



EFSA outputs on Avian Influenza

Frank Verdonck

PAFF meeting, 25 Oct 2017, Brussels

RISK ASSESSMENT ON

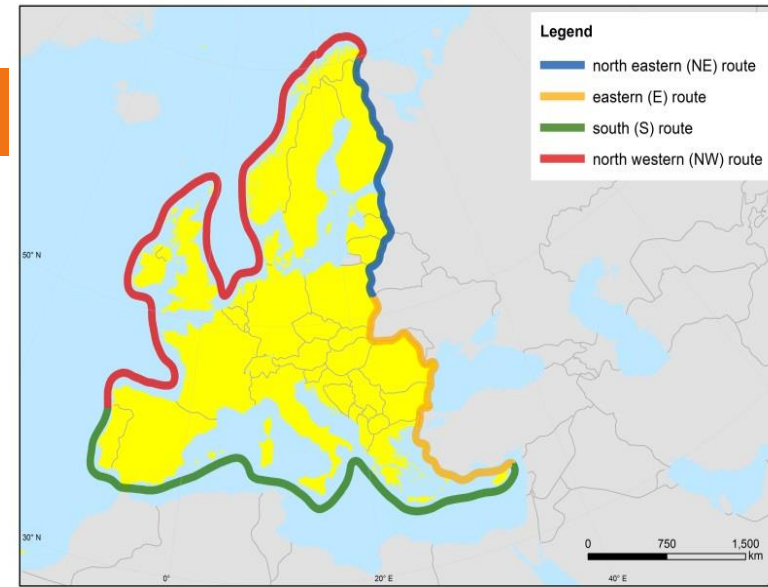
- AI introduction into the EU and into poultry holdings
- AI transmission and spread
- Mutation from LPAI to HPAI
- AI surveillance
- Biosecurity

EFSA scientific opinion

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

AI INTRODUCTION

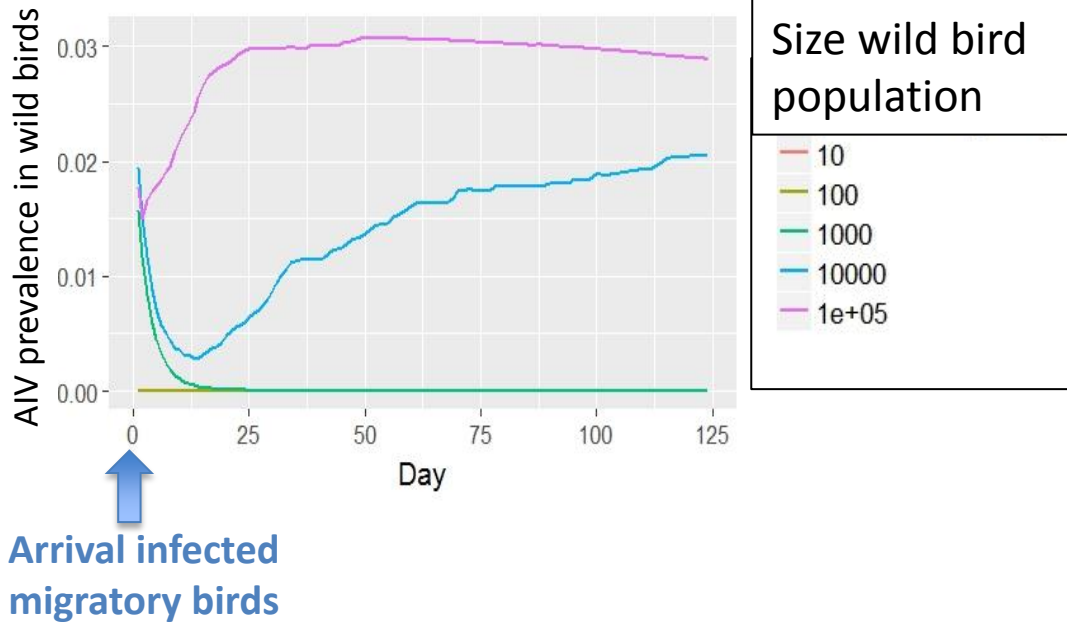
- **Migratory water birds** represent the most likely pathway of AIV introduction into the EU
- Mainly via the **north eastern and eastern migratory routes**



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

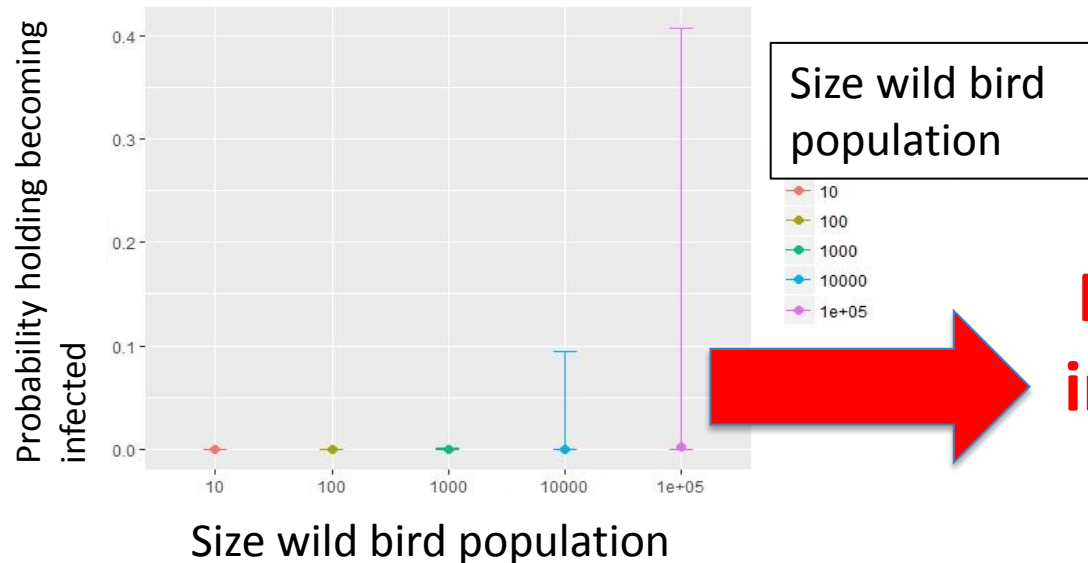
AI INTRODUCTION

- 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



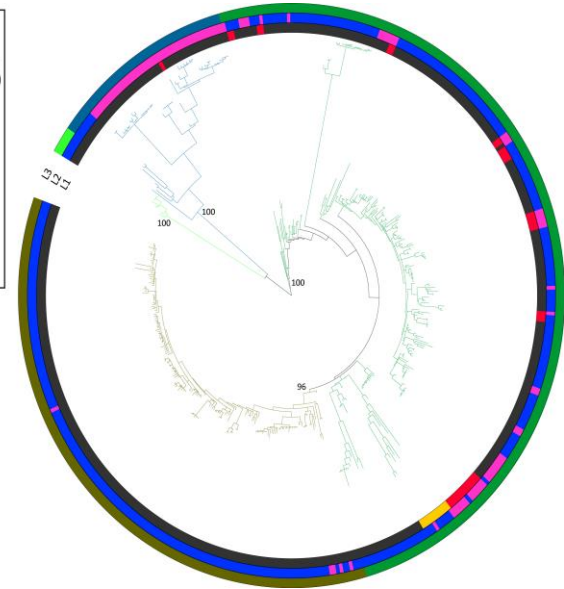
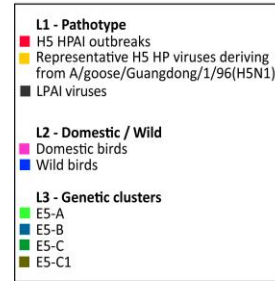
**Reduction by
implementing
biosecurity!**

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 accompanied by serological surveillance and/or a virological surveillance program of birds found dead (bucket sampling).

AI SURVEILLANCE OF POULTRY

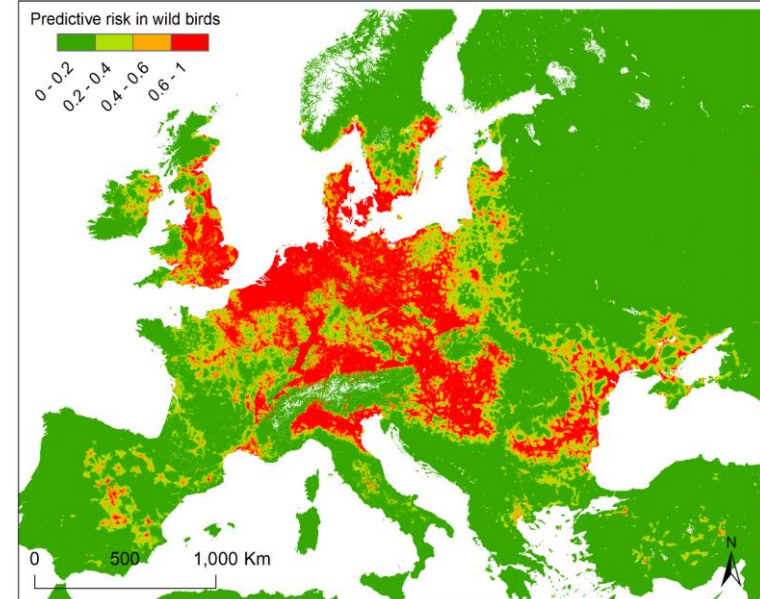
- The **serological surveillance** is unfit for early warning of LPAI outbreaks at the individual holding level. Serosurveillance could be effective in detecting **clusters of LPAIV-infected holdings**.
- **Risk-based surveillance is useful** as it targets flocks where AI introduction is considered to 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!



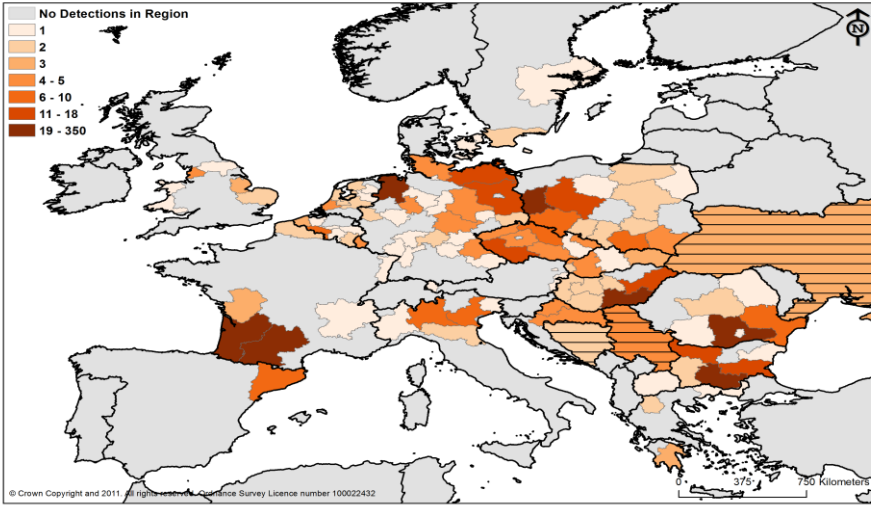
European Union
Reference
Laboratory for
Avian Influenza

collaboration between EU institutions and all affected MSs

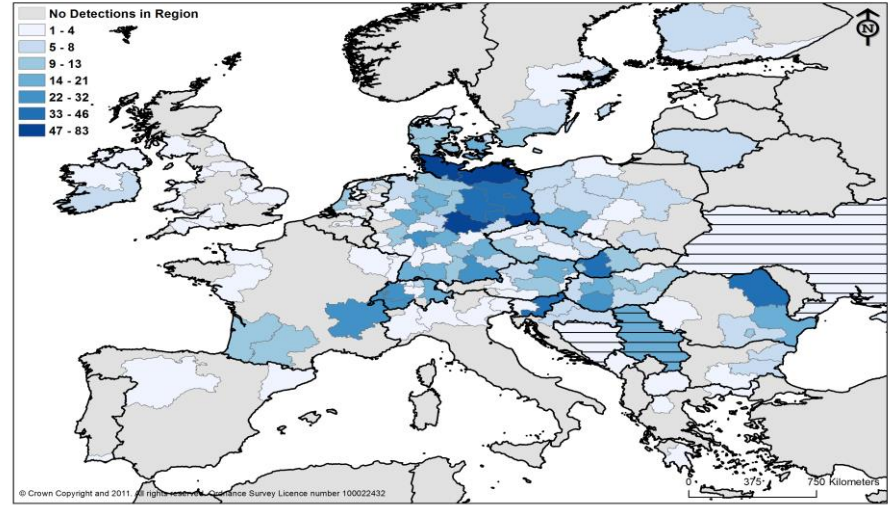
EFSA scientific report

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

2016-2017 EPIDEMIC IN THE EU



CREATOR: EU Reference Laboratory
 DATE: 10/08/2017
Detections of H5 HPAI in Poultry and Captive Birds by NUTS2 region between October 2016 and August 2017
 *Non-EU countries are marked by a hashed line and report at country level



CREATOR: EU Reference Laboratory
 DATE: 10/08/2017
Detections of H5 HPAI in Wild Birds by NUTS2 region between October 2016 and August 2017
 *Non-EU countries are marked by a hashed line and report at country level

- 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 – Applied prevention and control measures on avian influenza
Italy**

Dorotea Tiziano, Mulatti Paolo, Bonfanti Lebana, Marangon Stefano
Istituto Zooprofilattico 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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