

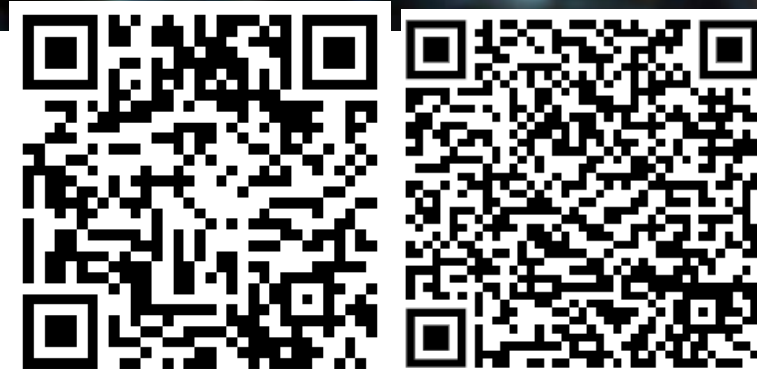


Global strategy for the prevention and control of high pathogenicity avian influenza (2024–2033)



Madhur Dhingra, EMPRES-AH, FAO

Ismaila Seck, Animal Health Officer, Co-chair (FAO) of the
GF-TADs HPAI Task- force, FAO-NSA



Source: FAO

download here



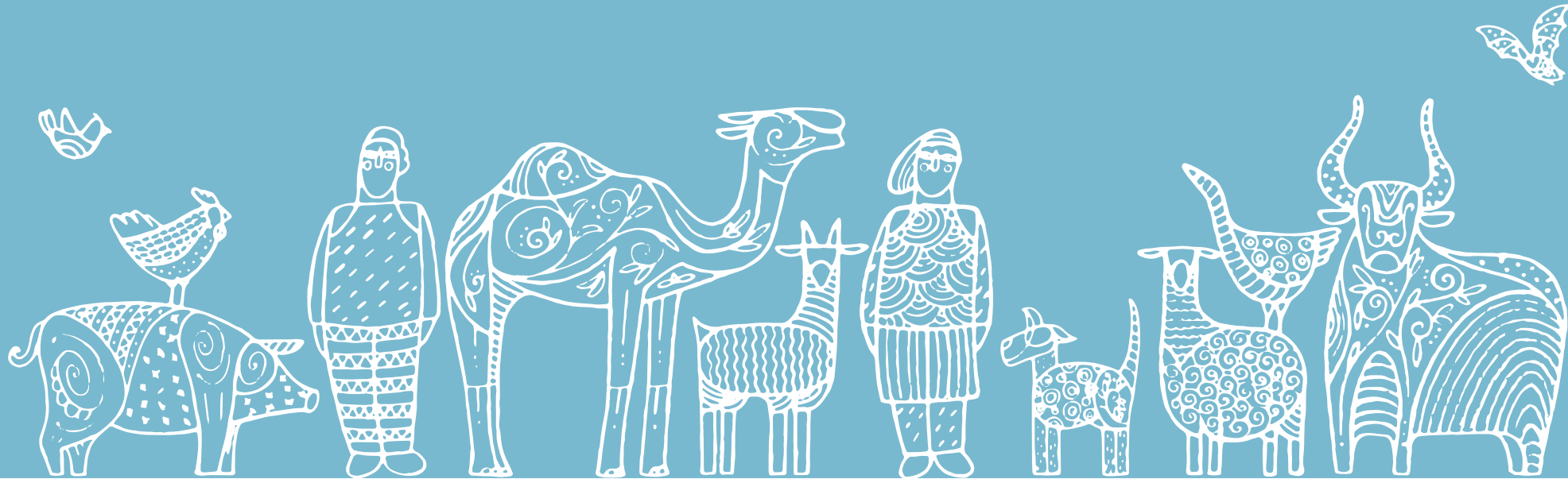
Presentation Plan:

Global Challenges that necessitated a revision to the 2008 strategy

The Global Strategy for HPAI Prevention and Control (2024–2033): Vision, Goal, Objectives, ...

FAO's Global and Regional Support for HPAI prevention and control

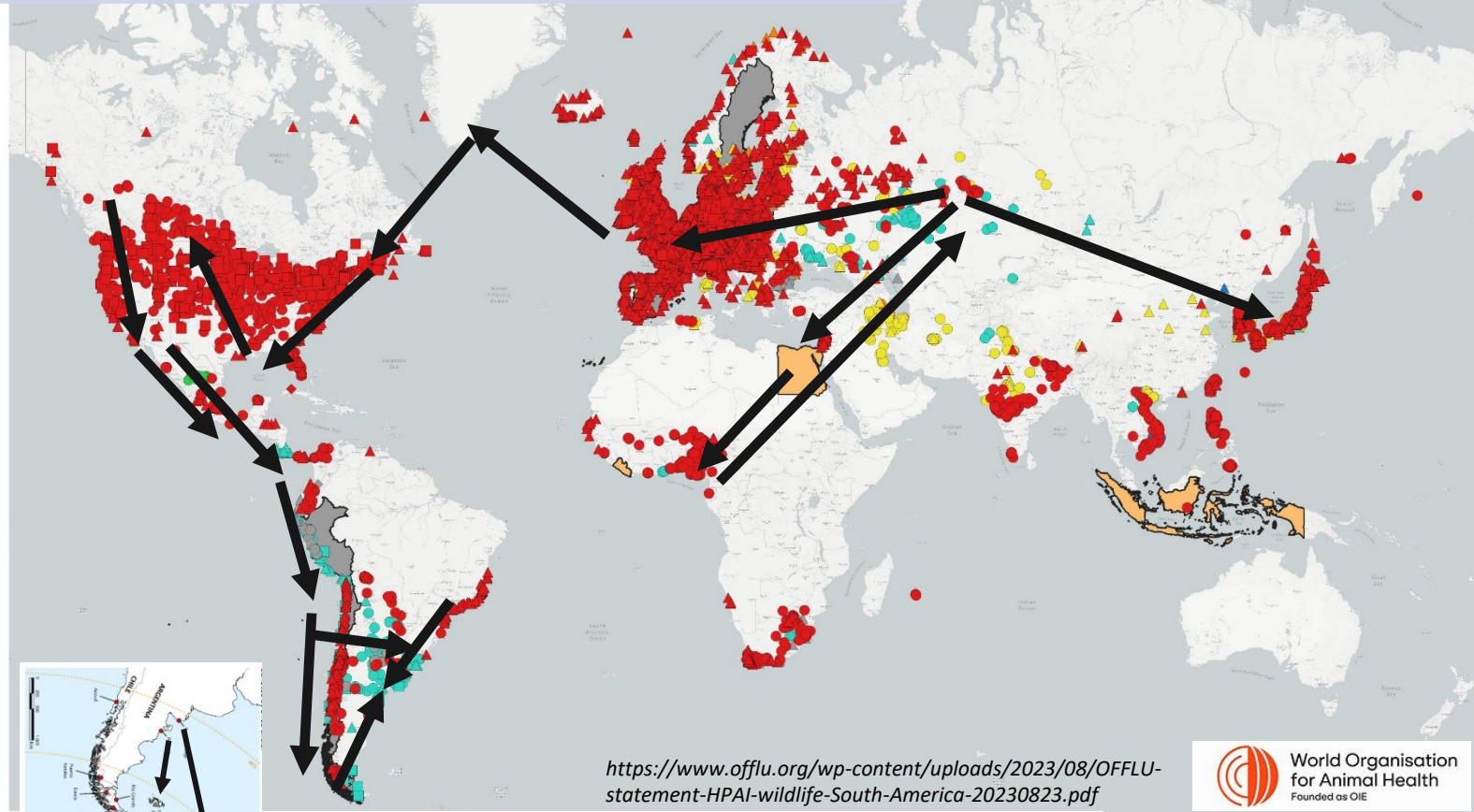
Next Steps: Implementation Process of the HPAI Global Strategy



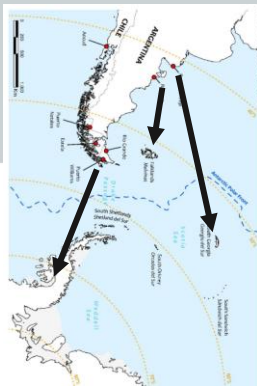
Global Challenges necessitated a revision to the 2008 strategy

Changing ecology and epidemiology of H5Nx Gs/GD HPAI

- Spread 2.3.4.4b from Central Asia to Europe and Africa (2020), North America (2021), South America (2022), and Antarctica (2024)
- Causing infection in diverse wild & domestic bird species (more than 528 species, 26 orders)
- Spread by migratory and resident wild birds
- Spill-over and maintenance in poultry operations
- Spill-over to pets: dogs and cats from predation on wild bird carcasses or cats from infected milk or poultry meat



World Organisation for Animal Health
Founded as OIE



Source: Wikipedia



Source: Lee, S.-H., et al. 2024. Caught Right on the Spot: Isolation and Characterization of Clade 2.3.4.4b H5N8 High Pathogenicity Avian Influenza Virus from a Common Pochard (*Aythya ferina*) Being Attacked by a Peregrine Falcon (*Falco peregrinus*). *Avian Diseases*, 68: 72-79. DOI: 10.1637/aviandiseases-D-23-00062

Changing ecology and epidemiology of H5Nx Gs/GD HPAI

- Spill-over to 40 species of terrestrial mammals and 13 species of sea mammals with large die-offs in harbor seals (2022), sea lions (2023) & elephant seals (2023)
- Affected farmed mammals:
 - 43 farms of fur mammals in Spain and Finland
 - 983 dairy cattle herds affected in 17 USA states
 - Rare cases in goats, pigs and alpacas
- Increasing sporadic human cases mostly from direct occupational exposure
- Negative impact on food supply and increased costs to consumers



https://en.wikipedia.org/wiki/Red_fox



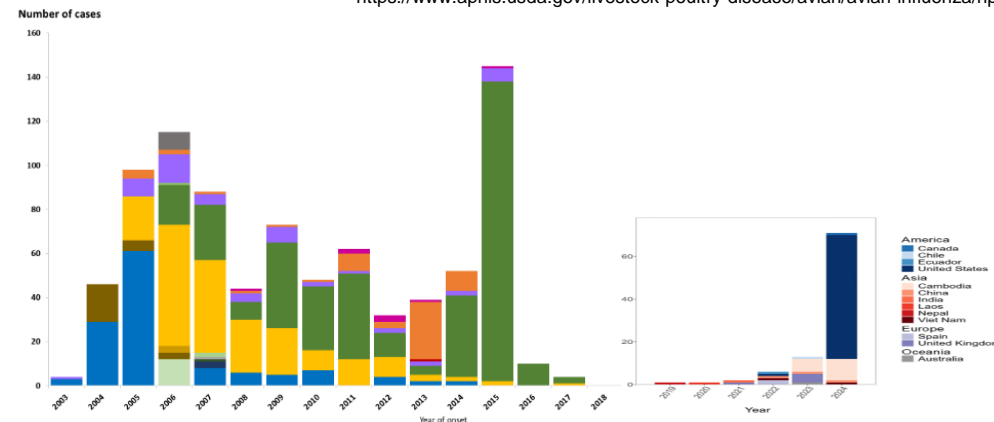
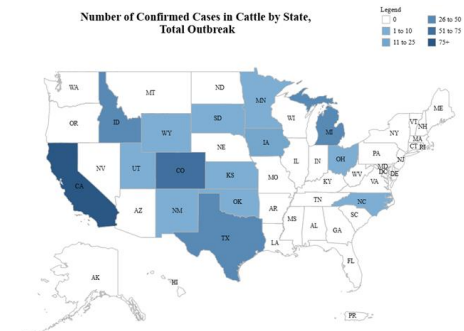
https://en.wikipedia.org/wiki/Harbor_seal



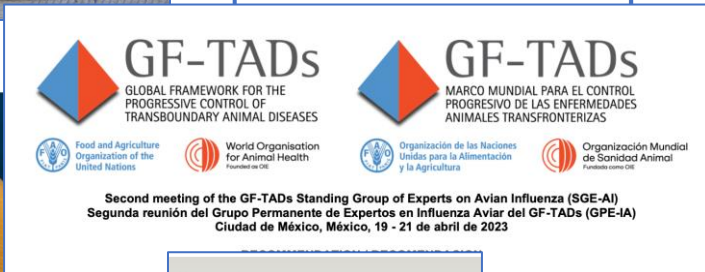
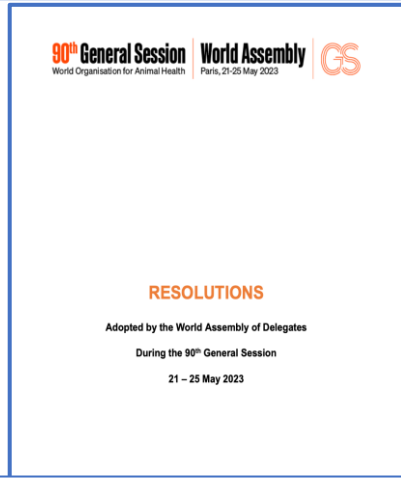
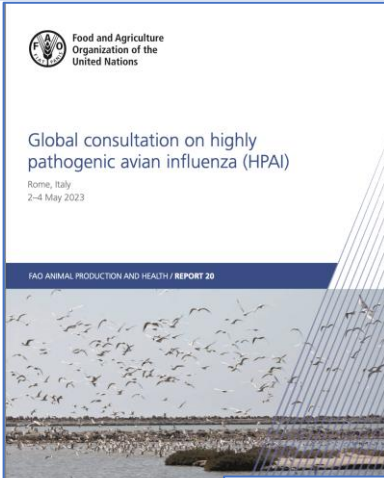
https://en.wikipedia.org/wiki/South_American_sea_lion



<https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/livestock>



Inputs for the revision of the HPAI Global Strategy



Key discussions

Regional surveys, stakeholder mapping and regional discussions

Recommendations from the Regional Standing Group of AI Experts (SGE) for the Americas and Europe

Recommendations from FAO Global Consultation on HPAI (May 2023)

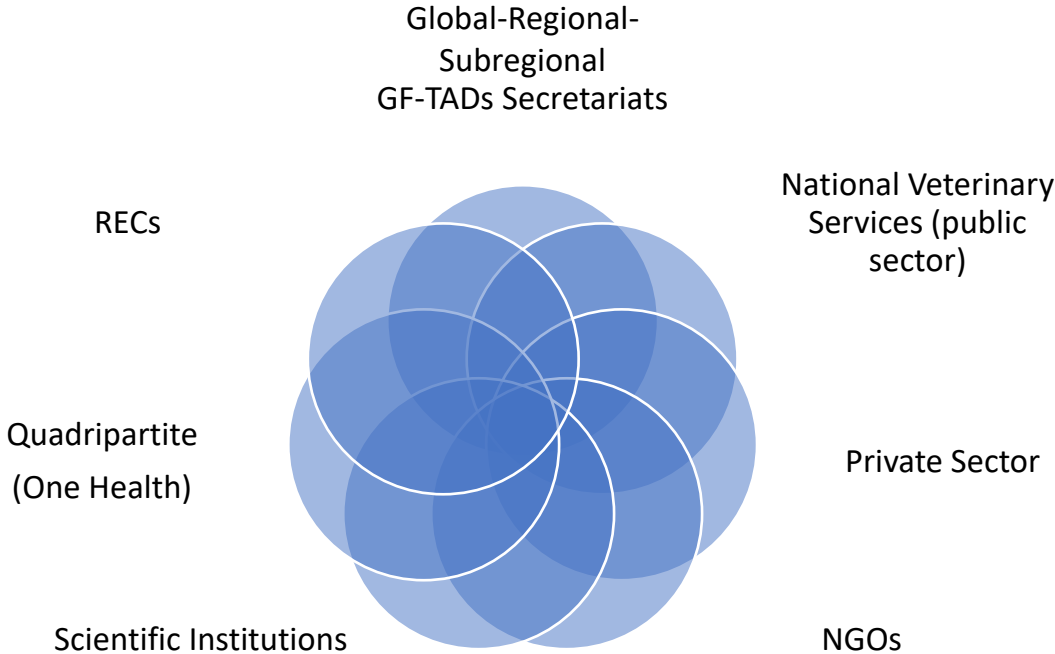
Recommendations from the HPAI Animal Health Forum during the 90th WOAHA General Session (May 2023)

- Resolution 28 requested WOAHA, with FAO, update the Global Strategy on HPAI

Recommendations from Scientific Task Force on Avian Influenza and Wild Birds (July 2023)

Revision of the HPAI GS was guided by the evolving science and strategic discussions regarding tactical tools, approaches and collaborations needed at local, national, regional and interregional levels.

Consultation process



Internal consultation within FAO /WOAH headquarters and regional offices - December 2023

External consultation involving global organisations and experts, regional partners, WOAH Members and FAO national officers in April 2024

Input received from 67 organizations:

- 82% from national level
- 57% from governmental organizations
- 16% from scientific organizations
- 33% Asia Pacific, 16% Americas, 28% Europe, 15% Africa, 1% Middle East

Global strategy for
the prevention
and control of
HPAI (2024–2033)

Vision

A world with effective HPAI **prevention and control** along poultry value chains

supports **protection** of humans, other domestic animals, wildlife and the environment

aligns with the **sustainable transformation** of agrifood systems

Scope

Takes into consideration **all HPAI and zoonotic LPAI viruses**.

Emphasises a **One Health approach**

Focuses on the actions to be implemented by the animal health sector

For better prevention and control of HPAI

Who?

National Veterinary Services; wildlife, environment, and public health services; regional economic communities, private sectors, research educational institutions, civil society organisations involved in animal health, welfare, production and value chains, and zoonotic disease prevention and control



Objectives

- 1 **Prevent** HPAI epidemics, panzootics and negative impacts on biodiversity through multisectoral early detection and control
- 2 **Protect** poultry value chains, livelihoods, trade, and the health of humans, ecosystems, and other animals from avian influenza impacts
 - **Transform** poultry value chains to improve resilience to avian influenza and other disease threats.
- 3



Sphere of control | Outputs

Avian influenza risk monitoring and risk-based surveillance in domestic and wild animals supported and information shared across sectors (national, regional and global)

Laboratory diagnostic capacities for early detection, differentiation and identification of avian influenza viruses established/supported

One Health collaborative preparedness and response capacities to

Biosecurity along the animal-wildlife interface promoted

HPAI vaccination international communication

Guidance shared and of infectious diseases

One Health legal framework promoted chains

Inter- and sharing on

National strategies for ensuring sustainable and effective public and private veterinary services promoted

Transformative research such as the development of mass-applied HPAI vaccines and a novel surveillance system to provide an evidence base for policy change encouraged and supported

Sphere of influence | Outcomes

Circulating and newly emerged HPAI virus strains are detected and reported early, characterized, and resulting data and isolates shared through national and international networks (e.g., OFFLU)

HPAI outbreaks efficiently controlled

Upstream drivers identified, spillover reduced, and transmission prevented through sustainable, collaborative One Health

including consideration of the risks assessed in the different chains

Long-term support to modify high-risk activities to ensure sustainable and resilient poultry production and value chains

Greater cooperation, investment and partnerships in poultry value chains

Sphere of interest | Goal and objectives

Prevent HPAI epizootics, panzootics and negative impacts on human health and ecosystems through multisectoral early detection and control

Protect poultry value chains, livelihoods, trade and the health of humans, animals, and ecosystems from HPAI impacts

Transform poultry value chains to improve resilience to HPAI and other disease threats

Substantially and sustainably reduce the impacts of HPAI on poultry, improve resilience of agrifood systems, safeguard ecosystems, and protect animal and human health

- Strengthening Biosecurity Measures
- Uptake of Vaccination
- Enhancing Surveillance Systems
- Sustainable Poultry Production
- Cross-sectoral Collaboration
- Public and Private Stakeholder Engagement

Assumption 1: Countries prioritize HPAI prevention and response capacity within national poultry health programmes.

Assumption 2: Countries are actively adopting a One Health approach as part of health security.

Assumption 3: Effective public-private relationships exist to enable livestock system transformation.

A

Global
level

Establish Governance Structure: Utilize existing mechanisms under the GF-TADS.

Engage Partners: Collaborate with international public and private entities.

Communication Plan: Develop and launch a strategy awareness campaign.

Support OFFLU: Encourage countries to share HPAI data.

Develop Guidance and Standards: Facilitate the creation of control strategies and HPAI vaccination programs.

One Health Approach: Work with Quadripartite partners to operationalize One Health for HPAI prevention and control.

Sustainable Livestock Initiative: Support regions and countries to strengthen poultry value chains and enhance resilience to HPAI and other diseases.

What Actions
are Needed to
Achieve The
Vision

B

Regional
level

Strategy Communication: Facilitate the dissemination of the strategy and the development of HPAI action plans.

Engage Regional Committees: Work with GF-TADS Regional Steering Committees and other networks for cross-border collaboration.

Implement Strategy: Assist Members in implementing the strategy.

One Health Platforms: Encourage collaboration with regional Quadripartite partners.

Information Sharing: Promote regional updates and sharing on the HPAI context.

Develop Laboratory Networks: Facilitate the enhancement of laboratory capacities.

Identify Key Areas: Engage stakeholders to pinpoint crucial areas for poultry value chain transformation.

What Actions
are Needed to
Achieve The
Vision

What Actions are Needed to Achieve The Vision

C

Country
level

Develop National Action Plans: Create plans for HPAI guided by the global strategy.

Promote Reporting and Information Sharing: Ensure timely, transparent reporting of HPAI and LPAI outbreaks, including genomic data, to WOA, FAO, OFFLU, and other partners.

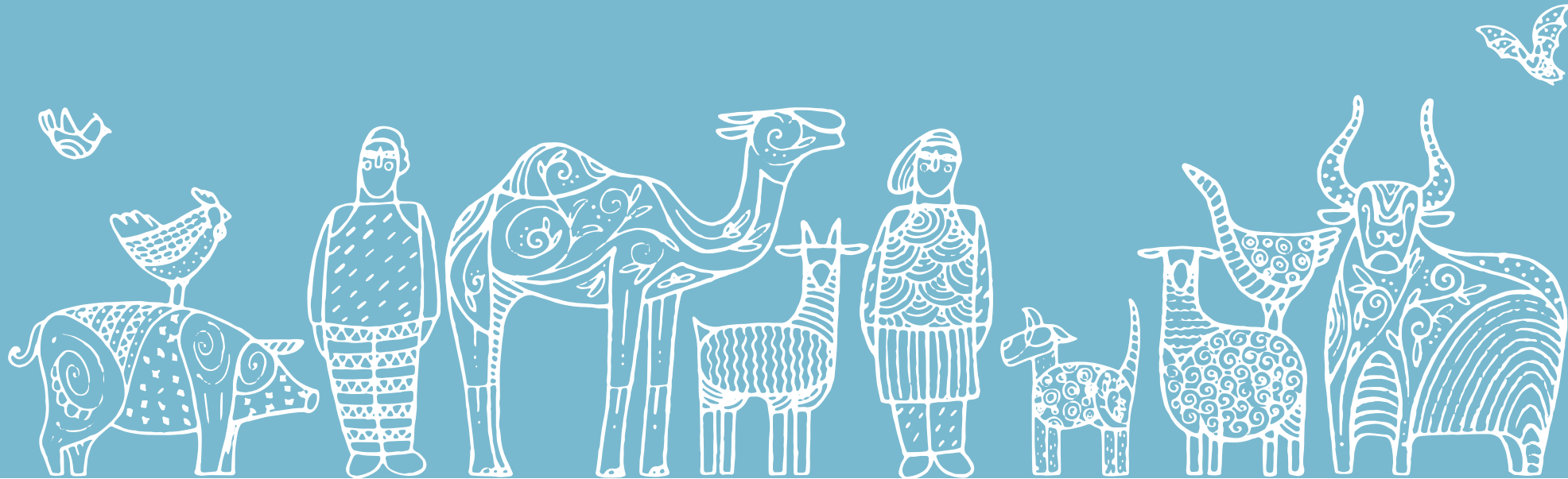
Enhance Laboratory Capacity: Ensure laboratories are equipped for early detection and response.

Collaborate Regionally: Work with regional partners through GF-TADS to share experiences, data, discuss challenges, and progress on national plans.

Foster One Health Collaborations: Engage in One Health platforms.

Advocate for Support: Seek political and financial backing for HPAI prevention and control.

Conduct After Action Reviews: Organize reviews post-HPAI outbreaks to learn lessons and identify systemic factors that enhance poultry value chain resilience to disease shocks.



AI Overview in African region

Africa hotspot: broad genetic diversity of AIV and co-circulation of different subtypes

NORTH

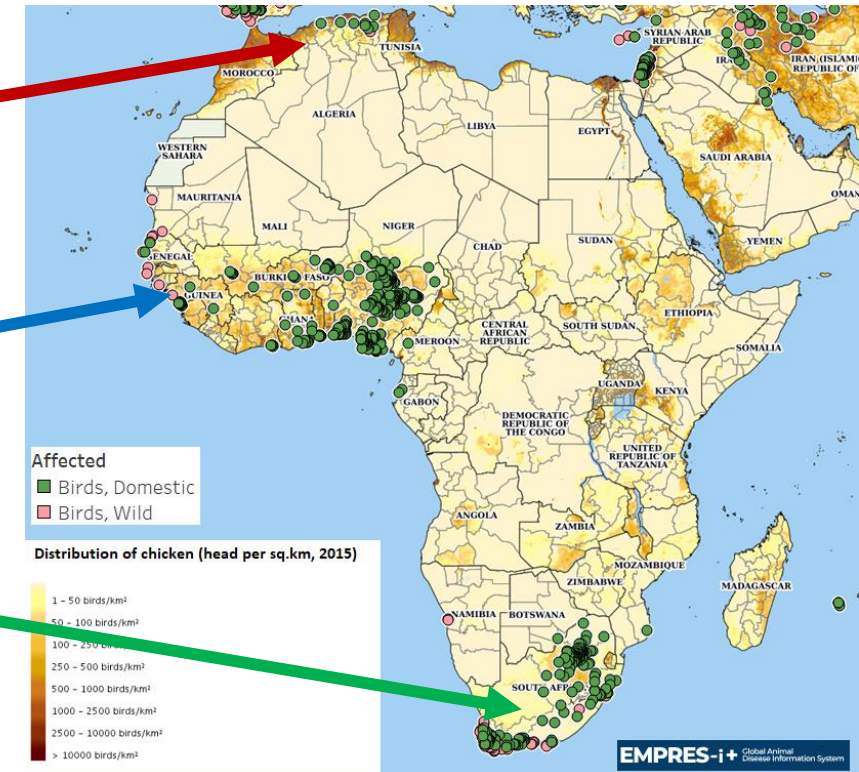
H5N1 or H5N8 HPAI: Egypt (2006-), Algeria (2021-2023), Tunisia (2016).

WEST AND CENTRAL

Most of the countries experienced **H5N1, HPAI** since 2020 : Benin, Burkina Faso, Cameroon, Cote d'Ivoire, Gambia, Gabon, Ghana, Guinea, Mali, Mauritania, Niger, Senegal, Togo and Nigeria (+ **H5N2, H5N6 and H5N8**).

SOUTH

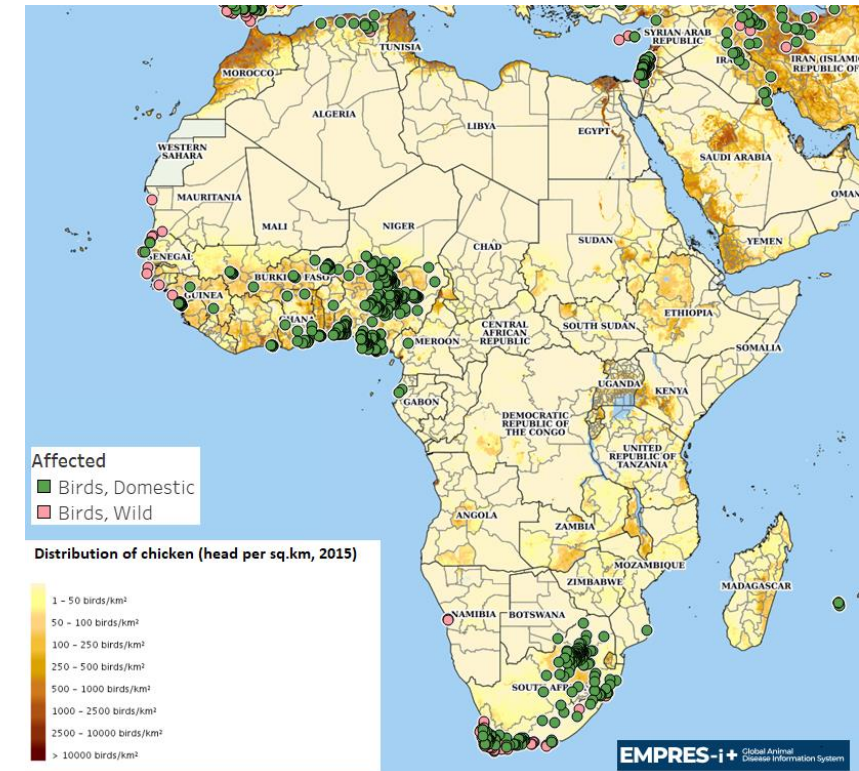
H5N2, H5N8, H5N1 or H7N6 HPAI in South Africa, and occasional detections in Botswana, Lesotho, Mozambique, Namibia, and Reunion (France).



H9N2 LPAI: endemic in certain areas of Africa

Africa hotspot: broad genetic diversity of AIV and co-circulation of different subtypes

- There is **persistent circulation** of the virus in West Africa as well as **introductions** of Gs/Gd H5 HPAI viruses from Eurasia
- There are genetically distinct 2.3.4.4b subclades circulating which are further diversifying and it is difficult to understand their origins
- **Co circulation** of different H5 lineages in diverse bird populations and a variety of species lends itself to further virus evolution through drift and reassortment creating an **ever evolving complexity**
- Viruses of the H9N2 subtype are also entrenched in the poultry population leading to **reassortment** – these viruses and the extent of their circulation are poorly understood
- Africa is turning into a **new hotspot for the emergence** of new genotypes of HPAI, having animal health implications and negative economic drawbacks



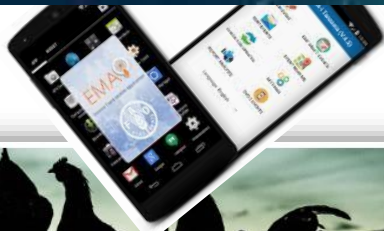
>>> **Increased sampling efforts in poultry and wild birds and improvement of viral genomic surveillance and sharing of data is needed** <<<



FAO Global, and Regional support

FAO Support to Members

Global early warning and response system



Sub-Saharan Africa
13 February 2025, 08:30 hours, Rome

Overview

Situation: High pathogenicity avian influenza (HPAI) viruses with pandemic potential (H5Nx, H7Nx) with pandemic potential.

Confirmed countries: Gabon, Gambia, Ghana, Togo.

Global Avian Influenza Viruses with Zoonotic Potential situation update
27 February 2025, 08:30 hours, Rome

Situation updates
<https://www.fao.org/animal-health/situation-updates/en>

Next issue: 27 March 2025

The disease situation updates are produced by the FAO Emergency Prevention System for Animal Health (EMPRES-AH) as part of its mission to increase global disease intelligence.

Specific information is available for Avian Influenza A(H7N9) virus viruses and Sub-Saharan Africa HPAI in related FAO Avian Influenza situation updates.

Food and Agriculture Organization of the United Nations

alert

H5Nx highly pathogenic avian influenza (HPAI) - increased detection likely along wild bird migratory pathways and risk for introduction (multiple regions)

Food and Agriculture Organization of the United Nations

Recommendations for the surveillance of influenza A(H5N1) in cattle
With broader application to other farmed mammals

FAO ANIMAL PRODUCTION AND HEALTH / GUIDELINES 37

Cattle influenza surveillance guidelines

Food and Agriculture Organization of the United Nations

empres watch

VOL 38 - JULY 2024 | EMPRES-ANIMALHEALTH@FAO.ORG | HTTPS://WWW.FAO.ORG/ANIMAL-HEALTH

A(H5N1) influenza in dairy cattle in the United States of America

Contributors (in alphabetical order): Lorcan Carmegie, Amelia Coggon, Amy Delgado, Madhur Dhingra, Cecilia Murguía, Elisa Palamara, Gisella De Oliveira Dias Da Silva, Ihab El Masry, Akiko Kamata, Nick Lyons, Melissa McClaws, Damian Tago Pacheco, Lidewij Wiersma

Contents

Summary 1

Background: global situation

As of 11 July 2024, 145 dairy operations in twelve American states have been identified with the virus. On 1 April 2024, the same virus was detected in a farm worker in the state of Texas with presumed exposure to affected dairy cattle. This was the first reported case of HPAI H5N1 in a dairy worker in the United States.

Background: global situation with HPAI H5N1 2.3.4.4b

Influenza viruses are constantly evolving and are infecting a wide range of species. Continued

A(H5N1) influenza in dairy cattle in the United States of America
<https://openknowledge.fao.org/handle/20.500.14283/cd1580en>



FAO Global Support for HPAI

Capacity development & outbreak support

- Emergency response missions
- Stockpile for reagents, lab consumables & PPE
- Community of Practice on biosecurity
- Wildlife Health Intelligence Network
- [OFFLU AIM report](#) on poultry vaccine



<https://virtual-learning-center.fao.org/mod/page/view.php?id=8724>

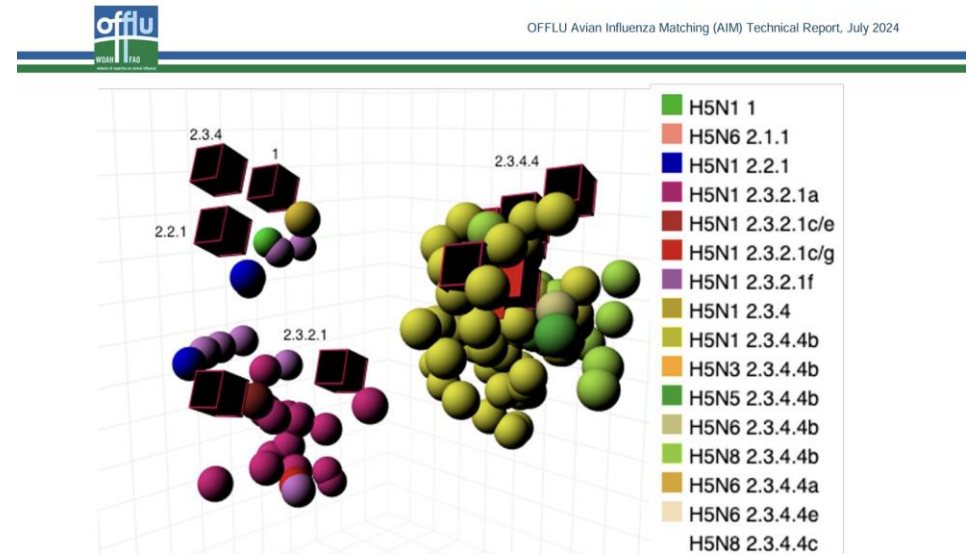
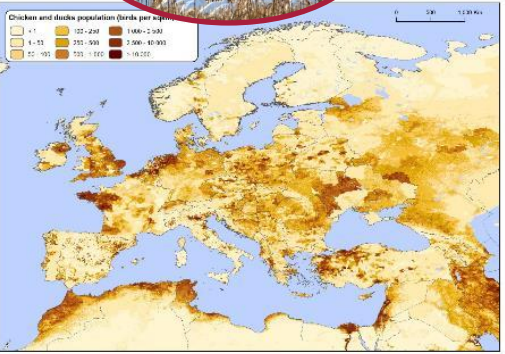
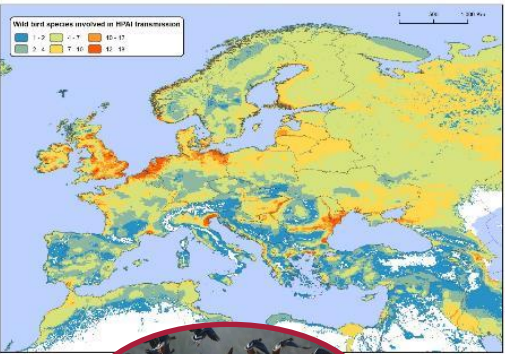


Figure 2: A 3-dimensional antigenic map showing the evolutionary relationships of H5 HPAI Qx/Gd lineage viruses. Each antigen is represented by a red cube, for vaccine seed strains or surrogates and black cube for other. Antigens are represented as balls and are coloured by clade '1' or according to the key. Each square represents one antigenic unit. One antigenic unit is representative of a 2-fold difference in HA assay titer. The corresponding table of antigenic distances can be found in table 3.

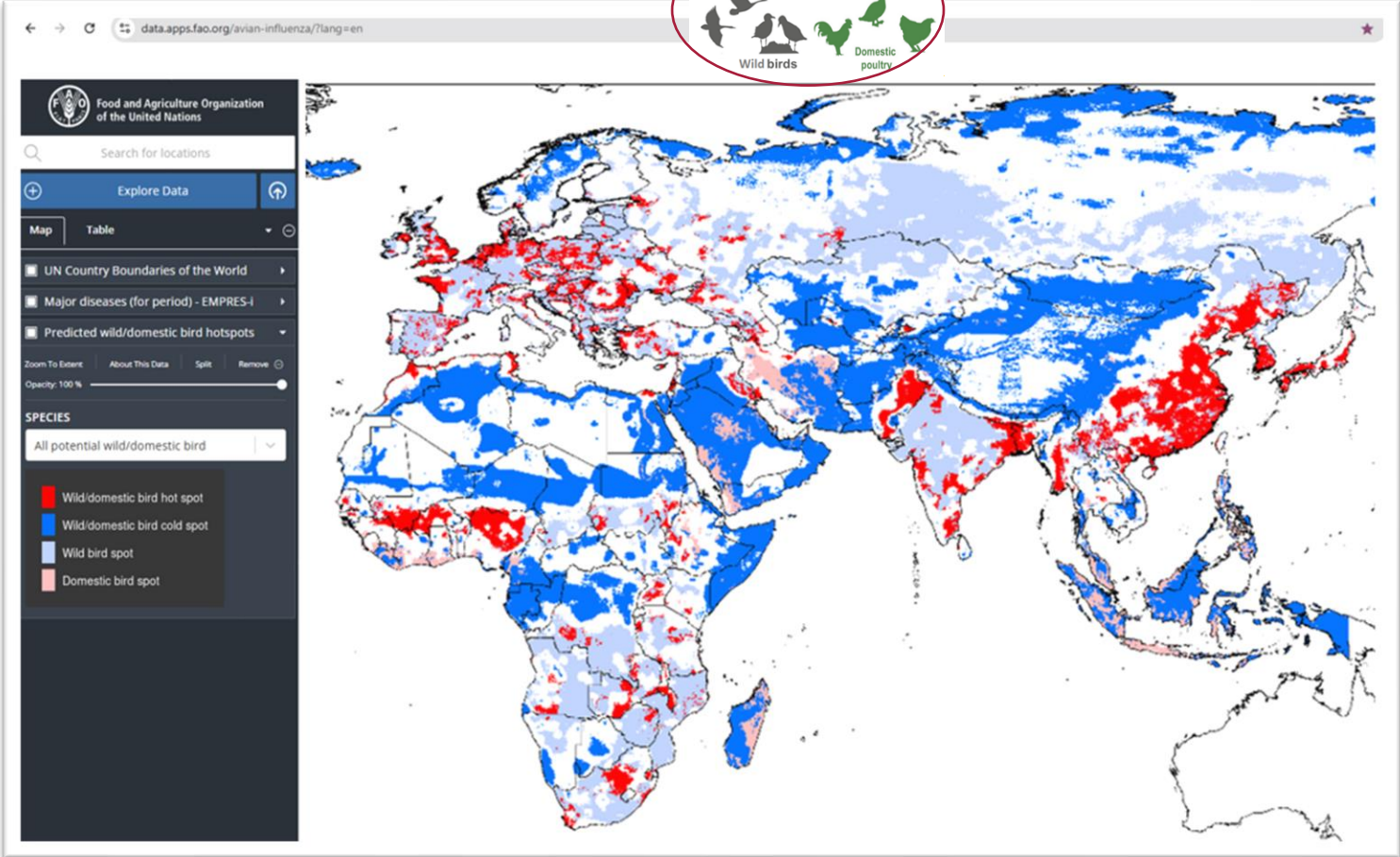
AI DST: Predicted wild /domestic bird interfaces for the risk of AI spillover



Wild bird species richness

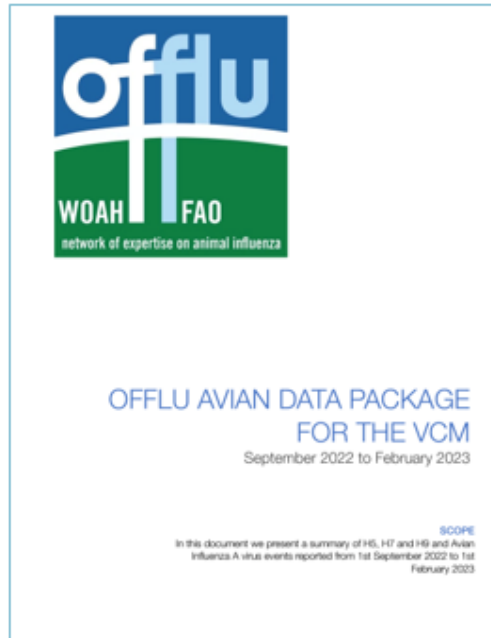
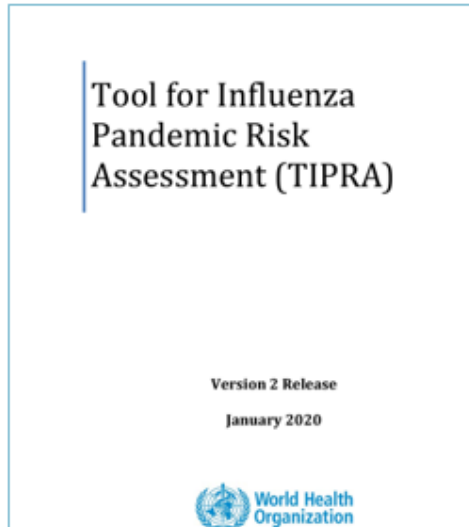


Chicken & duck density



Collaborations and Partnerships

Guiding science-based solutions to avian influenza



Food and Agriculture
Organization of the
United Nations



World Health
Organization



World Organisation
for Animal Health

Updated joint FAO/WHO/WOAH public health assessment of recent influenza A(H5) virus events in animals and people

Assessment based on data as of 18 November 2024

20 December 2024

Key points

At the present time, based on available information, FAO-WHO-WOAH assess the global public health risk of influenza A(H5N1) viruses to be low, while the risk of infection for occupationally exposed persons is low to moderate depending on the risk mitigation measures in place and the local avian influenza epidemiological situation. Transmission between animals continues to occur and, to date, a growing yet still limited number of human infections are being reported. Although additional human infections associated with exposure to infected animals or contaminated environments are expected to occur, the overall public health impact of such infections at a global level, at the present time, is minor.

<https://openknowledge.fao.org/server/api/core/bitstreams/0d308952-04d1-4848-b4ff-d2af6b57323b/content>



Food and Agriculture
Organization of the
United Nations



SCIENTIFIC TASK FORCE ON
AVIAN INFLUENZA AND WILD BIRDS
STATEMENT - JULY 2023

[CMS-FAO Statement](#)



FAO Regional and Country Support- operationalizing at scale

FAO has supported

- Investigation/response
- Risk-based surveillance
- One Health collaborative actions
- Capacity building of veterinary workforce - In Service Applied Veterinary Epidemiology Training (ISAVET), VPP training, laboratory training
- Protocols (SOPs, guidelines, assessment tools related to risk reduction, surveillance, outbreak response)
- Emergency sub-regional TCP project for West Africa (4 countries)
- Upgrading laboratory capabilities
- Enhanced PCR capacity
- Proficiency tests in collab with FAO Ref. Centre
- Sample referral to reference laboratories initially for confirmation, lately for sequencing for molecular epidemiology
- FAO support revived national laboratories in Guinea, Liberia and Sierra Leone
- Timely procurement – avian influenza related diagnostic reagents, primers/probes, consumables, PPE



<https://doi.org/10.4060/cc3956en>



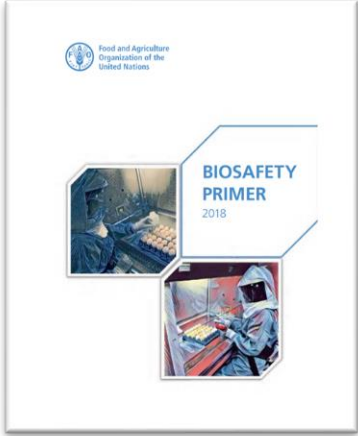
Laboratory Capacity Building: Biosafety/Biosecurity

Biosafety/Biosecurity regional programmes



Regional Programmes
-Road maps-

National Focal points
-National Road maps-



Procurement, maintenance and calibration of BSCs & fume hoods

Community of focal points
Sharing expertise/docs, ensure cross fertilization across regions

In country trainings and Online mentorship

- ✓ Inter-regional workshop on Biorisk management for FAO ECTAD WCA and ESA: July 2024 for to review gaps and plan regional and National roadmaps

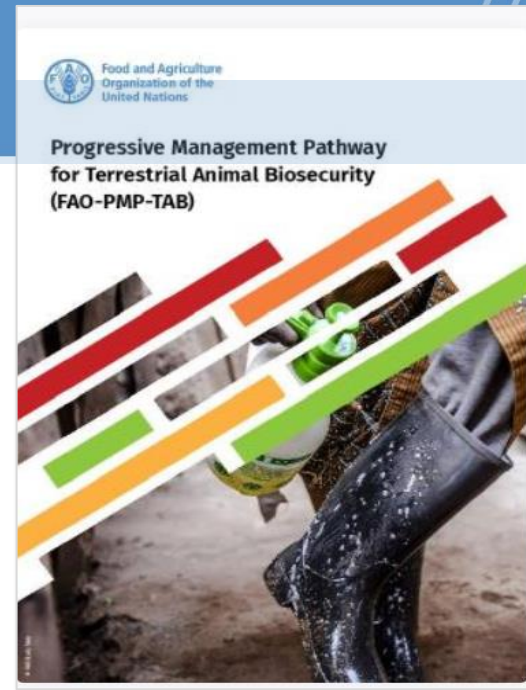


Improving biosecurity along animal value chains

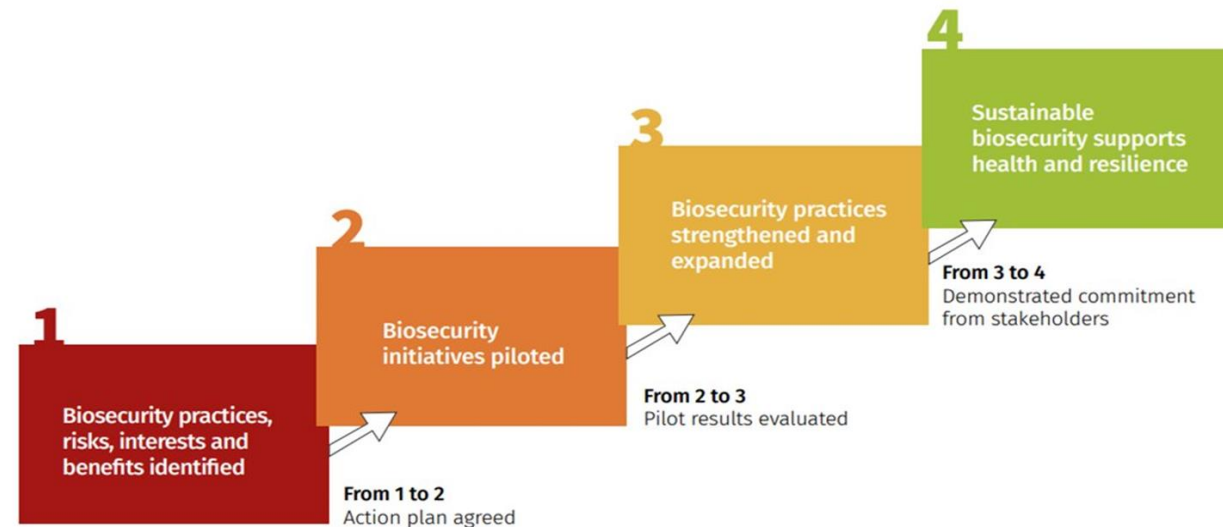
- Value chain studies
- Characterize biosecurity risks along animal value chains (including wildlife)
- Identify incentives and overcome barriers
- Promote best practices for biosecurity improvement
- Building producer resilience through PPP and biosecurity guidance



Action plan(s) to improve biosecurity
at national/sector/ farm levels



<https://openknowledge.fao.org/handle/20.500.14283/cc5771en>





Avian Influenza courses

The **FAO Virtual Learning Centers** have developed an **online training course on avian influenza preparedness**.

Translated and delivered in:

- Eastern Africa
- West Africa
- Southern Africa
- North Africa

To date **860** trainees completed the tutored course. **450** more completed the [self-paced version](#) available on the VLC website.

A course on **Vaccine Stewardship in Prevention and Control of High Pathogenicity Avian Influenza** was also developed and piloted in 2024.

The screenshot shows the course page for the Avian Influenza Preparedness Course. It includes the FAO logo, a decorative header with icons for a globe, headphones, a smiley face, a speech bubble, and a person, and the text 'FAO Virtual Learning Centers'. The main title is 'Avian Influenza Preparedness Course'. Below this, there is a paragraph describing the course's development by the FAO and Friedrich-Loeffler-Institut. A table provides details on course length (12 hours/4 weeks), participants (400 max), and format (tutored with webinars, self-paced modules, and a discussion forum). Further text explains what the course involves, including a live interactive webinar and eight interactive modules. A section titled 'Who is the course for?' identifies the target audience as official and private practice veterinarians. A 'What will you learn?' section lists topics such as the impact of AI, epidemiology, laboratory diagnosis, outbreak investigation, prevention, surveillance, and control measures. A photograph of a basket of yellow chicks is shown on the right side of the page. The footer contains the email 'vlc-global@fao.org' and the URL 'https://virtual-learning-center.fao.org'.

Avian Influenza Preparedness Course

The Food and Agriculture Organization of the United Nations (FAO), working together with the Friedrich-Loeffler-Institut, has developed an online training course on avian influenza (AI) preparedness. This course has been adapted, translated and delivered in multiple FAO regions to respond to the AI epidemiological situation.

COURSE LENGTH	12 hours (4 WEEKS)
PARTICIPANTS	400 (MAX)
FORMAT	TUTORED – a mix of online webinars, self-paced interactive modules, discussion forum and additional resources

What does the course involve?

The course is studied entirely online and will take approximately 12 hours to complete. Around 400 participants can take the course at the same time, and it is open for four weeks.

The course opens with a live interactive webinar, where trainees meet their trainers and are introduced to the course. Trainees then progress through eight interactive modules, enriched with photographs, exercises, and self-test questions. During the course, trainers and international experts are available through a discussion forum to answer questions and to lead discussions.

Towards the end of the course, there will be a second live interactive webinar, to discuss topics raised during the course in more detail. All trainees must complete a comprehensive assessment and finish all the coursework. Successful trainees are provided with a certificate.

Who is the course for?

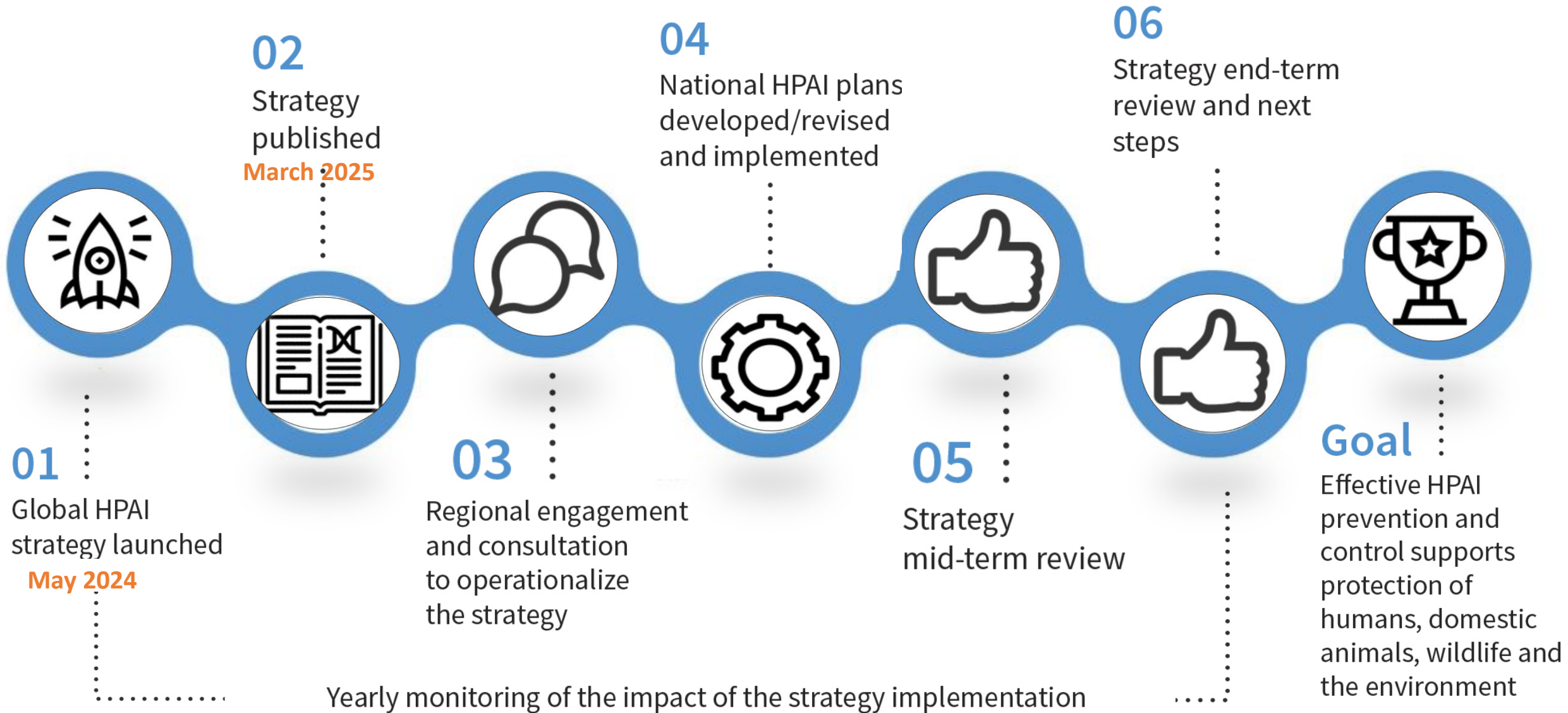
The primary audience for the course is official and private practice veterinarians who are directly involved in the surveillance, detection, prevention and response to avian influenza.

What will you learn?

- Impact and importance of AI
- Epidemiology
- Pathogenesis and clinical diagnosis
- Laboratory diagnosis
- Outbreak investigation
- Prevention
- Surveillance
- Control with and without vaccination

vlc-global@fao.org | https://virtual-learning-center.fao.org

Next Step: Implementation Process of the HPAI Global Strategy





Global strategy for the prevention and control of high pathogenicity avian influenza (2024-2033) – **Full version**



Download here

**Global Strategy for the Prevention
and Control of High Pathogenicity
Avian Influenza (2024–2033)**

Achieving sustainable, resilient poultry
production systems



Thank you!

Protecting people, animals, and the environment everyday