

10 July 2023

## Press release

---

### **PUBLICATION: IMPACT OF PALMIPED FARM DENSITY ON THE RISK OF AVIAN INFLUENZA IN FRANCE**

**The search is on for a solution to recurring outbreaks of highly pathogenic avian influenza (HPAI) in France. What could limit the impact of this disease and prevent the slaughter of millions of birds every year?**

**A team of scientists at the Host-Pathogen Interactions Laboratory (IHAP) in Toulouse, France (INRAE/ENVT), in contribution to the Chair for Avian Health and Biosecurity, analysed interplay between palmiped farm density and the vulnerability of poultry production systems to the H5N8 strain of highly pathogenic avian influenza (HPAI). Their results have just been published in *Veterinary Research*.**

The team used a mathematical model of the spatial transmission of highly pathogenic avian influenza based on the epidemic of the winter of 2016-2017. Six scenarios were developed in which the density of palmiped farms was progressively decreased in municipalities with the highest densities. For each scenario, the transmission model was used to simulate a large number of epidemics, making it possible to summarize the epidemiological impact of HPAI for different farm densities.

The scenarios show that reducing palmiped farm densities in 20% of the municipalities with the highest palmiped farm density reduced threefold the proportion of outbreaks on farms at the end of the epidemic. Reducing the density of palmiped farms during high-risk periods therefore greatly lessens the risk for all poultry production systems.

However, since a significant reduction does not completely eliminate epizootic risk, additional measures such as the preventive slaughter of high-risk flocks or the vaccination of poultry seems nevertheless necessary.

This research, which received funding from the Occitanie region and the European Regional Development Fund (ERDF), was carried out in collaboration with ANSES, the Institut Pasteur in Paris and the French Ministry of Agriculture. It is part of a broader enquiry into the vulnerability of our production systems to emerging infectious risks.

#### **Read the article here:**

*B. Bauzile<sup>1</sup>, B. Durand<sup>2</sup>, S. Lambert<sup>1</sup>, S. Rautureau<sup>3</sup>, L. Fournet<sup>1</sup>, C. Guinat<sup>1</sup>, A. Andronico<sup>6</sup>, S. Cauchemez, M.C. Paul<sup>1</sup> and T. Vergne<sup>1</sup>*

*<sup>1</sup> UMR IHAP, Université de Toulouse, INRAE, ENVT, Toulouse, France*

*<sup>2</sup> Agence Nationale de Sécurité Sanitaire de l'Alimentation, Université Paris-Est, Maisons-Alfort, France*

*<sup>3</sup> Direction Générale de l'Alimentation, Paris, France*

*<sup>4</sup> Department of Biosystems Science and Engineering, ETH Zürich, Mattenstrasse, 4058, Basel, Switzerland*

5 Swiss Institute of Bioinformatics (SIB), Lausanne, Switzerland

6 Mathematical Modelling of Infectious Diseases Unit, Institut Pasteur, Université de Paris, CNRS  
UMR2000, 75015, Paris, France

**Scientific contact:**

Timothée Vergne - [timothee.vergne@envt.fr](mailto:timothee.vergne@envt.fr)

**Press contacts:**

Virginie Fernandez - Communications Manager at ENVT

05 61 19 32 59 | 06 23 75 44 47 | [virginie.fernandez@envt.fr](mailto:virginie.fernandez@envt.fr)

INRAE Press Office: 01 42 75 91 86 – [presse@inrae.fr](mailto:presse@inrae.fr)