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Annual Report



2022



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Abbreviations and acronyms

AMR	antimicrobial resistance
COAG	Committee on Agriculture
ECTAD	Emergency Centre for Transboundary Animal Diseases
EMA-i	Event Mobile Application
EMPRES	Emergency Prevention System
EuFMD	European Commission for the Control of Foot-and-Mouth Disease
FAO	Food and Agriculture Organization of the United Nations
GF-TADs	Global Framework for the Progressive Control of Transboundary Animal Diseases
GLEAM	Global Livestock Environmental Assessment Model
GLEAM-i	Global Livestock Environmental Assessment Model Interactive
IFAD	International Fund for Agriculture Development
IPCC	Intergovernmental Panel on Climate Change
NDC	nationally determined contributions
PPR	peste des petits ruminants
UNEP	United Nations Environment Programme
VLC	Virtual Learning Centers
WHO	World Health Organization
WOAH	World Organization for Animal Health



FOREWORD

One Health, One FAO, One Livestock

Sustainable livestock production has become more critical than ever before, as we strive to meet the growing global demand for animal protein amidst an era of emerging global zoonoses threats and the need to reduce the environmental impact of the sector.

Livestock production is an important source of livelihood and nutrition globally and plays a significant role in the transformation to more efficient, inclusive, resilient and sustainable agri-food systems for better production, better nutrition, a better environment, and a better life. However, in the race to increase productivity, livestock production systems can generate negative impacts on the environment and human health.

To curb this, the Food and Agriculture Organization of the United Nations (FAO) has increasingly applied a One Health approach recognizing the interconnectedness of human, animal, and environmental health and emphasizing the need for collaboration and coordination between different sectors to promote the health and well-being of all. In this scenario, the continued work of FAO and the World Health Organization under the Joint Centre on Zoonotic Diseases (CJWZ) in advancing animal health and mitigating the risks of zoonotic diseases is crucial.





Additionally, FAO's latest multi-stakeholder activities respond to the global animal health triple threat of antimicrobial resistance, livestock-derived greenhouse gas emissions as well as the increasing threat of zoonoses. The report also sheds light on the FAO's work with Member Nations - at regional, sub-regional and national levels- in developing and implementing policies, guidelines, and best practices that promote sustainable animal production systems and impact the lives and livelihoods of millions of people worldwide.

This annual report is a testament to the dedication and expertise of FAO's staff, as well as the strong partnerships and collaborations underpinning its success. The publication highlights the key achievements of FAO Animal Production and Health Division in the past year, including updates on new programmes and initiatives launched and significant projects completed during the year.

We hope it will provide insights into the challenges and opportunities facing global animal production and inspire a renewed commitment to achieving sustainable and productive livestock systems that benefit both people and the planet and thus stay true to the integrated and holistic framing of our activities and which are captured in our motto: One Health, One FAO, One Livestock!

Thanawat Tiensin

Director of FAO Animal Production and Health Division

Keith Sumption

Chief Veterinary Officer





A year in numbers

Over
289
livestock-related
projects implemented
in 80 countries
and regions.

526
thousand
people trained
globally.

37.7
million
vaccines
administered
to animals.

7.7
million
animals treated globally.

15
million
beneficiaries reached
all over the world.

USD
373.8
million
total delivery from
projects including livestock
activities.

USD
1.1
billion
total budget for projects
including livestock activities.

IN FOCUS

New data on over

4 300

breed populations

shared by over 40 countries.

Over

500

new legislations

relevant to AMR deposited in the [AMR-Lex platform](#).

Nearly

320

laboratory leaders in 18 countries

trained through the Global Laboratory Leadership Programme.

Around

25

countries

improved their **disease testing capacity** with the support of the EMPRES Laboratory Unit.

Six countries enhanced their national livestock climate actions and policies with FAO's support.

Around

5 470

people

improved their capacity to prevent and combat the spread of transboundary animal diseases through FAO Virtual Learning Centers' tutored courses.



Over

90

laboratory-related trainings

conducted in 22 countries trained over 1 000 professionals.

New framework for improved operational preparedness assisted

20

countries in vaccine procurements.

17

new countries in West and Central Africa

enrolled in [In-Service Applied Veterinary Epidemiology Training \(ISAVET\)](#).

4 348

pastoral households

were surveyed in four countries:

- 1 206 in Burkina Faso
- 1 059 in Mali
- 1 048 in Mauritania
- 1 035 in Niger.



24 preparedness and response trainings in eight countries trained

851

animal health experts (including 261 women).

Over

3 000

animal health experts

trained on surveillance and epidemiology with nearly 130 trainings in 22 countries.

Nearly

600

delegates from 129 countries

participated in the first-ever session of the COAG's Sub-Committee on Livestock in March 2022.

More than

990

outbreak events

in 16 countries across Africa and Asia investigated (between October and September 2022).

Over

750

farmers

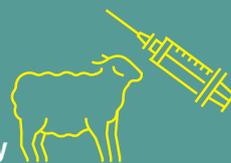
in Ethiopia, Ghana, Kenya, Zambia and Zimbabwe trained to prevent the spread of AMR through FAO Farmer Field Schools.

Nearly

32.1

million small ruminants

vaccinated and 70 000 sera collected and tested for mapping diseases distribution in 30 countries thanks to the Peste des petits ruminants Global Eradication Programme.



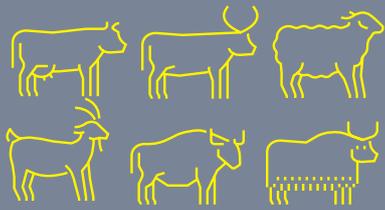
Key facts and figures

60 percent of all human infectious diseases are zoonotic in origins and some 75 percent jump species.

A One Health approach can reduce potential threats at the human-animal-environment interface, while protecting biodiversity.



Sustainable livestock systems can be part of the solution to tackle climate change. By improving animal feeding, genetics and health, countries can cut methane and other greenhouse gas emissions from livestock production. Livestock by-products can be recycled and used where possible as feed, fuel and fertilizer.



There are around **8 800 livestock breeds** of **38 different species in the world**. However, livestock diversity is declining worldwide and many livestock breeds are now at risk of extinction. **FAO helps countries monitor national breed populations and make informed decisions on the management of animal genetic resources.**

Livestock account for over **32 percent of global anthropogenic methane emissions**, mainly from enteric fermentation of ruminants and manure management practices. **Addressing methane can deliver a quick and immediate response for climate change mitigation.**



Antimicrobial resistance (AMR) is a global health and development threat that requires urgent multi-sectoral action. The more antimicrobials are misused, the less effective they are as medicines in both veterinary and human healthcare. **FAO works with countries and other international organizations to tackle this global threat.**



Over 1 billion animals are herded by pastoralists worldwide. These include sheep, goats, cattle, camels, yaks, horses and reindeer. **Pastoralists' work is key to the ensure food security in such areas as drylands, highlands, wetlands, and shrub lands where crop production is difficult.**

High-impact animal diseases that are transboundary in nature can affect food and nutrition security, impact livelihoods and cause serious socio-economic damage due to trade barriers and productivity losses. **FAO supports national and global early warning systems, enhancing capacities for risk assessments, forecasting and early warning of diseases that may impact global food and health security.**

The economic impact of lumpy skin disease spread in South, East and Southeast Asian countries is estimated to be up to **USD 1.45 billion in direct losses to production and exports.**



FAO's work on animal production and health

FAO works to accelerate the sustainable transformation of the livestock sector at the global scale. Through its Animal Production and Health Division, FAO aims to help Member Nations:

Adopt sustainable and climate-friendly livestock practices for better production, better nutrition, a better environment, and a better life.

Ensure the availability of safe and quality animal food products and veterinary vaccines, particularly in case of an emergency.

Assess the performances of livestock systems and their impacts on global health, the environment, climate, livelihoods, ecosystems, and natural resources.

Promote best practices that maintain animal health, welfare and livestock productivity.

Support the progressive control and elimination of high impact animal diseases through early warning and biosecurity management.

Promote inclusive and efficient livestock markets.

Combat antimicrobial resistance and adopt a One Health approach, addressing health threats in coordinated ways to safeguard humans, animals, plants and their environment.

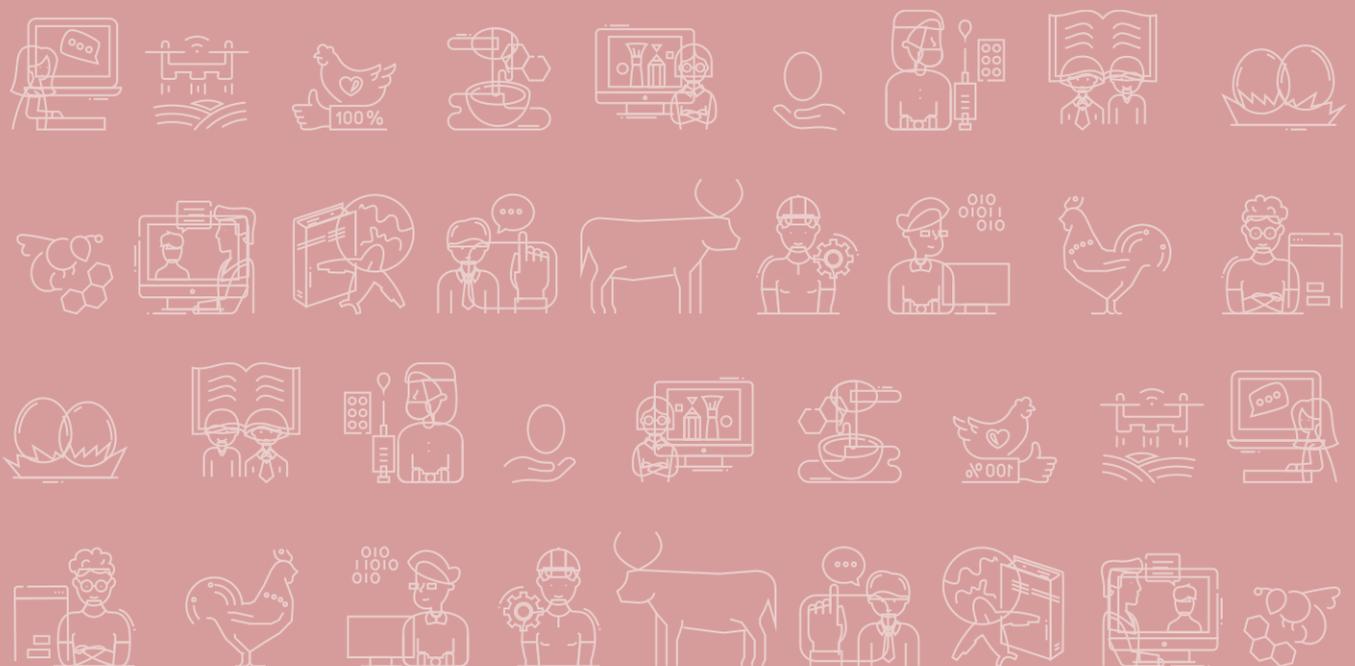
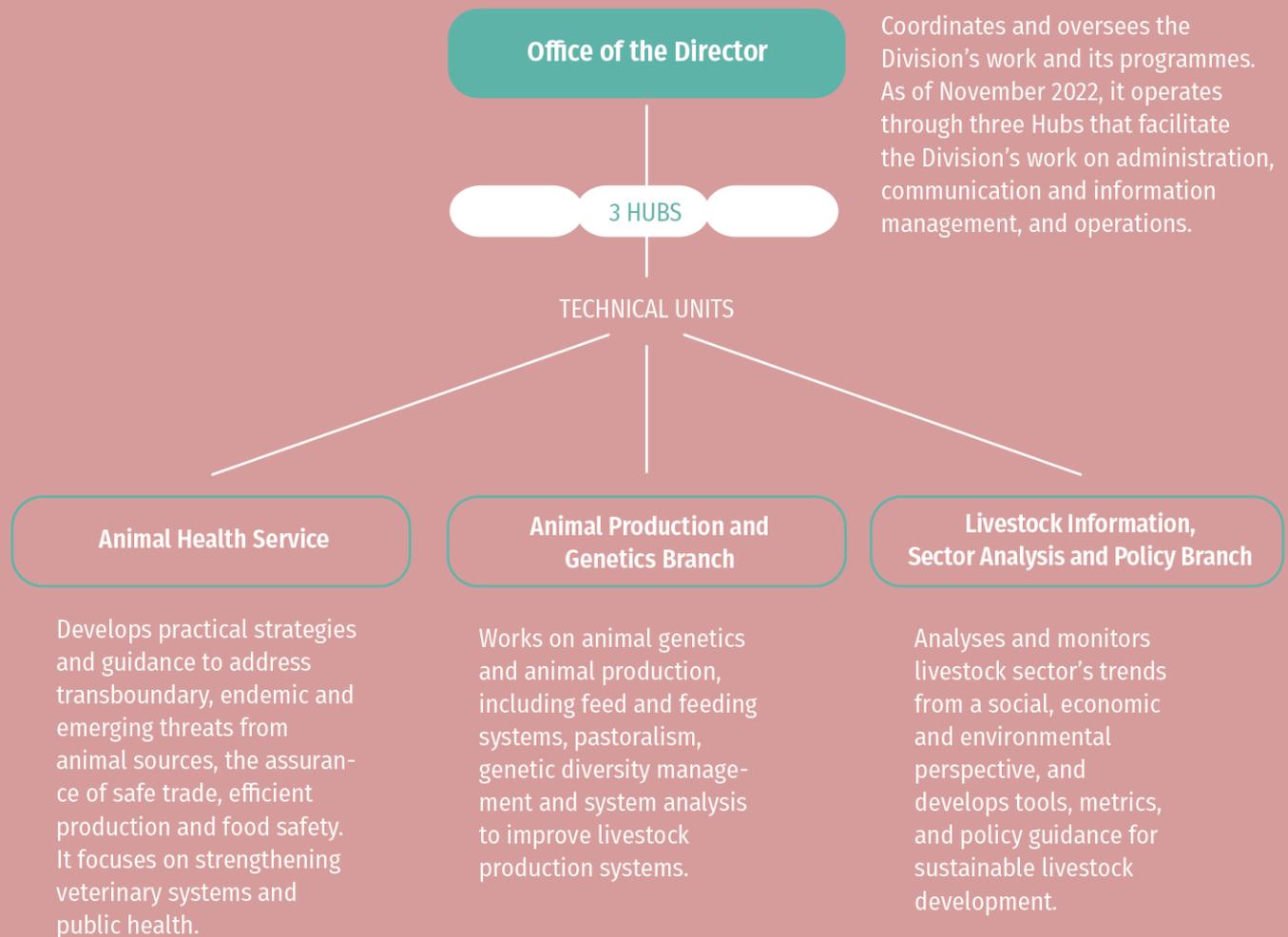
Generate evidence-highlighting opportunities for policy reforms to enhance the sustainable transformation of livestock food systems.

Enhance smallholders' resilience and governments' capacities to prevent and respond to livestock-related emergencies caused by disease outbreaks and natural disasters.



HOW WE WORK

The Office of the Director and three technical units carry out the work of the FAO Animal Production and Health Division. Activities and programmes are implemented with the support of FAO regional and country offices, as well as multi-stakeholder partnerships and other groups.



Our multi-stakeholder partnerships



AMR Multi-stakeholder Partnership Platform

In November 2022, FAO, UNEP, WHO and WOA, collectively known as the Quadripartite, launched the new **AMR Multi-Stakeholder Partnership Platform**, an inclusive and international forum that aims to underscore the threat AMR presents to humans, animals, ecosystems and livelihoods. The AMR Multi-Stakeholder Partnership Platform brings together different voices and perspectives across the One Health spectrum in order to catalyze a global movement for action against antimicrobial resistance and ensure that antimicrobials are preserved as critical lifesaving medicines accessible to everyone.



FAO Livestock Environmental Assessment and Performance Partnership

The **FAO Livestock Environmental Assessment and Performance (FAO LEAP) Partnership** is a multi-stakeholder initiative that seeks to improve the environmental sustainability of the livestock sector through harmonized methods, metrics, and data. The partnership is founded on a voluntary and collaborative process between FAO and three main stakeholder groups: the private sector, Member Nations, civil societies and non-governmental organizations. In 2022, an external evaluation found that this multi-stakeholder partnership responds to an existing demand to advance towards a science-based benchmarking of the environmental performance of the livestock sector. The evaluators confirmed that the FAO LEAP partnership provides a neutral forum for consensus building and contributes to a greater understanding of the factors influencing environmental performance of livestock.



Global Agenda for Sustainable Livestock

The **Global Agenda for Sustainable Livestock (GASL)** is a multi-stakeholder partnership committed to the sustainable development of the livestock sector. The partnership unites a wide range of actors and addresses livestock-related issues associated with global food security and health, equity and growth, and resources and climate.

GASL partners are increasingly committed to making the livestock sector more inclusive. In 2022, it was conducted a first gender analysis to help overcome gender-based barriers and to encourage the participation of women and girls in livestock dialogues. During its 2022 annual meeting in Dublin, Ireland, the GASL invited youth representatives from all regions to provide their recommendations on how to improve livestock dialogues, which were then adopted by the plenary. In 2022, GASL also inaugurated its **action plan for 2022-2024** to encourage stakeholders around the world to make livestock systems more sustainable.

Case studies

AFRICA

Improving biosecurity in poultry slaughter premises in Uganda

Thanks to the Africa Sustainable Livestock 2050 Project, FAO and the Government of Uganda started making concrete steps forward to improve biosecurity in poultry slaughter premises at the local level. If not properly implemented, a regulatory framework to prevent, detect and respond to outbreaks of zoonotic diseases and AMR, can pose major risks to public health.

In 2022, the Ugandan districts of Mukono and Wakiso decided to pilot the project and make their business more secure. Local veterinary authorities started to certify slaughter premises that complied with 80 percent of the core biosecurity practices co-developed by public animal health officers and slaughter managers under FAO's guidance. After only three months, the average compliance rate with core biosecurity practices passed from almost 30 to nearly 70 percent in the target districts.



ASIA AND THE PACIFIC

First-ever regional consultation on livestock, methane and climate action in Asia and the Pacific

With climate change and population growth affecting production and demand for livestock products in Asia and the Pacific, countries in the region are now more committed than ever to making the livestock sector more sustainable and climate-friendly.

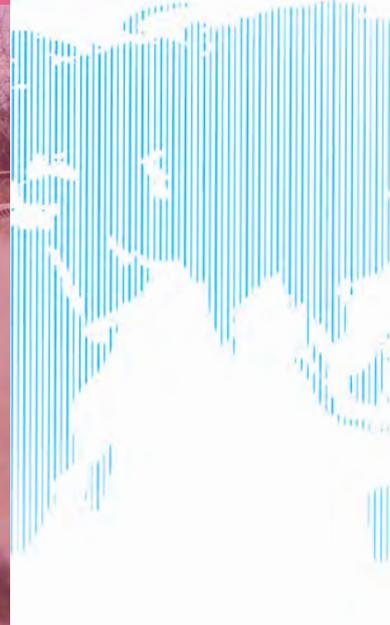
To facilitate dialogue and create new synergies within the region, in 2022 FAO organized the first-ever regional expert consultation on livestock, methane and climate targets for Asia and the Pacific. Attended by 18 countries across the region, the regional workshop provided a first-time opportunity for countries to come together, discuss ways to reduce methane emissions from livestock systems and share experiences to make a sustainable transformation of the sector possible.



EUROPE AND CENTRAL ASIA

Reducing greenhouse gas emission from livestock in Kyrgyzstan

The use of the FAO Global Livestock Environmental Assessment Model-interactive (GLEAM-i) tool helped the government of Kyrgyzstan refine its commitments to limiting greenhouse gas emissions from livestock.



By using the IPCC's Tier 2 approach, the GLEAM-*i* tool calculated Kyrgyzstan's greenhouse gas emissions from livestock systems and allowed to test predictions for future scenarios, emission reductions and mitigation options. The assessment showed that it is possible for Kyrgyzstan to boost its livestock production and reduce its greenhouse gas emissions at the same time. In 2022, Kyrgyzstan used the results of the GLEAM-*i* assessment to inform its nationally determined contributions (NDC) update and a sector analysis as part of its climate action.

LATIN AMERICA AND THE CARIBBEAN

Getting ready to prevent virus introduction in Caribbean, South, Central and North Americas

Pork meat has become an increasingly important part of diets in Latin America and the Caribbean during the last few decades. Yet, after nearly 40 years of absence, the African swine fever (ASF) virus re-introduced in the region in 2021, detected in the Dominican Republic and Haiti. In 2022, FAO conducted a **qualitative risk assessment** to help disease-free countries and territories of the Americas get prepared to prevent ASF's introduction in their territories and to understand risk pathways of entry and spread, including travel and trade. Currently no effective vaccines are available for ASF but promising experimental vaccine candidates exist and are at various stages of safety and efficacy testing.

NEAR EAST AND NORTH AFRICA

Building resilience against agro-terrorism and agro-crime in Jordan, Morocco, and Tunisia

FAO takes a leading role in helping countries deal with animal health emergencies resulting from agro-terrorism and agro-crimes. Throughout 2022, law enforcement agencies and veterinary services in Near East and North Africa made great steps forward in this direction. A **joint initiative** of FAO, Interpol, and WOAHA contributed to build resilience against animal health emergencies resulting from agro-terrorism and agro-crime through hands-on trainings and simulation exercises. Between March and September 2022, during three regional workshops in Jordan, Morocco, and Tunisia, veterinarians and law enforcement agencies learnt to adopt good emergency management practices, to address the risk of bio-threats, and to use standard operating procedures and simulation exercises to improve animal health emergency preparedness and response.



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FAO IN ACTION

Highlights

2022

GOVERNANCE

COAG's Sub-Committee on Livestock

The FAO Committee on Agriculture (COAG)'s Sub-Committee on Livestock conducted its first ever session in March 2022 with the participation of **600 delegates from 129** countries as well as observers from UN agencies and other international organizations. Livestock's contribution to food security, sustainable food systems, nutrition and healthy diets was on top of the Sub-Committee's agenda, along with One Health. Established in 2020, the COAG Sub-Committee on Livestock comprises 135 Member Nations plus the European Union.



ANIMAL HEALTH

Antimicrobial resistance

Antimicrobial drugs are key in the treatment of animal diseases, but their misuse can lead to the emergence and spread of antimicrobial resistant micro-organisms. In 2022, FAO mapped over 500 new legislations relevant to **antimicrobial resistance (AMR)** and deposited them in the **AMR-Lex platform**, a global database of legislation and policies impacting antimicrobial resistance and use within agrifood systems. In addition, the National Action Plan for AMR facilitated resource mobilization for AMR mitigation in Ethiopia, Madagascar, Mauritius, Senegal, and Sierra Leone, through the Quadripartite, the AMR Multi Partner Trust-Fund, the Fleming Fund, as well as the Indian Ocean Commission. The Quadripartite, in cooperation with the African Union, launched the first **Africa Regional Strategy on AMR Communication and Advocacy** to guide African countries to improve awareness of AMR and its consequences in the region.

Global Framework for the Progressive Control of Transboundary Animal Diseases

The **Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs)** is a joint initiative of FAO and WOAH that helps countries improve prevention, detection and control of transboundary animal diseases. Thanks to the GF-TADs Strategy 2021-25, Member Nations can better identify priorities and partnerships needed to control transboundary animal diseases. In 2022, FAO initiated the global initiatives for the control of African Swine Fever Control and launched the blueprint for making the world free from peste des petits ruminant. In May 2022, the Global Framework also established a Partnerships and Financing Panel to support countries in the progressive control of transboundary diseases.

Global Laboratory Leadership Programme

The **Global Laboratory Leadership Programme** aims to mentor current and emerging laboratory leaders to build, strengthen and sustain national laboratory systems. In 2022, the programme trained nearly 320 laboratory leaders specialized in animal, environmental and public health. If 18 countries already enrolled in the programme, other 25 are ready to implement the initiative in the near future. The Global Laboratory Leadership Programme is a joint initiative of FAO, the Association of Public Health Laboratories, the Centre for Disease Control and Prevention, the European Centre for Disease Control and Prevention, WOAH, and WHO.



Peste des Petits Ruminants (PPR) Global Eradication Programme

Peste des petits ruminants (PPR) is a devastating viral disease that affects sheep and goats, and impacts livestock-dependent communities in Africa, Europe, the Middle East and Asia. In 2022, FAO carried out PPR risk-based vaccination in 14 countries and territories in the target regions, and nearly 37 500 000 small ruminants were vaccinated thanks to the **PPR Global Eradication Programme**. In 2022, after five years from the launch of their PPR Global Eradication Programme, FAO and WOAHP developed the “PPR Blueprint” with a detailed action plan to eradicate the disease by 2030. Over 22 countries started cross-border coordination and knowledge sharing, while around 70 000 samples collected and tested to map PPR global distribution. In 2022, the programme trained over 1 200 personnel in aspects related to diseases management, such as laboratory, surveillance systems, and wildlife, among others.

Progressive control of tsetse and African animal trypanosomosis

Tsetse-transmitted trypanosomosis is a deadly, neglected tropical disease and a major challenge for mixed crop-livestock agriculture in Africa. As of 2022, 16 African countries made steps forward to control tsetse and animal trypanosomosis in the continent. Of those, five countries started updating their national atlases of tsetse flies and animal trypanosomosis, while eight decided to develop new ones. The Atlas initiative enables affected countries to better manage and analyze epidemiological information for improved, evidence-based decision making.

YOUTH IN ACTION

Eleven talented young researchers won the World Food Forum’s “PPR Special Prize”

FAO inaugurated its first Transformative Research Challenge’s PPR Special Prize in 2022. The prize aimed to inspire innovation and find sustainable research approaches to combat and eliminate animal diseases, such as PPR, or sheep and goat plagues. During the World Food Forum’s flagship event in October, eleven young researchers received the PPR Special Prize for their innovative solutions to eradicate PPR in affected countries. The winners received up to USD 10 000 to fund their research in support of PPR eradication.

16

African countries made steps forward to control tsetse and trypanosomosis



LIVESTOCK, CLIMATE CHANGE AND THE ENVIRONMENT

Livestock, methane and the Paris Agreement

In 2022, FAO launched a new initiative to help countries better integrate livestock adaptation and mitigation interventions in their national climate action. The initiative - “Policy analysis to support nationally determined contributions for climate action in livestock systems” - helps countries better understand their policy environment and incorporate livestock development objectives in their climate action. Piloted in Burkina Faso, Nicaragua, Rwanda and Senegal, the initiative targets both countries that have already included livestock-specific interventions in their NDCs and those that still need to start integrating them.

Livestock Policy Lab

The Livestock Policy Lab (LPL) brings together policy analysts, scholars, and practitioners to identify opportunities for policy reform to enhance the sustainable transformation of livestock food systems. In 2022, the lab advanced the design continued informing national evidence-based policymaking and trained a group of analysts from ten different countries on quantitative policy analysis. LPL also organized a high-level policy dialogue round table during the Pan-American Dairy Conference and provided policy support to several countries, including Abu Dhabi, Argentina, Costa Rica, Uruguay, and Viet Nam, in assessing economic effects of increasing productivity in livestock production systems.

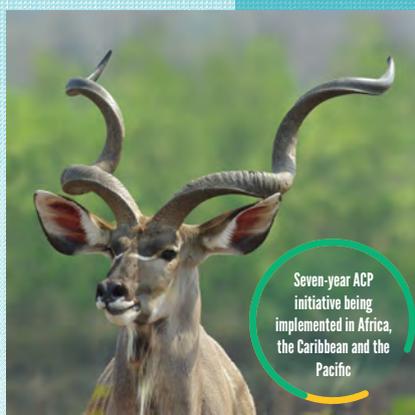


Reducing enteric methane to improve food security and livelihoods

This **FAO project** enables low and middle-income countries to implement technologies and interventions to reduce methane emissions from the livestock sector and to make ruminant production systems more efficient. In 2022, FAO launched a new portal on **livestock and enteric methane** with metrics on country-specific greenhouse gas emissions and recommended mitigation interventions resulting from analysis conducted by FAO in target countries in Africa, Asia and Latin America.

Sustainable Wildlife Management Programme

The **Sustainable Wildlife Management Programme** is the first international initiative to tackle the wild meat challenge by addressing both wildlife conservation and food security. Through this programme, FAO and partners work to reduce the demand for wild meat by increasing the supply of sustainably produced livestock products. In 2022, FAO and its partners designed the Poultry monitoring notebook to help farmers manage their poultry farms and evaluate the progress made in terms of profitability.



Surveillance and early warning

- In 2022, over **3 000 animal health experts** in 22 countries in Africa and Asia received trainings on surveillance and epidemiology.
- **Over ten countries** improved or adopted digital animal disease reporting systems in 2022.
- The Democratic Republic of the Congo reactivated its national surveillance system and reported **ten times more** health events in 2022 (2 951) compared to 2019 (209) through weekly epidemiological bulletins.
- **Over 3 000 disease events** reported in Nigeria compared to 960 before FAO's support in 2022.
- In 2022, Uganda improved disease reporting covering **40 districts** following the training of public and private professionals (compared to four prior to the training).
- Nearly **33 208 reports** and alerts on high impact diseases sent to Member Nations to enhance preparedness using FAO's Event Mobile Application (EMA-i) mobile app from 2013 to 2022.
- Sierra Leone reported 62 percent of outbreak events **within the first three days** after observing of clinical signs thanks to the use of FAO's EMA-I mobile app.
- Almost **500 risk maps for Rift Valley** Fever developed from 2002 to 2022.

Response to zoonotic disease threats

- FAO supported the investigation of **more than 990 outbreak events** in 16 countries across Asia and Africa between October 2021 and September 2022.
- Following the first confirmation of the highly pathogenic **avian influenza epidemic** in Guinea in April 2022, FAO worked closely with the Ministry of Livestock and managed to contain the epidemic in two prefectures.
- Almost 900 animal health professionals received preparedness and response-related trainings in eight countries.
- Seven new Emergency Operation Centers and Rapid Response teams were established.
- Indonesia developed one new policy on outbreak control, three implementation tools on outbreak response (curricula, assessment tools and technical instructions) and two preparedness and response plans.
- In Bangladesh, **87 percent** of equipped and trained *upazilas* (Bangladesh's sub-units of a district) reporting to the Department of Livestock Services implemented the Bangladesh Animal Health Intelligence System.
- Genetic sequences for **over 2 000 viruses** collected and phenotypic characterization of over 30 viruses conducted in reference laboratories thanks to the joint WOA-FAO network of scientific expertise on animal influenzas.

More than
3 000
experts in
22 countries trained
on surveillance and
epidemiology

Over
33 200
reports and alerts
on high impact
diseases sent via
EMA-i

Almost
1 000
outbreak events
investigated
in Africa and Asia

Emergency Centre for Transboundary Animal Diseases

Through its Emergency Centre for Transboundary Animal Diseases (ECTAD), FAO delivers animal health emergency and development programmes to prevent and mitigate the impact of animal diseases using a One Health approach. With ECTAD's multidisciplinary teams deployed in more than 30 Member Nations in four regions, the FAO Animal Health and Production Division and the Office of Emergencies and Resilience work together to build country, regional and global capacity to forecast, prevent, prepare for, detect and respond to the emergence, spread and persistence of high-impact health threats of animal origin.

Africa Sustainable Livestock 2050

Africa Sustainable Livestock 2050 is a FAO policy initiative that adopts a One Health approach to identify policy actions that can help African countries ensure the sustainable development of the livestock sector from a public health, environmental and social perspective. In 2022, Egypt and Uganda implemented the project to improve existing policies and regulatory frameworks along their poultry value chains. Selected districts in the two countries were able to adopt biosecurity measures that generated new incomes and benefits for farmers. For example, the composting of dead birds is a win-win solution for broiler farmers in Egypt. This practice minimized environmental and public health risks, while generating an annual return of investment of over 1 000 percent for the farmers.

Global Health Security Program

In 2022, FAO's Global Health Security Program supported 90 laboratories across Africa and Asia to improve testing, assurance, biosafety and biosecurity. As a result, over 80 percent of those laboratories were able to test for targeted prioritized zoonotic diseases. The programme trained over 80 quality assurance and biosafety experts from East Africa and West and Central Africa ECTAD beneficiary countries both online and onsite.



Emergency Management Centre

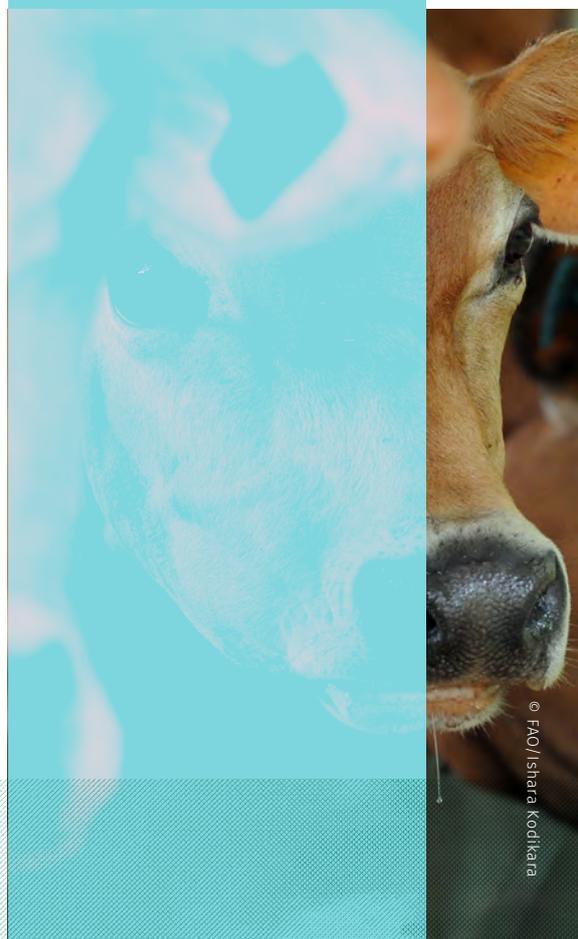
The Emergency Management Centre plays a critical role in strengthening country, regional and international preparedness and response capacity to reduce the impact of animal health emergencies. The activities of the centre are organized under four pillars: preparedness; response; incident coordination; and collaboration and resource mobilization. In 2022, the centre helped over 38 countries in two regions and one sub-region to complete preparedness assessments based on the Progressive Pathway for Emergency Preparedness. Three regional incident coordination groups were launched to support the coordination of regional outbreaks of lumpy skin disease, foot-and-mouth diseases, and highly pathogenic avian influenza. One national incident coordination group was formed for Ukraine to coordinate emergency support in the country.

Emergency Prevention System for Animal Health

The Emergency Prevention System (EMPRES) programme develops strategies and policies to improve prevention, detection, preparedness and response to transboundary animal diseases, including transboundary zoonotic diseases. EMPRES' mission is to promote the effective containment and control of transboundary animal and zoonotic diseases, including emerging ones, through international cooperation involving early warning, early reaction, enabling research, and coordination. EMPRES aims to enhance productivity and reduce risks from high-impact animal and zoonotic diseases by integrating One Health and biosecurity along animal value chains. Through its multidisciplinary teams, EMPRES conducts risk assessments and forecasting of emerging threats, and strengthens capacities of animal health systems worldwide to protect livestock productivity, and safeguard livelihoods and global health. In 2022, EMPRES enhanced countries' capacity and preparedness to high-impact diseases, such as African swine fever, foot-and-mouth diseases, lumpy skin disease, and avian influenza.

European Commission for the Control of Foot-and-Mouth Disease

Established in 1954 within FAO, the European Commission for the Control of Foot-and-Mouth Disease (EuFMD) works with the 39 Member Nations to improve preparedness for management of Foot-and-Mouth And Similar Transboundary animal disease crises by Member Nations and across Europe as a whole. The Commission implements a risk reduction programme in 20 European neighboring countries to put in place sustainable control programmes and it supports and promotes the global strategy for progressive control of foot-and-mouth disease through close partnership with Directorate-General for Health and Food Safety (DG-SANTE) of the European Commission and with GF-TADs partners.



FAO toolbox on animal production and health

AGROECOLOGY

Tool for Agroecology Performance Evaluation

The Tool for Agroecology Performance Evaluation (TAPE) measures the multi-dimensional performance of agroecological systems. The tool consolidates global evidence on how agroecology supports the sustainable transformation of agrifood systems. In 2022, FAO and its partners applied the TAPE in 20 countries across Africa, Asia, Europe, and Latin America and the Caribbean.



ANIMAL DIVERSITY

Domestic Animal Diversity Information System

The Domestic Animal Diversity Information System (DAD-IS) collects searchable databases of information and resources on livestock diversity and animal genetics. The tool enables analysis related to livestock breeds and their diversity at the national, regional and global levels. In 2022, over 40 countries shared new data on their domestic animal diversity, including new information on the use and ecosystem services related to over 4 300 breed populations. As a result, the percentage of unclassified national breed populations decreased from 63 to 54 percent compared to the previous year. DAD-IS data are crucial to make informed decisions on the sustainable use and development of animal genetics.



ANIMAL HEALTH AND EMERGENCY

EuFMD Emergency Toolbox

In 2022, the European Commission for the Control of Foot-and-Mouth Disease (EuFMD) developed the **Emergency Toolbox**, a digital solution to provide open-access resources for veterinarians, epidemiologists, farmers, and anyone involved in the investigation and control of an outbreak of Foot-and-Mouth And Similar Transboundary animal diseases. Launched in January 2022, the Emergency Toolbox is based on three pillars: accessibility, usability, and inclusion. The tool contributed to raise awareness on the impact of digital solutions applied to the control and prevention of Foot-and-Mouth and similar transboundary animal diseases, and has been used by over 700 users.



EMPRES-i+

The **Global Animal Disease Information System (EMPRES-i+)** is a FAO central open-access tool with information and data on regional and global animal diseases. The tool supports veterinary services and organizations to enhance early warning and response to transboundary and high-impact animal diseases, including emerging zoonoses. The interactive database provides dashboards and maps that display disease occurrences, spread and risks at different geographical levels. EMPRES-i+ uses new functionalities developed under the **FAO Hand-in-Hand Geospatial Platform**, which integrates FAO data on soil, land, water, climate, fisheries, livestock, crops, forestry, trade and socioeconomics, among others.

EMA-i

The FAO's **Event Mobile Application (EMA-i)** is a mobile-based application that enables data collection and real-time reporting of geo-referenced information on animal diseases at the country level. This mobile app allows users to visualize locations and other epidemiological data of a disease event. Using smartphones and other mobile devices, EMA-i transfers reports on animal diseases directly from the field into the app, and then to the EMPRES-i+ database. This FAO mobile app is used regularly in 16 countries and is available in five languages. As of June 2022, 400 new EMA-i country users enrolled in the mobile application.



EMPRES suite

The EMPRES programme enhances global disease intelligence and early warning of emerging threats to food security and global health. It enhances country capacities by providing tools and trainings on disease reporting and tracing, data management and analysis, risk assessments and forecasting, and real-time information sharing for rapid actions.

Epidemic Intelligence from Open Sources

The **Epidemic Intelligence from Open Sources (EIOS)** brings together new and existing initiatives, networks and systems to strengthen public health intelligence. The tool applied a One Health approach to early detection, verification, assessment and communication of public health threats using publicly available information. Between 2020 and 2022, EIOS captured over 650 events related to nearly 30 diseases and topics from 107 countries and territories. The initiative is developed by WHO, and coordinated by FAO and other stakeholders.



Global Early Warning System plus

The **Global Early Warning System plus (GLEWS+)** is a joint voluntary initiative of FAO, WOAHA, and WHO, to strengthen international collaboration around early warning and response to health threats and emerging risks at the human-animal-ecosystems interface. In 2022, over 45 events in 27 countries and territories concerned around 12 different diseases and threats. Thanks to GLEWS+, 90 percent of events triggered actions, such as field investigations, early warning of specific country or regional authorities.

Progressive pathway for emergency preparedness

The **Progressive Pathway for Emergency Preparedness** is a new self-assessment tool designed to help national veterinary services strengthen their animal health emergency management capability through the implementation of national and international programmes. Launched in May 2022, the tool has been already used by 39 countries in four regions.



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Rift Valley fever (RVF) Early Warning Decision Support Tool

The web-based Rift Valley fever (RVF) Early Warning Decision Support Tool (RVF DST) builds capacity for early warning and forecasting at the country level, and demonstrates how near real-time modelling, risk forecasting and digital innovation can enhance preparedness and anticipatory action. The tool integrates near real-time RVF risk maps with geospatial data, RVF historical and current disease events from EMPRES Global Animal Disease Information System (EMPRES-i) and expert knowledge on RVF eco-epidemiology to forecast the risk of RVF.

The Surveillance Evaluation Tool has been used by 24 countries in Africa and Asia

Surveillance Evaluation Tool 2.0

Developed in 2007, the Surveillance Evaluation Tool aims to provide veterinary services with an objective, standardized, comprehensive and systematic evaluation of animal health surveillance system and support the detection of animal disease threats, including zoonoses. A new version 2.0 is available for use by March 2022. Between 2017 and 2022, the Surveillance Evaluation Tool has been used by 24 countries in Africa and Asia under a variety of different projects to provide national veterinary services with a baseline for national animal health surveillance capacity, from which specific action plans for improvement were implemented.

Outbreak Costing Tool

The OUTbreak COSTing Tool (OutCosT) helps countries assess the financial burden of animal disease outbreaks and their control measures. Already in 2020, FAO started working towards the development of this spreadsheet-based tool, OutCosT, to estimate the direct costs of disease outbreaks and their control measures in a simple and efficient manner. In 2022, FAO has further developed the tool and related trainings to evaluate the direct cost of Foot-and-Mouth disease epidemics.

GENDER EQUALITY

Framework for gender-responsive livestock development

Developed by FAO, the International Fund for Agriculture Development (IFAD), the International Livestock Research Institute (ILRI), and the World Bank, the framework for gender-responsive livestock development supports the formulation of action plans, policies and investments that contribute to gender equality and women's empowerment through livestock development. Almost 50 institutions and 300 experts were consulted for the framework formulation. The empowerment of women and girls is essential for achieving gender equality and for the sustainable development of the livestock sector, and thus supporting inclusive and resilient livelihoods for everyone.

Gender equality and women's empowerment through livestock development



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LIVESTOCK DISTRIBUTION

Gridded Livestock of the World

In 2022, FAO released a new version of the **Gridded Livestock of the World** with the latest available data on global livestock distribution. The GLW model allows the production of accurate data related to different livestock species, base years, and geographical areas. Those data are part of the FAO's Hand-in-Hand Geospatial Platform and used to run the FAO's Global Livestock Environmental Assessment Model (GLEAM) for greenhouse gas simulations and in a number of other applications, ranging from ecology to spatial modelling.



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LIVESTOCK AND THE ENVIRONMENT

Global Livestock Environmental Assessment Model

The FAO Global Livestock Environmental Assessment Model (GLEAM) is a modelling framework that uses geospatial information to assess the environmental impact of livestock systems at the global, regional, national and subnational levels. The model provides information and data on livestock production, greenhouse gas emissions, and the use of natural resources in livestock systems. The use of GLEAM is crucial to run adaptation and mitigation scenarios and identify evidence-based interventions to move towards sustainable and environmentally friendly livestock production systems.



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GLEAM Dashboard

The Global Livestock Environmental Assessment Model Dashboard is a new FAO's interactive web tool designed to help users visualise and analyse greenhouse gas emissions from livestock systems globally. Launched during the FAO Science and Innovation Forum 2022, the GLEAM Dashboard is used by diverse stakeholders – including governments, private sector, and international organizations, as well as consumers – to better understand the nature and origins of global GHG emissions from systems, and so to help them design and plan effective climate action in the sector. As of December 2022, over 4 000 users from more than 120 countries have started using the tool.

GLEAM-i

GLEAM-i is an open and livestock-specific tool to calculate GHG emissions from the livestock sector using the advanced Tier 2 methodology. In 2022, FAO and IFAD used the tool in four countries (Kyrgyzstan, Lesotho, Rwanda, and Tajikistan) to assess GHG emissions and mitigation options, raise awareness raising and strengthen capacity. GLEAM-i is used by around 500 users every month worldwide and is part of IFAD's project cycle. Data collection and analysis done with GLEAM-i supported different World Bank operations in West and East Africa (Burkina Faso, Chad, Kenya, Mali, Mauritania, Niger, and Senegal) to assess climate co-benefits and include climate-smart practices in projects.



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LIVESTOCK POLICY

Livestock Policy Simulation Model

The Livestock Policy Simulation Model (LPSM) is country-level integrated (addresses economic, social, and environmental livestock outcomes simultaneously), recursive (solved sequentially and repeatedly, one period at a time), dynamic (the economy's progression is modelled over time) and open (allowing for trade across borders) computable general equilibrium model. In 2022, five countries in Latin America validated the model, including Argentina, Chile, Colombia, Costa Rica, and Uruguay. LPSM was designed to conduct ex-ante policy analysis balancing the different dimensions of sustainability.



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ONE HEALTH

One Health Monitoring Tool

FAO launched its first **One Health Monitoring Tool** in May 2022. Piloted in Cameroon, Ghana, Liberia and Tanzania, the tool allows countries to conduct self-assessments on a set of One Health indicators, including animal health, public health, environment and wildlife. Thanks to OHMT, countries can now identify gaps and monitor progress made on One Health implementation.



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PASTORALISM

Pastoralist Knowledge Hub

The **Pastoralist Knowledge Hub** brings pastoralists and international actors together to ensure that pastoralists' voices are listened and integrated into the international policy dialogue. In 2022, the Pastoralist Knowledge Hub supported the implementation of the Voluntary Guidelines on the Responsible Governance of Tenure, with a focus on the governance of pastoral land. The Pastoralist Knowledge Hub trained 678 key stakeholders from four countries (330 in Mauritania, 227 in Mali, 55 in Niger, 66 in Senegal).



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E-learning courses



EuFMD Virtual Learning

The [EuFMD training programme](#) supports the capacity development of veterinary services and animal health workers to improve preparedness for the management of Foot-and-Mouth And Similar Transboundary animal diseases crises by EuFMD Member Nations, reduce risk in neighboring countries and sustaining and enhancing the progress in the roll-out of the Foot-and-mouth diseases global control strategy. The commission has a catalogue of open access and tutored activities that cover multiple Foot-and-Mouth And Similar Transboundary animal diseases and enhance emergency preparedness, outbreak investigations, development of activities related to the progress of countries in stages 0 to 3 through the Progressive Control Pathway, and investigation in laboratories. Nearly 8 000 learners from over 160 countries have completed virtual learning courses in Phase V of the workplan of the Commission 2021-23. Over 1 000 learners have attended Real-Time Trainings since their inception.

Virtual Learning Centres

[FAO Virtual Learning Centres](#) are online hubs that design online tutored courses and blended learning to facilitate access to inclusive, engaging and high-quality trainings in all FAO regions and sub-regions. The VLC also facilitate networking, supporting regional meetings and hosting communities of practice. As of December 2022, nearly 10 000 people had accessed the VLC platform, and only in 2022, 5 470 people from around 120 countries completed VLC courses. The VLC delivered 29 online courses and virtual activities in 2022 and obtained a 67 percent of completion rate among the students. Approximately 45 percent of VLCs trainees were women.



The Global Rinderpest Action Plan

Rinderpest was officially eradicated in 2011. This [course](#) published on the FAO E-learning is designed to help countries identify and control rinderpest outbreak, if re-emergence occurs. The course provides an overview of the Global Rinderpest Action Plan and the five stages of rinderpest emergency management – prepare, prevent, detect, respond, and recover. Throughout 2022, over 5 000 users completed the course and obtained a digital certificate. The course illustrates the Global Rinderpest Action Plan's framework to ensure continued global freedom from rinderpest.

Good emergency management practice in animal health

This third edition of the [“Good emergency management practice - The essentials manual”](#) adopted a One Health approach to minimize the impact of animal health emergencies. The course sets out the elements required to achieve an appropriate level of preparedness and proposes an approach to animal health emergency management, including all types of events. Over 120 participants from veterinary, public health and environmental services from 12 countries were trained in 2022.

Livestock Policy Simulation Model

This [course](#) developed by FAO and the Panamerican Dairy Federation (FEPALE) is designed to help policy analysts from Latin America and the Caribbean strengthen their capacity to formulate integrated policies and strategies accounting for the economic, social, and environmental effects of policy changes. The course provides participants with a deep understanding of the concept, use and application of the Livestock Policy Simulation Model (LPSM) to conduct ex-ante policy analysis.

Estimating methane emissions from enteric fermentation using Tier 2 method

This [course](#) provides practical guidance for data collection and emissions estimation from livestock enteric fermentation, using the Intergovernmental Panel on Climate Change (IPCC)'s Tier 2 method, as described in the 2006 IPCC Guidelines.

International observances

FAO coordinates and contributes to a number of international occurrences related to animal production and health.

World Bee Day | 20 May 2022

Every year FAO raises awareness on the crucial role bees and other pollinators play in keeping people and the planet healthy. **World Bee Day 2022's** theme, "**Bee engaged: celebrating the diversity of bees and beekeeping systems**", encouraged people to respect and protect these insects and drew attention to the importance of the diversity bees and beekeeping systems that exist around the world. Today bees, pollinators, and many other insects are declining in abundance. World Bee Day provides an opportunity to promote actions that protect and enhance pollinators and their habitats, improve their abundance and diversity, and support the sustainable development of beekeeping.

World Milk Day | 1 June 2022

Milk and dairy products provide essential nourishment to billions of people worldwide. Thanks to its nutrient-rich composition, milk is the third biggest supplier of protein and the fifth largest provider of energy, contributing to healthy and active lives. During World Milk Day 2022, FAO published the online story "**Pour on the benefits! Five ways the dairy sector can contribute to sustainable agrifood systems**". The story celebrates the importance of milk and dairy products for food security and livelihoods, and highlights the contribution of dairy-related partnerships, such as the one between FAO and the Global Dairy Platform.

World Rabies Day | 28 September 2022

World Rabies Day is celebrated every year to raise awareness about rabies prevention and highlight progress made to defeat this deadly disease. Under the theme "One Health, Zero Death", World Rabies Day 2022 highlighted the connection between animals, people and the environment.

FAO and countries like Cameroon, the Democratic Republic of Congo, Egypt, Ethiopia, Guinea, Indonesia, Liberia, Mali, Niger, Sierra Leone and Viet Nam were at the forefront of celebrating this international day. Over 4 200 people, including almost 1 900 women, participated in the events organized for World Rabies Day 2022 in those eleven countries.

One Health Day | 3 November 2022

The 3 November 2022 marked the seventh anniversary of the One Health Day, a global campaign to highlight the need for a multi-disciplinary approach to address today's global health challenges at the human-animal-environment interface. Recognizing the interdependence of humans, animals, plants and ecosystems, the One Health approach points out the need for a coordinated action across sectors to protect global health and prevent disruption to food systems. FAO and African countries, such as Cameroon, Côte d'Ivoire, Ethiopia, Liberia, Mali, Senegal, and Sierra Leone played a key role in making One Health Day 2022 shine.

AMR Awareness Week | 18 to 24 November 2022

Every year, FAO, UNEP, WHO and WOA (collectively known as the Quadripartite) coordinate the AMR Awareness Week, a global campaign that celebrates the importance of AMR and encourages best practices among the public, One Health stakeholders and policymakers. Under the theme "**Preventing Antimicrobial Resistance Together**", AMR Awareness Week 2022 called on all sectors to encourage the prudent use of antimicrobials and to strengthen measures to prevent AMR. Cumulatively, over 55 percent of participants attending AMR Awareness Week events in Cambodia, Cameroon, Côte d'Ivoire, Indonesia, Liberia, Mali, Nigeria, Senegal, Sierra Leone, Uganda, and Viet Nam were women.

WAY FORWARD

Towards sustainable livestock transformation

Livestock systems play a major role in improving nutrition and promoting food security. With over 700 million people undernourished in 2021 and a mandate to reduce global hunger, FAO recognizes the importance that livestock systems play in achieving a healthy and food-secure world, especially in developing economies. However, we cannot ignore that it has been identified as a major contributor to climate change, soil and water pollution, human diseases, land degradation and biodiversity loss.

Balancing the benefits of animal-source foods and livelihoods of livestock producers with the urgent need to reduce global warming and protect human, animal and environmental health is now more crucial than ever.

For many years, FAO has been working with countries to mitigate and adapt to food and climate crises; prevent and respond to livestock-related emergencies; assess the environmental performances of livestock systems; and promote inclusive and efficient livestock markets. However, a global transformation requires more investments in technologies, policy instruments and science-based solutions that increase productivity without causing any further harm to the environment and public health.

Sustainable livestock systems can play a significant role not only in supporting global nutrition and resilient agrifood systems, but also in ensuring a healthy planet for youth and future generations.

Strategic collaborations between governments, non-governmental organizations, academia, and the private sector are crucial to exchange knowledge and best practices that cut growing greenhouse gas emissions, preserve natural resources, and improve animal health and biosecurity.

Together, we can enhance the benefits of livestock production in developing economies, reduce the sector's impact on the planet and accelerate climate action. Let's work hand in hand to make a global sustainable livestock transformation possible.

Thanawat Tiensin

Director of FAO Animal Production and Health Division

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