



Food and Agriculture
Organization of the
United Nations

Sustainable livestock transformation

A vision for FAO's work on animal
production and health



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Abbreviations and acronyms

AMR	antimicrobial resistance
COAG	Committee on Agriculture
FAO	Food and Agriculture Organization of the United Nations
UN	United Nations
WHO	World Health Organization
WOAH	World Organization for Animal Health



Our vision and mission

We believe in a world where the diversity of livestock production systems improves the well-being of people, taking into consideration social, economic, and environmental dimensions.

We envision a world where the voices of all stakeholders are equally heard, fostering multi-stakeholder dialogue that leads to consensus and joint action. Furthermore, we advocate for scientific evidence to support the adoption of sustainable husbandry practices, investments and policies.

The Food and Agriculture Organization of the United Nations (FAO) is committed to promoting environmentally sustainable, socially responsible, and economically viable best practices in livestock production. Our goal is to contribute to a balanced and evidence-based global narrative for the livestock sector. In doing so, we recognize the importance of considering not only the benefits but also trade-offs involved. For instance, we need to assess the potential conflict between international goals, such as reducing greenhouse gas emissions and ensuring the necessary supply of micronutrients to all people.





Within the framework of the United Nations 2030 Agenda for Sustainable Development, FAO assists Member Nations to improve sound policies, increase investments and develop good practices. The primary objectives are as follows:

- ◇ Support the transition to sustainable livestock production, aiming to reduce poverty and enhance human well-being.
- ◇ Promote access to natural and productive resources for small-scale livestock producers, particularly in low- and middle-income countries.
- ◇ Safeguard animal and public health.
- ◇ Increase market access opportunities for livestock producers and ensure safe trade.
- ◇ Support the sustainable use and conservation of animal genetic diversity.
- ◇ Minimize the environmental impact of livestock production.
- ◇ Enhance the resilience of livestock production systems to climatic shocks.

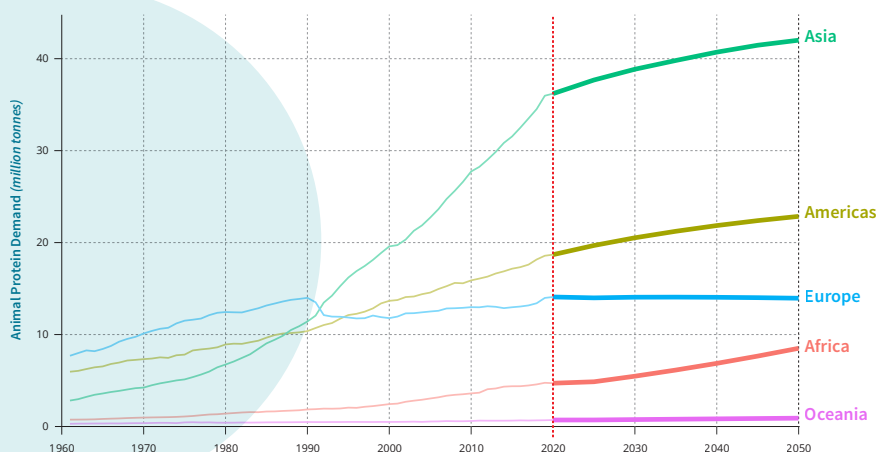
By pursuing these objectives, FAO strives to contribute to sustainable development and address the challenges faced by the livestock sector worldwide.

Thanawat Tiensin
*Director,
Animal Production and Health Division
FAO*

Key facts and figures

The world population is projected to reach 9.8 billion in 2050. In tandem with this population growth, the demand for milk, meat and eggs is projected to increase by more than 20 percent between 2020 and 2050.

Projected animal protein demand by 2050 shows regional differences.



Animal-source foods are recognised as some of the best available sources of high-quality, nutrient-rich food, including for women during pregnancy and lactation, children, adolescents and elder people.



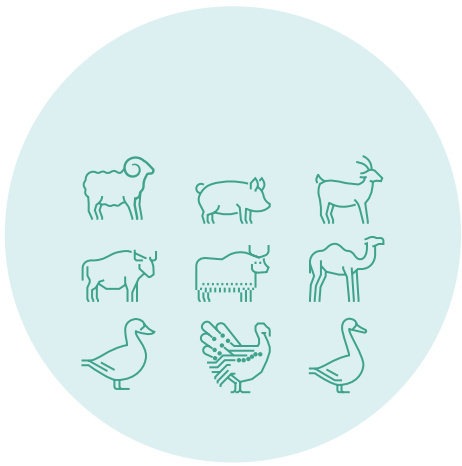
Pastoral breeds possess unique characteristics such as the ability to cope with high temperatures and harsh conditions that enable them to thrive in environments with climatic variability. In the context of climate change, these breeds are crucial assets for humanity in adapting to climate change.

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In 2019, it was estimated that out of the 659 million people living on less than USD 2.15 per day, approximately half of them depended directly on livestock for their livelihoods.

Livestock supply multiple bioavailable nutrients that are often lacking in the cereal-based diets of impoverished populations.



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.



Livestock systems are responsible for about one quarter of the global water consumption, mostly for irrigated feed.



The livestock sector accounts for about 40 percent of value added in agriculture across developing countries.



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60 percent of all human infectious diseases are zoonotic in origins and some 75 percent jump species. Each year, zoonoses are responsible for 2.5 billion cases of human illness and 2.7 million human deaths worldwide.



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About 1.2 million deaths are a result of antimicrobial resistance (AMR) and some projections suggest this could rise to 10 million by 2050.



Livestock account for about 11 percent of all anthropogenic greenhouse gas emissions.

Over 1 billion animals are herded by pastoralists worldwide. These include sheep, goats, cattle, camels, yaks, horses and reindeer. Pastoralists' work is particularly crucial in areas such as drylands, highlands, wetlands, and shrublands, where the conditions are challenging for crop production. In these areas, pastoralism is instrumental in ensuring food security and providing protein and micronutrient-rich food.



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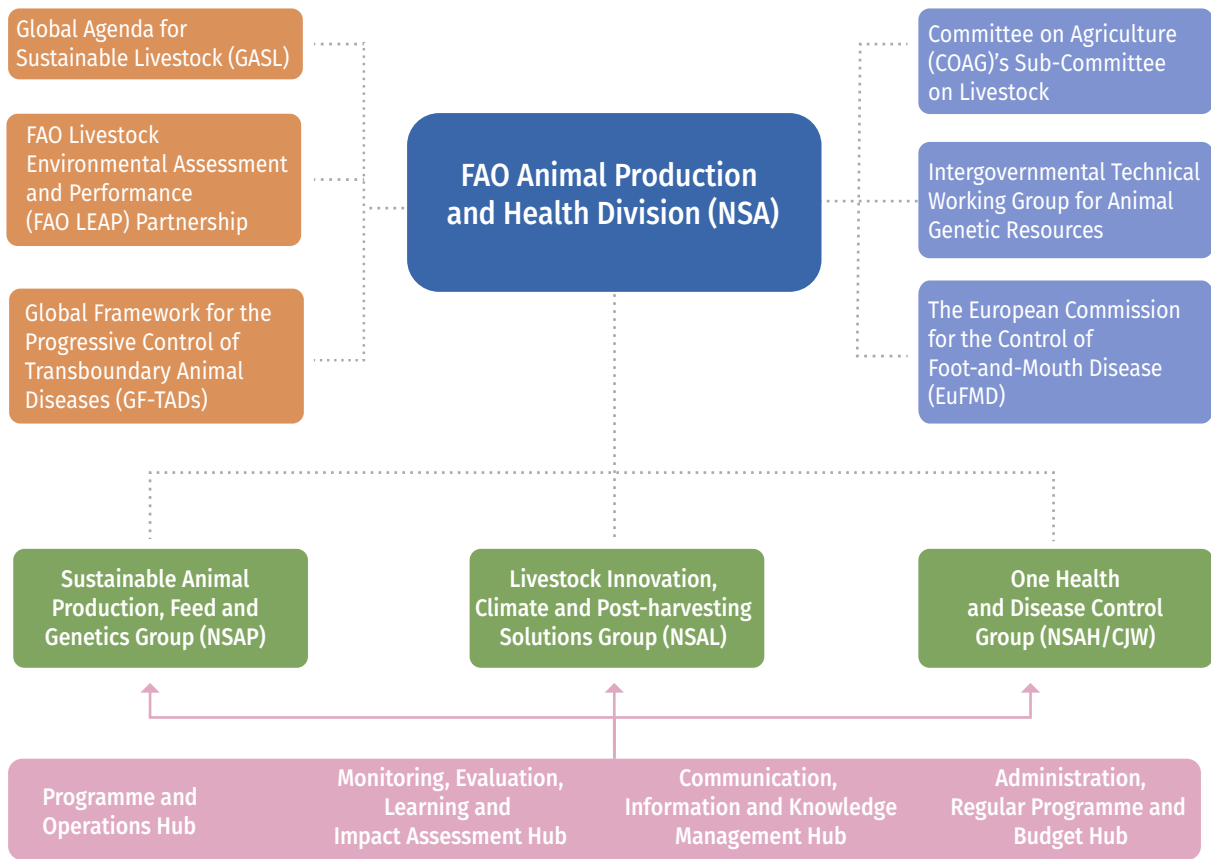


How we are structured



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The Office of the Director and three technical units carry out the work of the FAO Animal Production and Health Division.

FAO activities and programmes on animal production and health are implemented in collaboration with joint centres, regional and country offices, Member Nations, multi-stakeholder partnerships and other groups.

As of 1 June 2023, nearly 220 employees work at the FAO Animal Production and Health Division with 86 percent being technical experts, and 14 percent providing administrative support.

Our contribution

to the FAO strategic framework and Sustainable Development Goals

FAO is committed to supporting Member Nations and partners in achieving the objectives of the 2030 Agenda for Sustainable Development and the FAO's aspiration of leaving no one behind.

The commitment involves fostering sustainable, inclusive and resilient food systems that promote better production, better nutrition, a better environment, and a better life.

NSA developed the sustainable livestock transformation initiative built on five pillars that are directly linked to the FAO strategic framework and the Sustainable Development Goals. By promoting this initiative, NSA aims to foster its contribution to the 2030 Agenda for Sustainable Development.





BETTER PRODUCTION

- BP1: **Innovation for Sustainable Agriculture Production**
- BP2: **Blue Transformation**
- BP3: **One Health**
- BP4: **Small-Scale Producers' Equitable Access to Resources**
- BP5: **Digital Agriculture**



BETTER NUTRITION

- BN1: **Healthy Diets for All**
- BN2: **Nutrition for the Most Vulnerable**
- BN3: **Safe Food for Everyone**
- BN4: **Reducing Food Loss and Waste**
- BN5: **Transparent Markets and Trade**



BETTER ENVIRONMENT

- BE1: **Climate Change Mitigating and Adapted Agrifood Systems**
- BE2: **Bioeconomy for Sustainable Food and Agriculture**
- BE3: **Biodiversity and Ecosystem Services for Food and Agriculture**
- BE4: **Achieving Sustainable Urban Food Systems**



BETTER LIFE

- BL1: **Gender Equality and Rural Women's Empowerment**
- BL2: **Inclusive Rural Transformation**
- BL3: **Agriculture and Food Emergencies**
- BL4: **Resilient Agrifood Systems**
- BL5: **Hand-in-Hand (HIH) Initiative**
- BL6: **Scaling up Investment**



Sustainable livestock transformation initiative

PILLAR 1.

Building balanced and evidence-based narratives on sustainable livestock

PILLAR 2.

Strengthening sustainable pathways and frameworks to expand the application of good practices

PILLAR 3.

Supporting policy development and increasing responsible investment for the livestock sector

PILLAR 4.

Integrating work on livestock production and animal, environmental and human health and welfare

PILLAR 5.

Accelerating actions, innovations and partnerships

What we do



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FAO supports Member Nations in transforming livestock systems to:

- Contribute to food security, nutrition and healthy diets, and provide opportunities for inclusive economic growth and improved livelihoods.
- Improve animal health and welfare, and safeguard global health.
- Protect natural resources and respond to climate change.

FAO works on the following areas of work to meet these sustainability objectives:

- Sustainable livestock production systems:** food security, nutrition and inclusive economic growth
- One Health approach:** animal, public and environmental health
- Interaction with the environment:** natural resources, climate, environment and biodiversity

Sustainable livestock production systems

Food security, nutrition, and inclusive economic growth

The sustainable transformation of livestock production systems – large and small – is critical for enhancing livestock's contribution to food security, nutrition, poverty reduction, sustainable livelihoods, and the realization of the 2030 Agenda.

The surging demand for livestock products is largely met by large-scale livestock production and associated food chains. Nonetheless, hundreds of millions of small-scale farmers and pastoralists depend on livestock for their livelihoods. Beyond food production, livestock play other important economic, cultural, and social roles and provide multiple functions and services.

Transboundary and emerging animal diseases represent a constant drain on the resources of poor livestock producers and directly affect livelihoods and human well-being, as well as the trade of livestock and their products.

OUR PRIORITIES

- ◇ Support countries in transitioning to a sustainable livestock sector, taking into account the diversity of livestock production systems.
- ◇ Support small-scale livestock producers, including pastoralists, women, youth, Indigenous Peoples, and people in vulnerable situations, to improve their livelihoods and resilience.
- ◇ Support countries in implementing sustainable and accessible animal production and health delivery services to increase productivity, improve health, and contribute to better nutrition and a better life.



BETTER PRODUCTION

BP1 > Innovation for sustainable agriculture production

BP4 > Small-scale producers' equitable access to resources

BP5 > Digital agriculture

BETTER NUTRITION

BN1 > Healthy diets for all

BETTER LIFE

BL2 > Inclusive rural transformation

BL6 > Scaling up investment



OUR ACTIVITIES

- ◇ Prepare a global assessment of the contribution of livestock to food security, sustainable food systems, nutrition, and healthy diets.
- ◇ Support the analysis of livestock policy and strategic, sustainable investments.
- ◇ Develop and disseminate knowledge products on good practices in animal production and health.
- ◇ Assess and develop livestock feeding systems, while promoting the use of innovative and alternative feed sources and technologies to reduce feed-food competition.
- ◇ Advocate for inclusive policies that support pastoralism and extensive grazing systems, recognizing their economic, ecological and social services.

The **Good Emergency Management Practice** supports veterinary services in enhancing preparedness for animal disease outbreaks and reducing the time needed to respond to a crisis.

The **Livestock Sector Investment and Policy Toolkit** assists countries to conduct prospective analysis in the livestock sector, developing livestock master plans and making informed strategic investments.



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One Health approach

Animal, public, and environmental health

Evolving changes in livestock production systems, long complex value chains, routine overuse of antimicrobials, as well as large-scale deforestation, and loss of biodiversity and habitat, threaten ecosystem integrity and increase disease threats at the animal-human-environment interface. Strengthening and investing in animal health systems and associated policies are crucial to achieving sustainable and accessible services for producers, as well as enhancing capabilities for early warning and evidence-based risk mitigation. This pathway is essential for both local and global health security and requires a One Health approach to be effective.



BETTER PRODUCTION

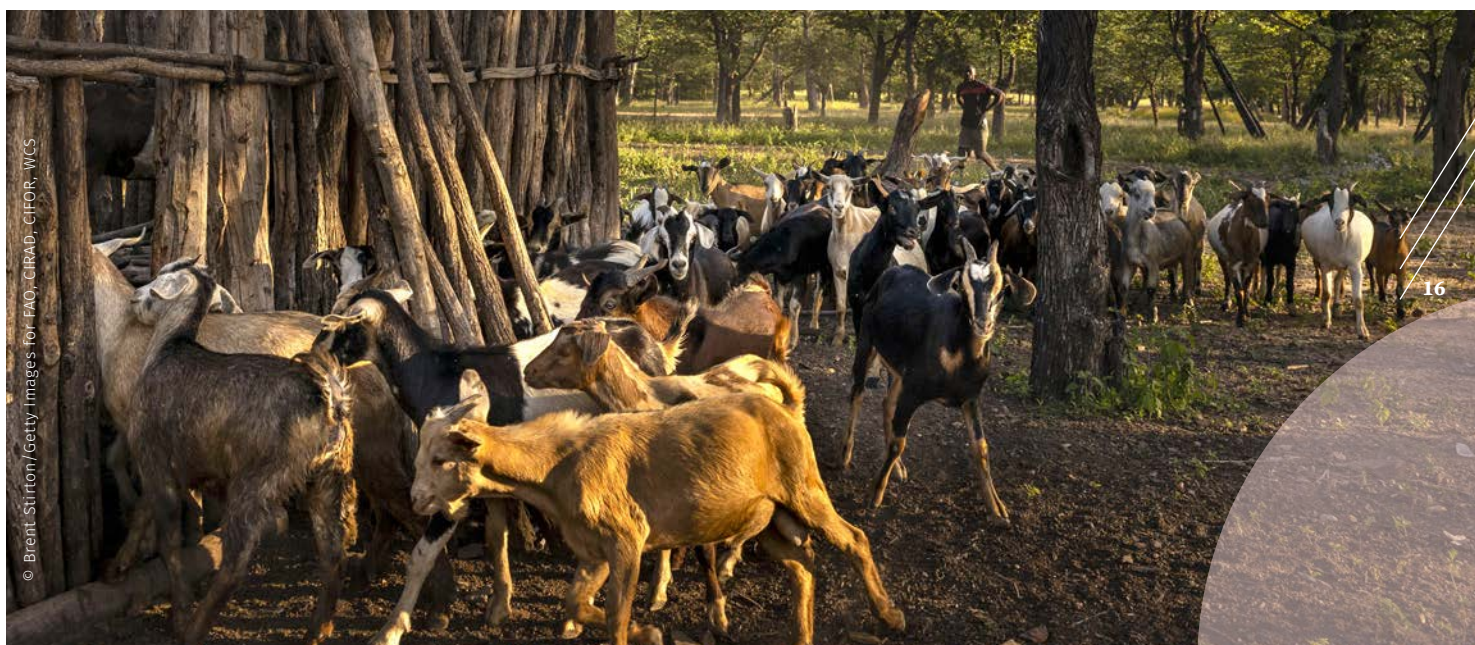
BP3 > One Health

BETTER NUTRITION

BN3 > Safe food for everyone

BETTER LIFE

BL3 > Agriculture and food emergencies



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OUR PRIORITIES

- ◇ Support the capacities of animal health systems in preventing, detecting, and responding to high impact diseases, with a focus on those that have the highest productivity impacts.
- ◇ Support emergency preparedness and response for livestock emergencies.
- ◇ Enhance early warning and information systems at the global, regional, and national level.
- ◇ Facilitate research networks, communication, and coordination within the framework of a One Health approach.
- ◇ Reduce the need for antimicrobials at the farm level by reducing the disease and other drivers for antimicrobials use through the One Health approach at the country, regional, and global level.
- ◇ Enhance FAO's contribution to global health security.

The **EMPRES-Global Animal Disease Information System (EMPRES-i+)** provides secure disease tracking and analysis of health threats.

The **FAO Progressive Management Pathway for Terrestrial Animal Biosecurity (FAO-PMP-TAB)** is a collaborative approach aimed at assisting countries, industries, and producers in assessing and managing biological risks at the enterprise, community and national levels.

PROGRAMMES

Through the **Emergency Prevention System (EMPRES)**, FAO supports countries in preventing and controlling the world's most serious animal diseases, as well as newly emerging diseases, on a regional and global scale. This is achieved through international cooperation, which involves early warning, rapid response, enabling research, and coordination.

Through the **Emergency Centre for Transboundary Animal Diseases (ECTAD)** country teams, FAO implements programmes in over 37 countries to prevent and mitigate the impact of animal diseases, using a One Health approach.

The **Emergency Management Centre (EMC)** supports countries in crisis management, which includes deploying rapid response teams and facilitating coordination.

The **Programme Against African Trypanosomosis (PAAT)** fosters inter-agency collaboration among FAO, WHO, IAEA and the African Union to address the constraints posed by tsetse-transmitted trypanosomoses on agriculture production, food security, and rural development.

OUR ACTIVITIES

- ◇ Enhance early warning and decision support tools by improving disease reporting, data management and analysis, and information sharing among animal, public and environmental health systems.
- ◇ Support policy analysis to ensure sustainable and accessible delivery of animal health services, and promote investment in such services through:
 - » Policy and capacity assessments of institutional workforce, and capacity building initiatives through tailored courses and programmes.
 - » Emergency preparedness, response, and coordination of emergencies through the Emergency Management Centre.
 - » Progressive control of priority transboundary diseases, coordinated under the Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs), such as foot-and-mouth disease, peste des petits ruminants, African swine fever, and high pathogenic avian influenza.
- ◇ Promote the improvement of biosecurity measures in livestock value chains and share knowledge and evidence through communities of practice.
- ◇ Assist countries in enhancing the implementation of national action plans on AMR, and reducing the usage of antimicrobials on farms.

Did you know?

The **Event Mobile Application (EMA-i)** is a secure online platform that enables timely reporting of animal diseases from the field.

The **Virtual Learning Centers (VLCs)** provide online training in a range of One Health topics, tailored to regional contexts and languages. They also foster the creation of communities necessary for advancing One Health initiatives.

The **Field Epidemiology Training Program for Veterinarians (FETPV)** and the **applied veterinary epidemiology training** aim to build capacity of the veterinary epidemiology workforce.



Interaction with the environment

Natural resources, climate, environment, and biodiversity

Livestock contribute to important ecosystem functions such as nutrient cycling, soil organic carbon sequestration, the maintenance of agricultural landscapes, and the conservation of biodiversity and genetic resources. However, livestock are also the biggest users of agricultural land and can contribute to land degradation, biodiversity loss, and water scarcity, if they are not well managed. The livestock sector contributes to about 11 percent of all anthropogenic greenhouse gas emissions, but there are numerous solutions to reduce emissions and improve the efficiency and resilience of livestock systems.

OUR PRIORITIES

- ◇ Support evidence-based policy and practice changes, as well as facilitate prioritization action in greenhouse gas mitigation through data collection.
- ◇ Provide information and data on the interactions between livestock and the environment, including land, water, and soil.
- ◇ Support the sustainable management of animal genetic resources, including managed bees.



BETTER ENVIRONMENT

- BE1** > Climate change mitigating and adapted agrifood systems
- BE2** > Bioeconomy for Sustainable food and agriculture
- BE3** > Biodiversity and ecosystem services for food and agriculture

BETTER LIFE

- BL4** > Resilient agrifood systems

The **Domestic Animal Diversity Information System (DAD-IS)** provides information on the diversity of livestock breeds and the risk of their extinction.



OUR ACTIVITIES

- ◇ Collect, harmonize, and analyse global and national-level data on livestock, and develop models to assess greenhouse gas emissions, nitrogen use efficiency, and livestock productivity.
- ◇ Assess water usage in livestock systems and evaluate their impacts on water scarcity.
- ◇ Raise awareness on the environmental impact of livestock through web-based platforms and support quantitative analysis of greenhouse gas mitigation interventions to enhance national climate commitments.
- ◇ Develop reports on the State of the World's Animal Genetic Resources for Food and Agriculture and support the implementation of the Global Plan of Action for Animal Genetic Resources.
- ◇ Support countries in collecting data on animal genetic resources and further develop the global information system for monitoring the diversity of animal genetic resources.
- ◇ Assess the multi-dimensional performance of production systems through agroecology.

Did you know?

The FAO **Global Livestock Environmental Assessment Model (GLEAM)** simulates the interactions of livestock systems with the environment at the global, regional, and national level. The model provides data on livestock production and greenhouse gas emissions through a series of digital applications, such as the GLEAM Dashboard and the interactive tool GLEAM-i.

The **Gridded Livestock of the World (GLW)** maps the global distribution of livestock species.

The **Tool for Agroecology Performance Evaluation (TAPE)** characterizes the extent of agroecological transitions in livestock systems and measures their performance across the different dimensions of sustainability.



How we work

The FAO Animal Production and Health Division harnesses its technical, operational, and communication expertise to support sustainable livestock transformation. It cooperates with other UN agencies, academia and research, international financial institutions, non-governmental organisations, and the private sector.

INTERGOVERNMENTAL COMMITTEES

- ◇ The **Committee on Agriculture (COAG) Sub-Committee on Livestock**. Established in October 2020, the COAG Sub-Committee on Livestock is a global intergovernmental forum with the mandate to discuss and build consensus on issues and priorities related to the livestock sector. It advises COAG on technical and policy programmes within the UN 2030 Development Agenda. The sub-committee addresses the complex social, economic, and environmental issues and trade-offs.
- ◇ The **Intergovernmental Technical Working Group on Animal Genetic Resources**, which reviews issues related to animal genetic resources and their management.



MULTI-STAKEHOLDER PARTNERSHIPS

- ◇ The **Quadripartite**. FAO cooperates with the World Health Organisation (WHO), the World Organisation for Animal Health (WOAH), and the United Nations Environment Programme (UNEP) to combat health risks at the human-animal-plant-environment interface in the context of the “One Health” approach, including antimicrobial resistance.
- ◇ The **Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs)**. Launched in 2004, it aims to reduce the threat from transboundary animal diseases to food security, livelihoods, safe trade, and global health.
- ◇ The **Global Agenda for Sustainable Livestock (GASL)**, a multi-stakeholder partnership committed to the sustainable development of the livestock sector.
- ◇ The **FAO Livestock Environmental Assessment and Performance (FAO LEAP) Partnership**, a multi-stakeholder initiative that seeks to improve the environmental sustainability of the livestock sector through harmonized methods, metrics, and data.
- ◇ The **Pastoralist Knowledge Hub**, a platform for pastoralists to share their voice at the global level.





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SCIENTIFIC NETWORKS

As of June 2023, FAO has 68 **research alliances and reference centres** in 19 technical areas in animal health, such as the joint WOA-FAO scientific network on avian influenza (OFFLU), the Global African Swine Fever Research Alliance (GARA), and the Global Foot-and-Mouth Research Alliance (GFRA). This scientific network provides expertise in various areas, including veterinary diagnostics, vaccines, research, biocontainment, epidemiology, and wildlife health.

GLOBAL EVENTS

FAO coordinates the organization of major global events, such as **World Bee Day** on 20 May every year, the **International Year of Camelids** in 2024, and the **International Year of Rangelands and Pastoralists** in 2026.

OUR CAPACITIES



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Useful links

FAO Animal Production and Health: www.fao.org/agriculture/animal-production-and-health/en/

Animal Health: www.fao.org/animal-health/en/

Animal Production: www.fao.org/animal-production/en/

Livestock and the environment: www.fao.org/livestock-environment/en/



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