Vaccination against HPAI

EU experience

IABS/WOAH: "Vaccination and Surveillance for HPAI in Poultry: Current Situation and Perspectives"

22-23 October, 2024, Paris.

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Health and Food Safety

Outline

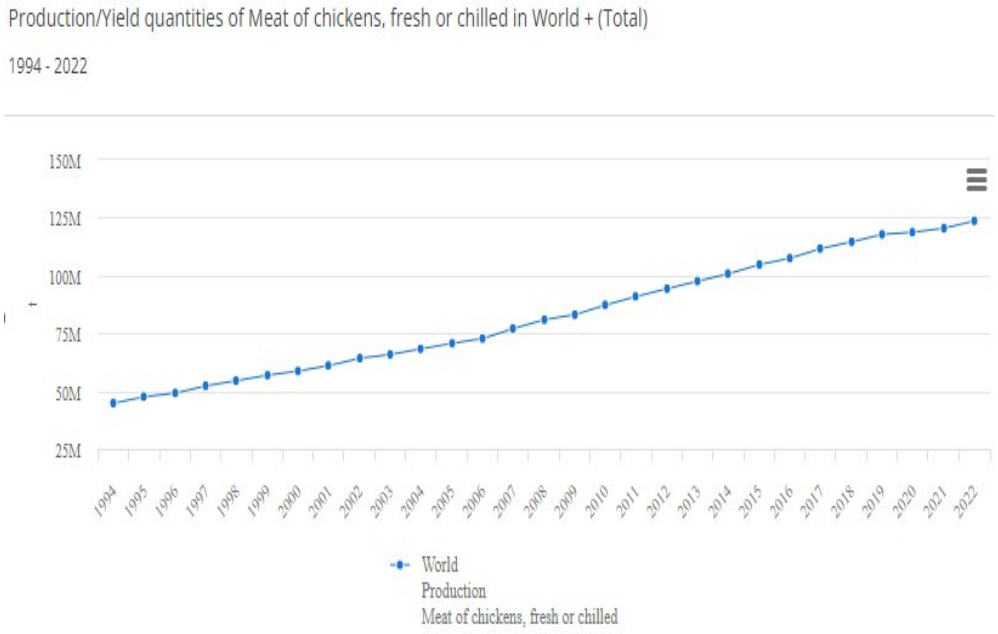
- Context
- Science
- EU standards
- Experience
- Success
- Challenges
- Needs

Context setting

Developments of **global** poultry meat production

1994 – 2022:
250% increase (from 50M to 125 M)

2007 – 2022:
67% increase (from 75M to 125 M)



Source: faostat

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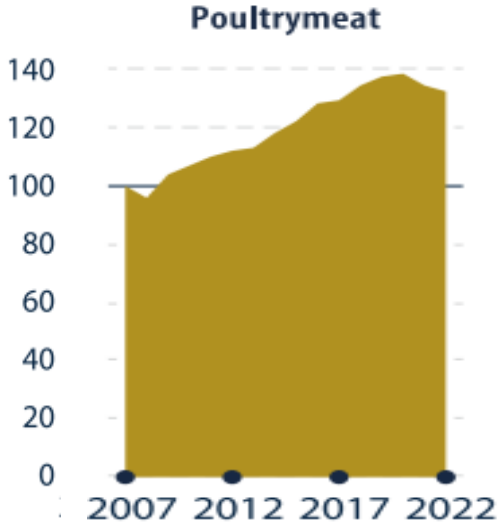
Developments of **EU** poultry meat production

2007 – 2022:

EU output

by **44.5 %**.



Source: Eurostat

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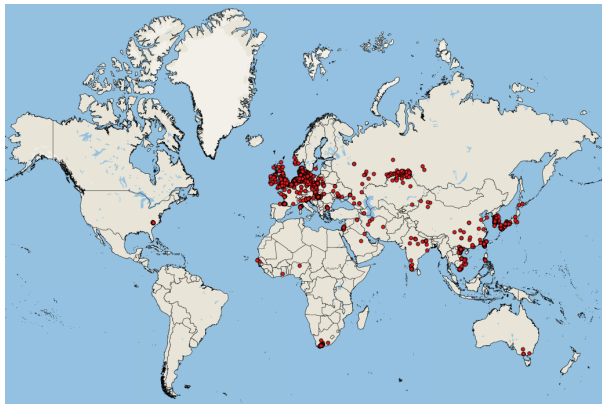
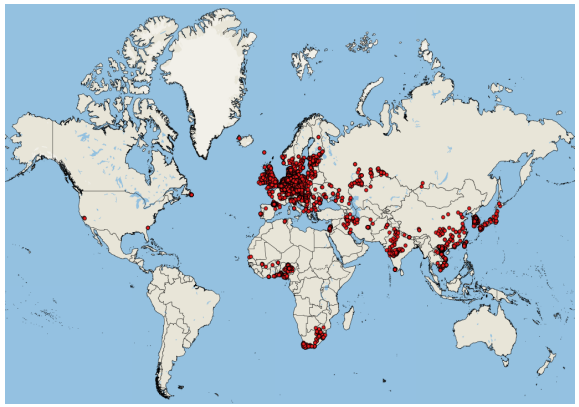
Evolution of HPAI risk for poultry

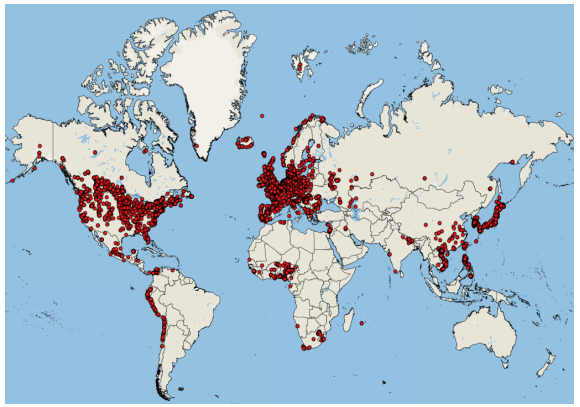
2020



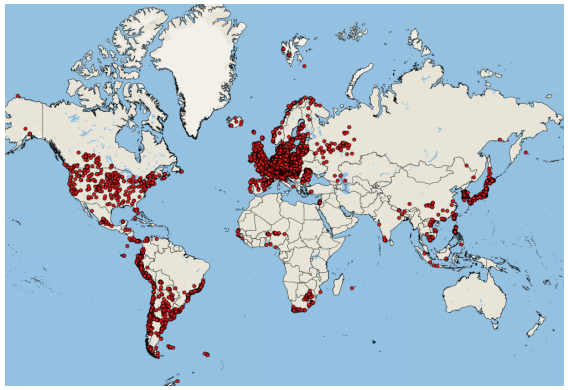
2021



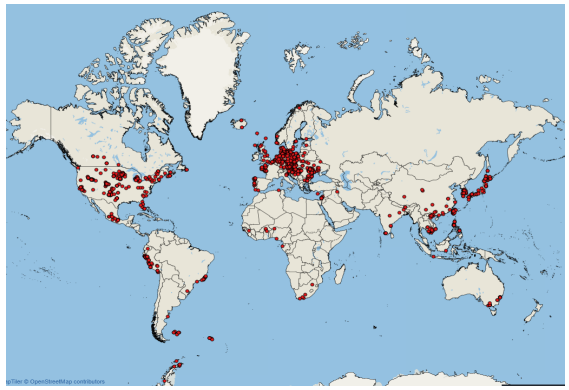
2022



2023



2024



Source: Empres-i+,
HPAI detections

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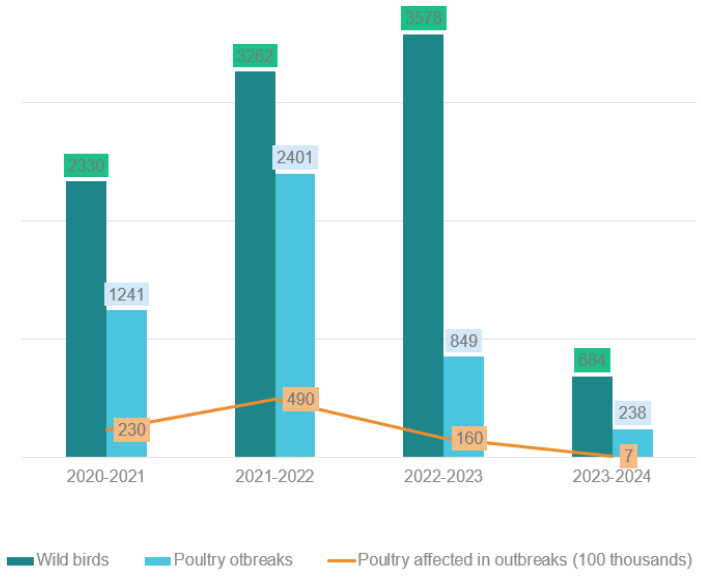
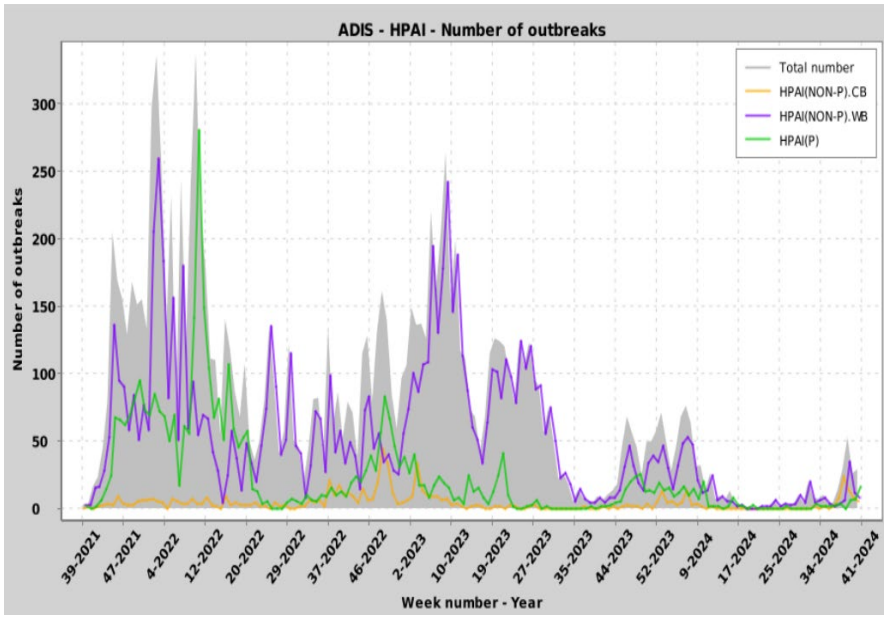
Disease situation in the EU since 2021

Summary of HPAI epidemic seasons in figures





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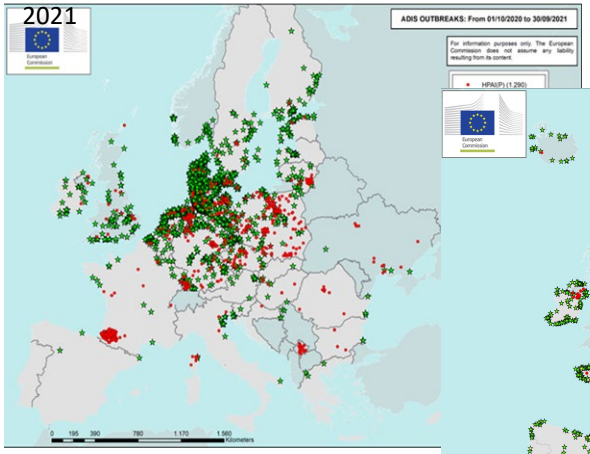
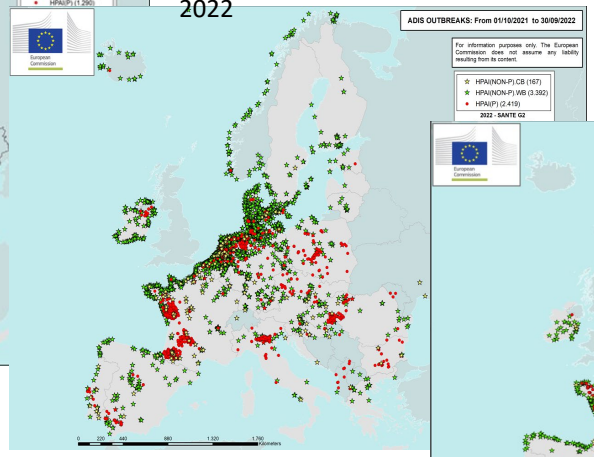
HPAI in EU - map view

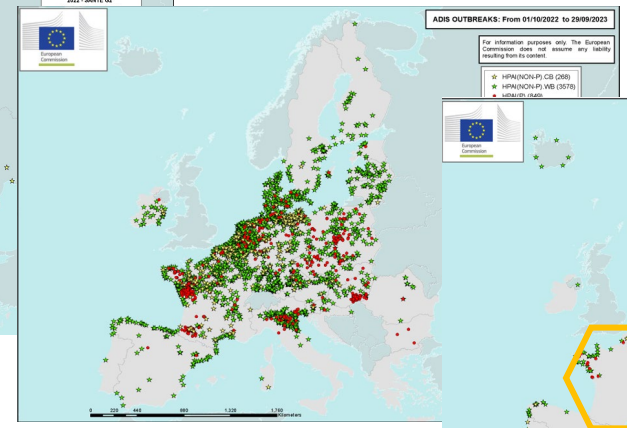
Oct 2020 – Sept 2021



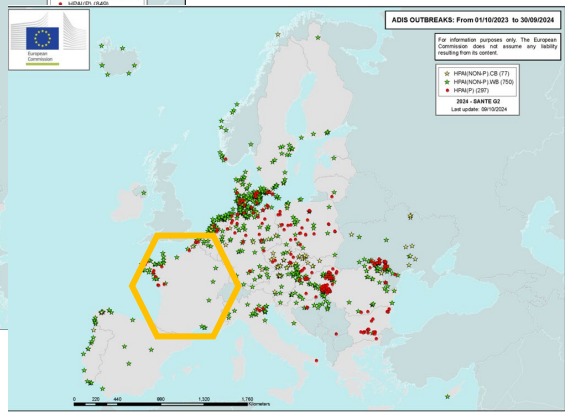
Oct 2021 – Sept 2022



Oct 2022 – Sept 2023



Oct 2023 – Sept 2024



Virus spread with wild birds in all parts of Europe

Recurrent clusters in poultry in certain areas with high density of poultry production

Vaccination of production ducks ongoing from 1 October 2023

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Science

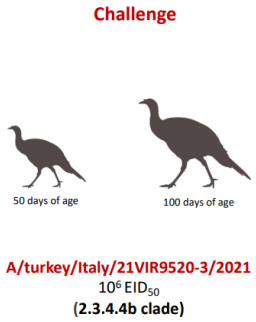
Research/vaccine trials in 2021-2025

France

- **in ducks**
- testing **two vaccines**
- assessment of protection, shedding and transmission

Italy

- **in turkeys**
- lab vaccine efficacy trials
- **different vaccines**, in **various combinations** (first dose, booster)
- assessment of reduction of virus shedding and clinical and virological protection



Netherlands

- **in chicks for laying hens**
- vaccine efficacy trial in lab high containment unit
- field trial in (September 2023-2025)

Hungary

- **in breeding geese**
- field safety and efficacy tests

  \+ testing of progenies for assessing duration of maternal immunity

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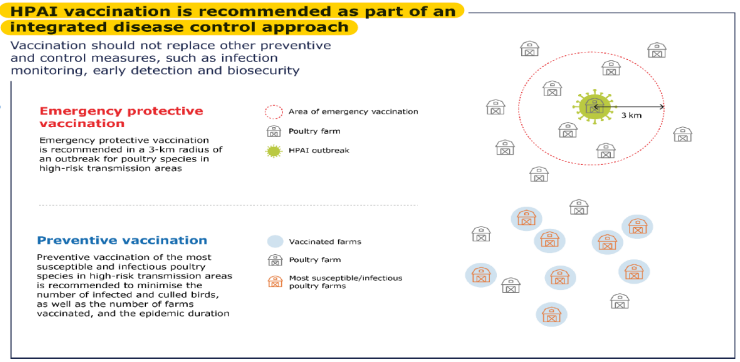
Vaccine trials results

- **very promising** for certain vaccines or certain combinations
- as they demonstrate:
  - **safety** and **strong shedding reduction** after challenge
  - a **very good control of** the **transmission** of A(H5N1) HPAI clade 2.3.4.4b
- results **in geese progenies** show rapid decrease of **maternal immunity**
  - **disappears by week 3**

EFSA opinion on HPAI vaccination

Part 1:
https://www.efsa.europa.eu/en/efsajournal/pub/8271



Part 2:
https://www.efsa.europa.eu/en/efsajournal/pub/8755

Surveillance

- **clear indications how to demonstrate disease freedom of vaccinated flocks with > 99% confidence** within high-risk zones for HPAIV infection

Risk mitigation measures

- **existing EU rules are valid**

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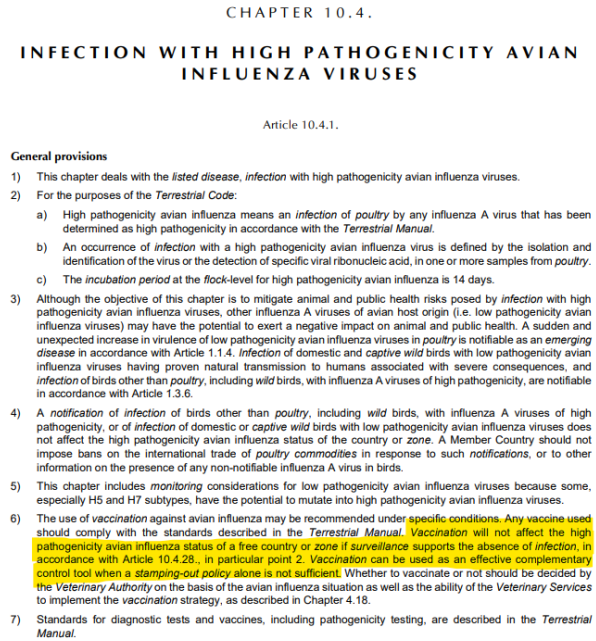
Standards

International standards

World Organisation for Animal Health
Founded in 1924

HPAI vaccination:

- ✓ Recommended
- ✓ Complementary control tool
- ✓ Not a trade barrier



CHAPTER 10.4.

INFECTION WITH HIGH PATHOGENICITY AVIAN INFLUENZA VIRUSES

Article 10.4.1.

General provisions

1) This chapter deals with the *listed disease*, *infection* with high pathogenicity avian influenza viruses.
2) For the purposes of the *Terrestrial Code*:
   a) High pathogenicity avian influenza means an *infection* of *poultry* by any influenza A virus that has been determined as high pathogenicity in accordance with the *Terrestrial Manual*.
   b) An occurrence of *infection* with a high pathogenicity avian influenza virus is defined by the isolation and identification of the virus or the detection of specific viral ribonucleic acid, in one or more samples from *poultry*.
   c) The *incubation period* at the *flock*-level for high pathogenicity avian influenza is 14 days.
3) Although the objective of this chapter is to mitigate animal and public health risks posed by *infection* with high pathogenicity avian influenza viruses, other influenza A viruses of avian host origin (i.e. low pathogenicity avian influenza viruses) may have the potential to exert a negative impact on animal and public health. A sudden and unexpected increase in virulence of low pathogenicity avian influenza viruses in *poultry* is notifiable as an *emerging disease* in accordance with Article 1.1.4. *Infection* of domestic and *captive wild* birds with low pathogenicity avian influenza viruses having proven natural transmission to humans associated with severe consequences, and *infection* of birds other than *poultry*, including *wild* birds, with influenza A viruses of high pathogenicity, are notifiable in accordance with Article 1.3.6.
4) A *notification* of *infection* of birds other than *poultry*, including *wild* birds, with influenza A viruses of high pathogenicity, or of *infection* of domestic or *captive wild* birds with low pathogenicity avian influenza viruses does not affect the high pathogenicity avian influenza status of the country or *zone*. A Member Country should not impose bans on the international trade of *poultry commodities* in response to such *notifications*, or to other information on the presence of any non-notifiable influenza A virus in birds.
5) This chapter includes *monitoring* considerations for low pathogenicity avian influenza viruses because some, especially H5 and H7 subtypes, have the potential to mutate into high pathogenicity avian influenza viruses.
6) The use of *vaccination* against avian influenza may be recommended under specific conditions. Any vaccine used should comply with the standards described in the *Terrestrial Manual*. *Vaccination* will not affect the high pathogenicity avian influenza status of a free country or *zone* if *surveillance* supports the absence of *infection*, in accordance with Article 10.4.28., in particular point 2. *Vaccination* can be used as an effective complementary control tool when a *stamping-out policy* alone is not sufficient. Whether to vaccinate or not should be decided by the *Veterinary Authority* on the basis of the avian influenza situation as well as the ability of the *Veterinary Services* to implement the *vaccination* strategy, as described in Chapter 4.18.
7) Standards for diagnostic tests and vaccines, including pathogenicity testing, are described in the *Terrestrial Manual*.

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EU harmonized rules - *approach*

Rules on the use of **certain VMPs** for prevention and control of **certain listed diseases - Terrestrial and Aquatic animals**

Circumstances under which **vaccines for category A** diseases can be used

Which **VMPs cannot be used for category A and B** diseases *(including some vaccines, i.e. Rinderpest and Mycobacterium tuberculosis complex)*

Rules on the use of **vaccines** for prevention and control of category A diseases **– Terrestrial animals (partially Aquatic)**

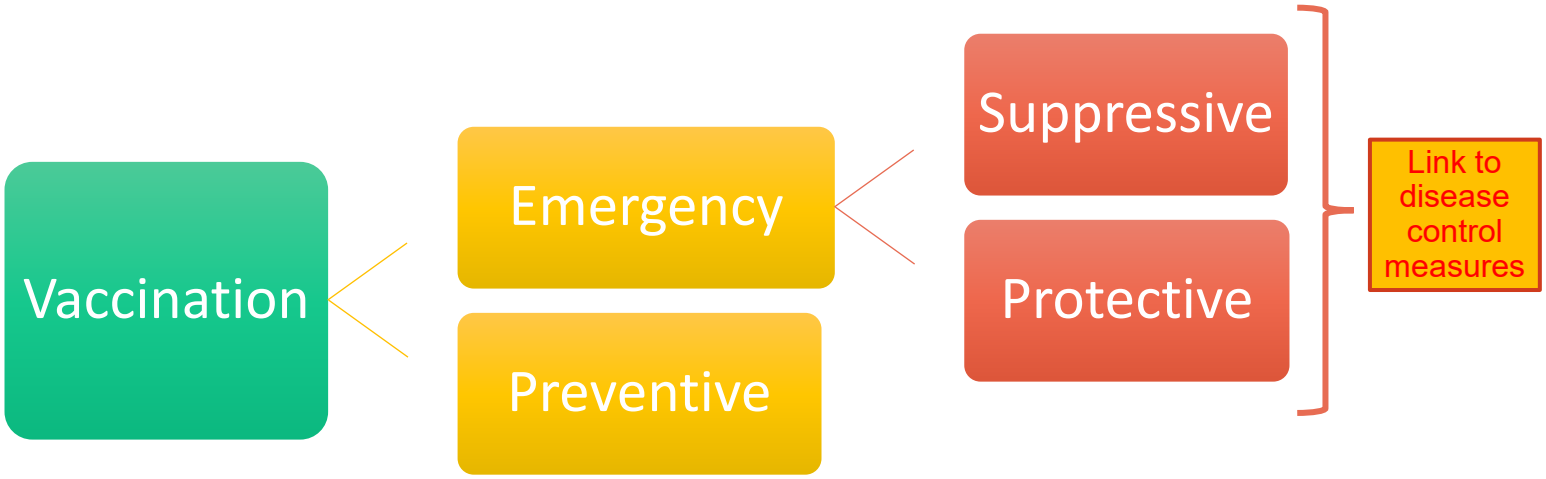
- Preconditions
- Strategies
- General rules Risk-mitigation measures (movement restrictions)

Disease-specific conditions

- Implementation + post vaccination surveillance
- Measures (movement prohibitions for animals and products) in the vaccination zone
- Recovery of the previous animal health status

EU harmonized rules - vaccination *strategies* for HPAI

complementary prevention/control tool



Biosecurity remains the **cornerstone** preventive measure

Stamping out remains compulsory measure in establishments where HPAI is detected, even if vaccination has been implemented

EU harmonized rules - *specific requirements*

Vaccines

- that **do not contain live AI virus** (attenuated or not)

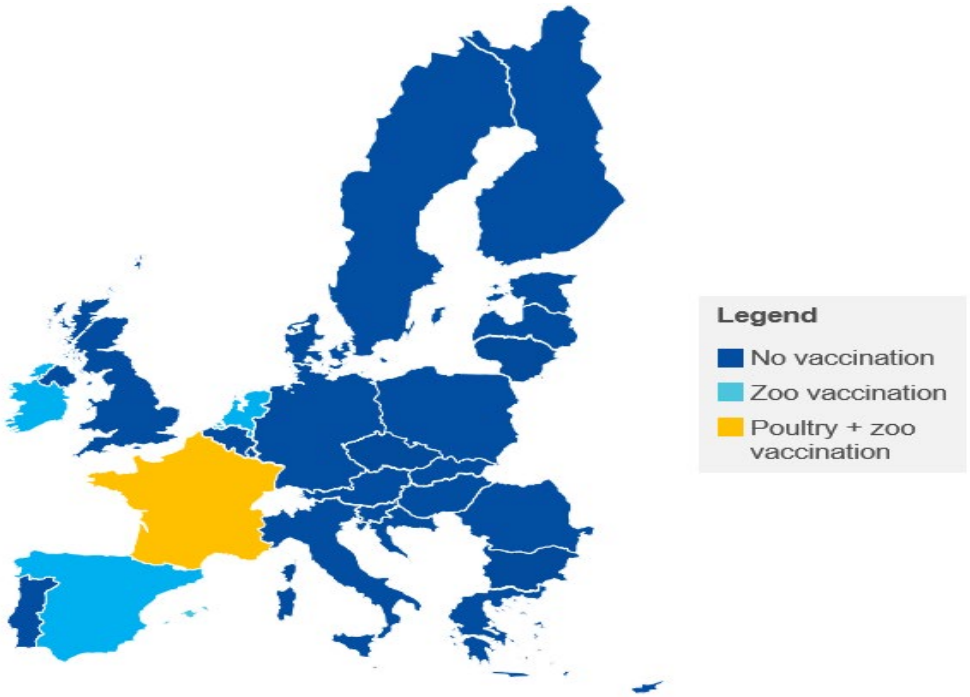
Risk mitigation measures

Reinforced surveillance

Traceability/Certificates

Experience

Vaccination against HPAI in EU



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Preventive vaccination in ducks for production in France

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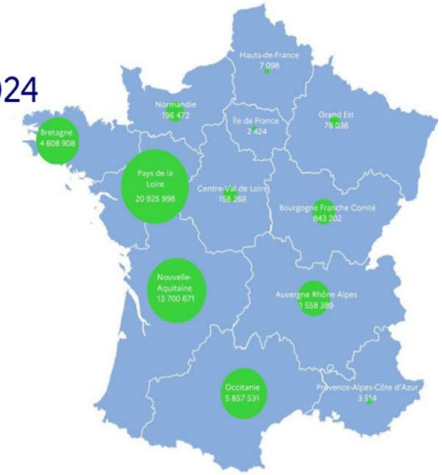
ET DE LA SOUVERAINETÉ
ALIMENTAIRE

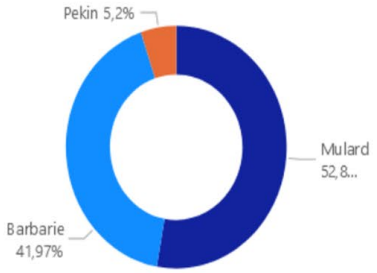
Vaccination follow-up report

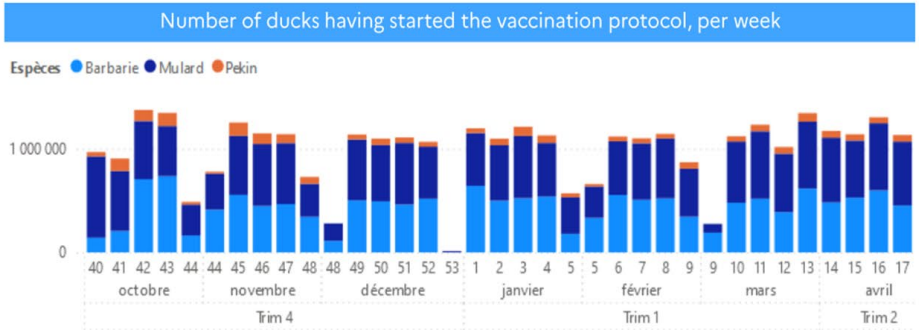
Period : from 1rst October 2023 to 19th September 2024

57 million
Number of vaccinated ducks

2100
Number of establishments







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ALIMENTAIRE
Liberté
Égalité
Fraternité

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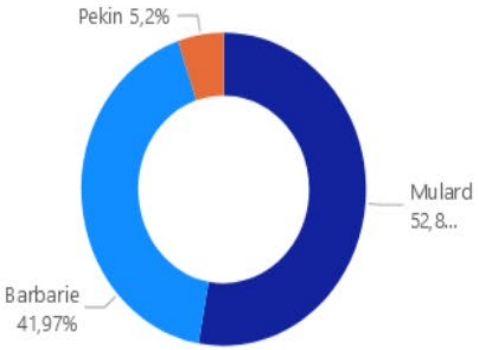
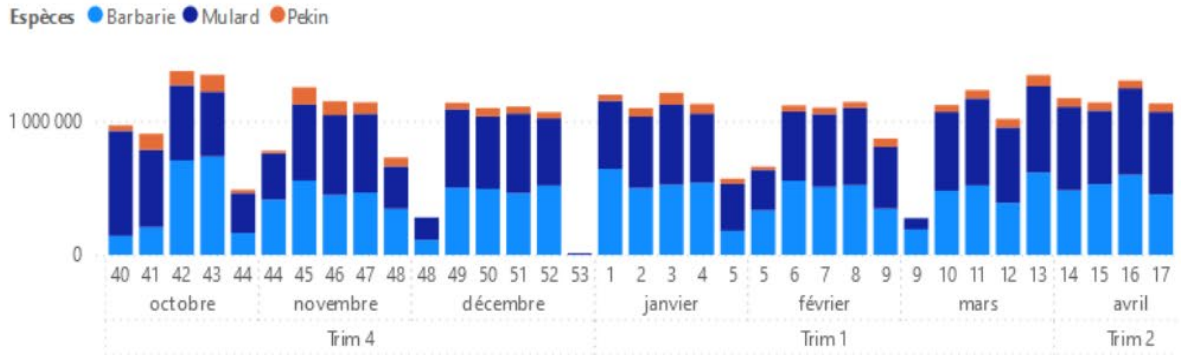


Number of ducks having started the vaccination protocol, per week



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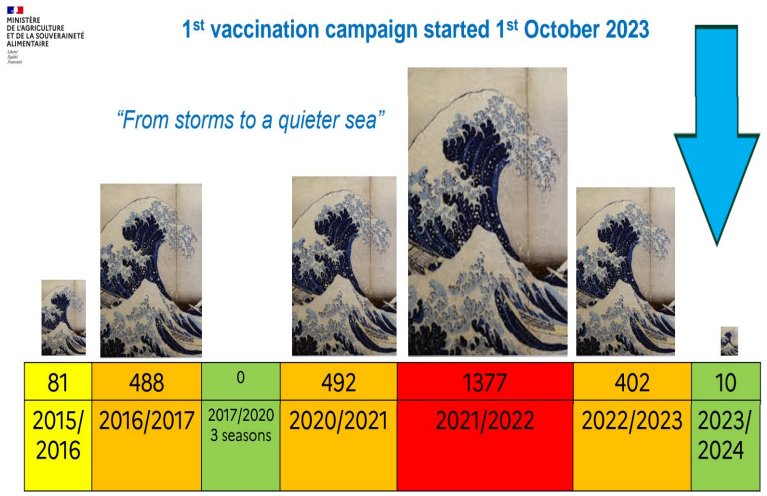
Success

HPAI SEASON 2023/2024 IN FRANCE

NUMBER OF OUTBREAKS AND EFFECT OF DUCK VACCINATION

Prediction without vaccination: 487 outbreaks

Reality with vaccination: 10 confirmed outbreaks



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Challenges

What makes it difficult

- **Surveillance** in **ALL** flocks (compliance with requirements in WOAH code)
  - high demand for veterinary and laboratory capacity and resources
- **Trade bans**

What may be a problem

- **Vaccine availability** in case of large scale vaccination in more countries ?

Where we stand ?

Resources
There is knowledge, there are means

Change
Within a changing world, we need to change as well

Aim for the better
Higher risk, higher challenges, all the effective tools are useful

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What is much needed now: **PREDICTABILITY**

- For **scientists/researchers**: to target research in advance
- For **risk assessors**: to anticipate risk assessment questions
- For **primary producers**: to consider vaccination as a real option
- For **traders/operators**: to explore and consolidate markets
- For **pharma industry**: to make plans for supply suitable vaccines
- For **policy makers**: to develop modern sustainable policies
- For **regulators**: to adapt legislative framework on time

Thank you

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