reduction by implementing biosecurity!

AI TRANSMISSION AND SPREAD

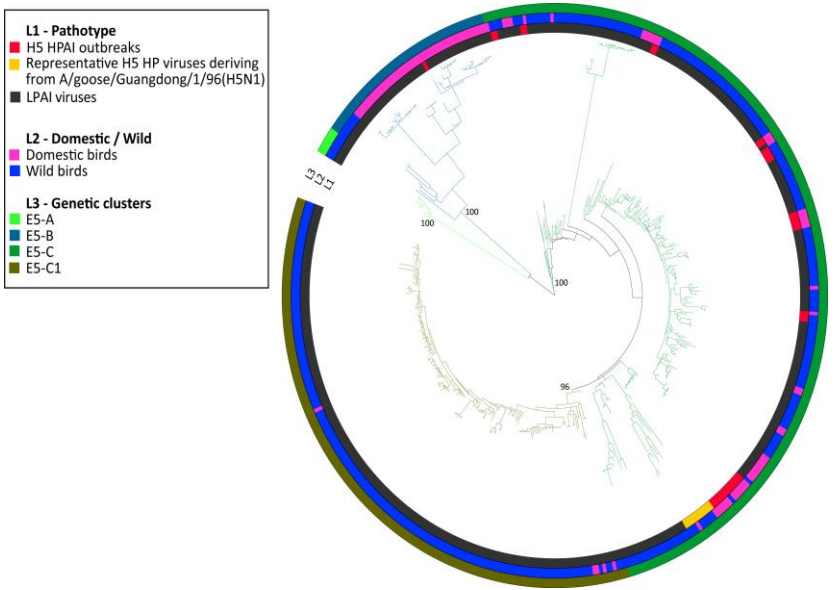
- The **transmission rate** between animals within a flock is assessed to be **higher for HPAI** viruses than LPAI viruses.

- **Spread of HPAI** viruses between farms is **highly likely** in the absence of control measures.

- In most cases, **LPAIV remain restricted** to a single farm, although horizontal spread has been observed in several occasions.

MUTATION FROM LPAI TO HPAI

- **No specific factors** related to host species, environmental conditions or viral lineage were identified and likewise **no molecular markers** that **would be useful predictors** of increased risk of a specific LPAIV to mutate to an HPAI phenotype were recognized.



AI SURVEILLANCE OF POULTRY

- In **gallinaceous poultry**, **passive surveillance** through notification of suspicious clinical signs/mortality is the most effective method for early detection of HPAI outbreaks.

- For effective surveillance in **anseriform poultry passive surveillance** through notification of suspicious clinical signs/mortality needs to be accompagnied by serological surveillance and/or a virological surveillance program of birds found dead (bucket sampling).

AI SURVEILLANCE OF POULTRY

- The **serological surveillance** is unfit for early warning of LPAI outbreaks at the individual holding level. Serosurveillance could be effective in detecting **clusters of LPAIV-infected holdings**.

- **Risk-based surveillance is useful** as it targets flocks where AI introduction is considered to be higher, although there is **limited quantitative (EU-wide) evidence** to weight the risk factors.

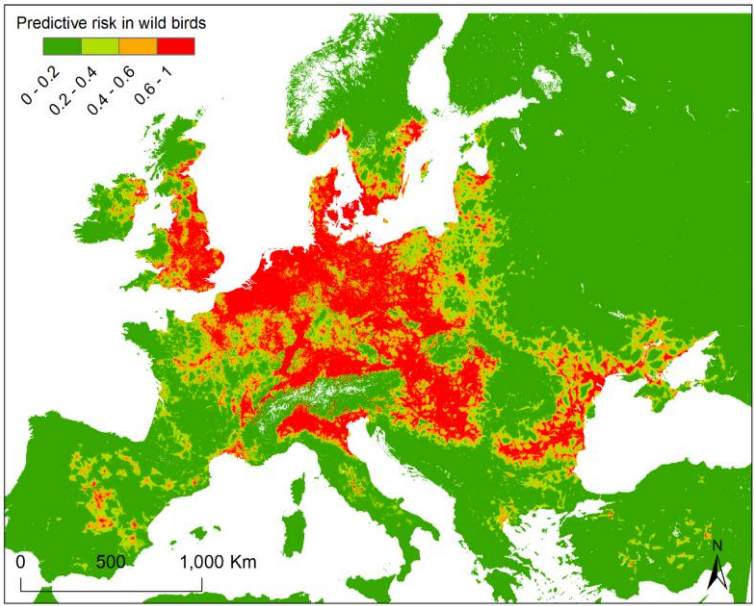
AI SURVEILLANCE OF WILD BIRDS

- **Passive surveillance** is an **appropriate** method for **HPAI surveillance in wild birds** if the HPAIV infections are associated with mortality.

- **Active wild bird surveillance** has a **very low efficiency** in detecting HPAI.

AI SURVEILLANCE OF WILD BIRDS

- **Targeted active wild bird surveillance combined with enhanced passive surveillance** at a **few priority regions** in the EU may detect, if infection prevalence and sample sizes are sufficient, the presence of circulating AIV when these do not cause massive mortality among these birds.



BIOSECURITY

- The risk of AIV introduction and spread will remain high in production processes when **movement of animals**, **restricting access** throughout the whole production cycle and/or **contact with wild birds** is not reduced.

- If **poultry** cannot be **confined** during high-risk periods, it is recommended to prevent direct contact between wild birds and poultry by **reducing the size of the outdoor area** and/or by using **netting**. **Feed and water** should be provided **under a roof or a horizontal fabric**.

- **Online biosecurity questionnaires** could be used by farmers to **check** their current biosecurity level and subsequently to **improve** it based on the received feedback.

MONITORING AI SITUATION

- 2016-2017 outbreaks in the EU
- HPAI situation in other continents

covering both human and animal health aspects!

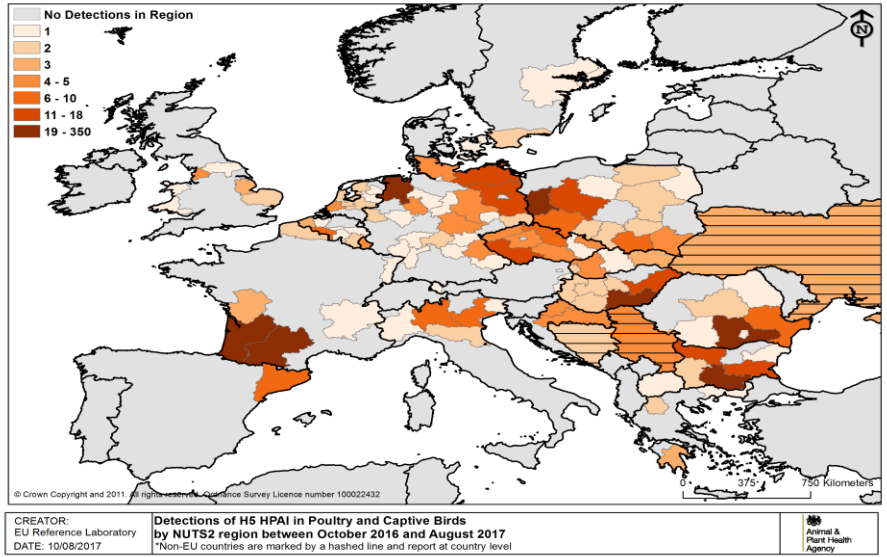
European Union Reference Laboratory for Avian Influenza

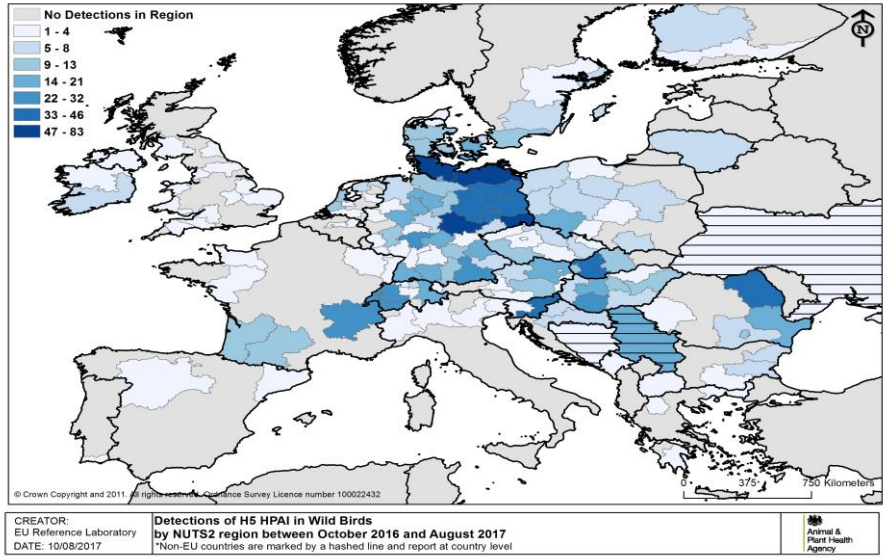
collaboration between EU institutions and all affected MSs

EFSA scientific report

EFSA Journal 2017;15(10):5018 d oi:10.2903/j.efsa.2017. 5018

2016-2017 EPIDEMIC IN THE EU





- The 2016/2017 HPAI epidemic was the **largest ever recorded in the EU** in terms of high number of outbreaks, wide geographic distribution and high number of dead wild birds.

2016-2017 EPIDEMIC IN THE EU

- **Despite of a high number of human exposures** to infected poultry during the ongoing outbreaks, **no human** cases have been identified in Europe.

- **Challenges** remain to **identify** all **exposed people** remain

CHARACTERISATION OF HPAI-AFFECTED HOLDINGS

- To further **evolve** from a descriptive **towards** a (quantitative) **analytical analysis** (risk factor analysis), there is a need to:
  - harmonise reporting amongst MSs (e.g. thresholds)
  - have poultry population data

Number of susceptible birds per affected holding	Commercial	Non-commercial
0-50	6/505 (1%)	318/455 (70%)
51-200	4/505 (1%)	102/455 (22%)
201-1,000	25/505 (5%)	22/455 (5%)
1,001-10,000	201/505 (40%)	12/455 (3%)
>10,000	269/505 (53%)	1/455 (0%)
Total	505	455

APPLIED PREVENTION AND CONTROL MEASURES

- **Case reports** were submitted by 13 MSs to share information on applied prevention and control measures

Annex L – Italy **Applied prevention and control measures on avian influenza**

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Istituto Zooprofilatico Sperimentale delle Venezie

- Stringency and implementation of **biosecurity** is **not clear** across the EU.
- **Communication among MSs** is paramount in order to increase the level of preparedness, and to promptly apply control measures before the disease spread to non-affected MS, preventing and/or limiting the spread of the disease.

MONITORING AI IN OTHER CONTINENTS

- The current epidemiology of **HPAIV H5N6** in Asia, with widespread occurrence in migratory birds of the order Anseriformes, and detection in apparently healthy northern pintails, indicates a **risk of long-distance spread of this virus**
- The HPAI situation in **Africa** of the subtypes **H5N1** and **H5N8** is evolving rapidly and requires close monitoring.
- **Human infections** due to transmission of **H5N1, H5N6, H7N9 and H9N2** have only been observed in areas where these viruses circulate in the wild bird and/or poultry populations, **mainly in Asia and Egypt**.

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