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atf animal task force

A European Public-Private Partnership

LIVESTOCK ARE **MORE THAN FOOD**

A policy brief from the Animal Task Force

In 2024, ATF's activity focused on the topic "Livestock are more than Food", and two events were organised: a joint symposium organised by the ATF and the Livestock Farming Systems Commission of the European Federation of Animal Science in Florence (01/09/24), and the ATF seminar organised in Brussels (20/11/24). These events contributed to gather the latest advances in knowledge presenting new research, on-the-ground innovations, and system-level insights. The message was clear: **livestock systems, when designed with circularity and multifunctionality in mind, are not just compatible with EU climate and biodiversity goals - they are essential to achieving them.**

LIVESTOCK SYSTEMS IN EUROPE ARE **AT A CROSSROADS**

In the middle of growing calls to reduce meat consumption, livestock numbers and agricultural emissions, the broader contributions of livestock are often overlooked by both the general public and policy makers. Yet, when managed sustainably, livestock play a key role in delivering climate resilience, resource efficiency, rural development, and ecosystem services.

Too often, the sector is viewed narrowly through the lens of greenhouse gas emissions or protein production. This narrow framing fails to capture livestock's wider value to society. Beyond food, livestock systems contribute to:

- **Nutrient cycling** through manure use as a renewable fertiliser and use of former food products and/or by-products
- **Use of by-products and co-products contributing to the circular bioeconomy** (e.g., leather, wool, bones, fats) in pharma, textiles, and construction
- **Biodiversity and landscape management**, especially in pasture-based and high-nature-value areas
- **Rural livelihoods**, cultural heritage, and regional identity
- **Health and nutrition**, through bioactive compounds in animal products
- **Renewable energy** generation via biogas from animal waste
- **Companionship** and therapeutic contributions

These roles align closely with the EU's sustainability agenda. The **European Green Deal**, **Farm to Fork Strategy**, and **Bioeconomy Strategy** - all emphasize reducing waste, supporting circular resource use, and promoting climate-resilient, nature-positive food systems. There is also clear alignment with the latest FAO Guidelines document '**Livestock in a Circular Bioeconomy**'[1]. Yet livestock's multifunctional role is still underrecognized in many of these frameworks.

[1] *https://www.fao.org/partnerships/leap/resources/publications/fao-leap-guidelines/en (release: September 2025)*

Here are some examples:

- The **Farm to Fork Strategy** aims to reduce fertiliser and pesticide use, expand organic farming, and improve nutrient management, goals that require integrated crop-livestock systems.
- The **EU Bioeconomy Strategy** calls for better use of biological by-products and waste - this is an area where livestock can convert low-value inputs into high-value outputs, closing nutrient loops.
- The **Common Agricultural Policy (CAP)** offers eco-schemes and agri-environmental supports but often lacks the tools to reward livestock systems for their ecosystem services or circular contributions.
- The **FAO Guidelines - Livestock in a Circular Bioeconomy** - state that a circular bioeconomy integrates bioeconomy principles with circular economy principles to create sustainable, low-carbon solutions that ensure efficient use of the biological resources that support and are derived from livestock production. Livestock play an important role in a circular bioeconomy as they enable the upcycling of agricultural products unsuitable for consumption by humans into nutritionally rich animal-sourced foods, as well as providing valuable resources from animal processing and manure. Understanding positive and negative environmental impacts of livestock production systems is the key to establishing a sustainable circular bioeconomy which is not currently assessed by linear approaches such as Life Cycle Assessment.

Moreover, mainstream sustainability metrics like **Life Cycle Assessment (LCA)** focus on product-level impacts (e.g., CO_2 per kg of meat) and penalize multifunctional systems, and overlook the positive externalities associated with livestock production. These assessments miss the added value provided by livestock in terms of soil health, carbon storage, water retention, and rural vitality and they do not provide a good assessment on livestock systems. Moving from linear LCA to a circular methodological approach is needed.

KEY MESSAGE

WHY IS LIVESTOCK IMPORTANT?

Livestock systems are central not only to food production but to Europe's transition towards a circular and sustainable bioeconomy.

Their roles in nutrient cycling, energy production, material reuse, landscape management, and rural livelihoods should be fully recognized and supported in EU research strategies, policy, and innovation agendas.

Animals are sentient beings

Before discussing how livestock and livestock production can support Europe's transition towards a circular and sustainable bioeconomy, we need to realise that the animals themselves are sentient beings. The European Union confirmed this already in 2009, through the Lisbon Treaty. European consumers agree that maintaining an adequate level of animal welfare is an important aspect of livestock systems, because animals are indeed more than food. As a result, the EU animal welfare legislation is currently being updated, bilateral trade agreements increasingly involve discussions on the 'welfare quality' of the products, and the food industry is developing minimum welfare standards as well as niche products to provide consumers with what they ask for. It is of vital importance for the livestock industry as well as the European citizens that the arguments used to make these changes are based on solid scientific evidence.

Relevance to EU: Revision of EU animal welfare legislation, bilateral trade agreements, Farm to Fork Strategy (product labelling), CAP discussions on animal welfare.

Beyond food: the multifunctional contributions of livestock

Livestock systems support multiple dimensions of sustainability and public value that go far beyond food production. These contributions are central to the EU's goals around circularity, climate resilience, biodiversity, and rural development.

NUTRIENT CYCLING AND SOIL FERTILITY

One of the most fundamental contributions of livestock systems lies in their ability to **close nutrient cycles and maintain soil fertility**. Livestock produce manure that serves as an organic fertiliser, returning key nutrients such as nitrogen, phosphorus, and potassium to the soil. This process reduces the need for synthetic fertilisers, lowers fossil energy inputs, and enhances the organic matter content of soils - improving their water retention, biological activity, and long-term productivity. In mixed crop-livestock systems, animals play a pivotal role in sustaining the fertility loop between fields and pastures, a core principle of agroecology and organic farming.

- Adequately managed **manure** is a key organic fertiliser, returning nutrients (nitrogen, phosphorus, potassium) to soils
- Manure supports **soil health and structure**, boosting water retention and reducing erosion
- Manure is vital to organic and agroecological systems where synthetic fertilisers are restricted

Processed Animal Proteins (PAP) are a vital raw material for feeding Europe's 352 million pets, and also other animal species. Their use is highly regulated and their contributions to pet feeding is essential.

Relevance to EU: Farm to Fork Strategy (nutrient management), CAP eco-schemes, Organic Action Plan

CIRCULARITY AND WASTE REDUCTION

In addition to nutrient cycling, livestock are vital to the **circular economy**, particularly through their role in **upcycling biomass**. A significant proportion of what animals consume cannot be digested by humans - cellulose-rich forages, food industry by-products, crop residues, and food waste, and livestock use areas that cannot be used for any purpose rather than grazing. Livestock can convert these materials into high-quality food, while producing manure that continues the cycle. This function helps reduce food waste across the agri-food chain and mitigates feed-food competition by valorising materials that would otherwise be discarded. In a resource-constrained world, this capacity for biological recycling is not a marginal benefit - it is central to food system sustainability.

- Livestock can use or recycle biomass that is not directly usable for human food to produce food of high nutritional quality
- Livestock can **upcycle by-products** (e.g., brewers' grains, oilseed cakes, whey, food waste, maize residues...) into edible products
- Livestock reduces dependency on land-intensive feed and contributes to waste valorisation

Relevance to EU: Bioeconomy Strategy, Circular Economy Action Plan, Waste Framework Directive

RENEWABLE ENERGY

Livestock systems also support **renewable energy generation**. Through anaerobic digestion, livestock manure can be converted into biogas or biomethane, offering a renewable, storable energy source that contributes to the EU's climate and energy targets. The process also yields digestate, which can be used as an organic fertiliser, thus reinforcing nutrient circularity. Farms that integrate energy production in this way improve their environmental footprint while increasing energy autonomy, particularly in rural areas where access to centralised energy infrastructure may be limited.

- **Biogas production** from livestock manure (anaerobic digestion) reduces methane emissions and provides storable renewable energy
- Co-digestion with agricultural residues enhances energy yield
- By-products (digestate) can be reused as fertiliser, closing the nutrient loop

Relevance to EU: Renewable Energy Directive, Methane Strategy, REPowerEU

MATERIALS AND CO-PRODUCTS

Beyond energy, livestock produce a wide range of **non-food co-products** used in diverse industries. Leather, wool, collagen, gelatine, feathers, fats, and bone-derived materials find applications in construction, textiles, pharmaceuticals, cosmetics, and bioplastics. These by-products not only reduce waste from the primary processing of animals but also provide renewable, biodegradable alternatives to synthetic materials. Their valorisation supports rural industries, creates additional income streams for farmers, and aligns with the EU's bioeconomy and circular economy goals.

- **Wool, leather, feathers, bones, fats, collagen, gelatine** are used in clothing, medical, cosmetic, and construction sectors
- Many of these **non-food co-products** substitute fossil-based or synthetic materials
- Offer new markets and income streams for farmers

Relevance to EU: Circular Economy Action Plan, EU Industrial Strategy

ECOSYSTEM SERVICES AND LAND STEWARDSHIP

From an environmental management perspective, livestock - especially grazing animals - play a significant role in **landscape and biodiversity maintenance**. In many European regions, livestock are the primary or sole managers of permanent grasslands, heathlands, and other semi-natural habitats. Their grazing helps control invasive plant species, reduce wildfire risk by maintaining open spaces, and support diverse animal populations. These landscapes, shaped historically by pastoral activity, are now recognised as biodiversity hotspots. Without livestock, many of these areas would become ecologically degraded or abandoned. Livestock farming is thus not only compatible with conservation goals - it is often indispensable to them.

- **Grazing animals** help maintain open landscapes, preventing shrub encroachment and wildfires
- **Extensive grazing** supports biodiversity in high-nature-value grasslands (e.g., Alps, Pyrenees)
- **Carbon sequestration** in well-managed pastures contributes to climate mitigation

Relevance to EU: Biodiversity Strategy, LULUCF Regulation, Nature Restoration Law

CULTURAL AND SOCIAL VALUES

Culturally and territorially, livestock are embedded in **Europe's rural identity and heritage**. Traditional livestock practices such as transhumance, small-scale dairying, and local breed conservation are not only economically relevant - they are cultural assets. They shape regional cuisines, sustain agri-tourism, and create unique products that support protected designation of origin (PDO/PGI) status. The presence of livestock helps maintain social cohesion in remote or marginalised areas, offering a sense of continuity, belonging, and place-based resilience. As the EU seeks to revitalise rural regions through its Long-Term Vision for Rural Areas, livestock systems represent a valuable source of cultural and economic renewal.

- Livestock are part of **Europe's cultural heritage** - e.g., transhumance is a UNESCO-listed tradition
- **Community cohesion**: livestock farming sustains small farms and local economies, especially in remote and marginal areas
- **Human-animal interactions** in pastoralism, companionship, therapy, and education enhance wellbeing

Relevance to EU: Rural Vision for 2040, Cultural Heritage Strategy, Cohesion Policy

PUBLIC HEALTH AND NUTRITION

The contribution of livestock to **public health** is increasingly recognised, particularly within the **One Health - One Welfare** approach. Well-managed livestock systems reduce the risk of zoonotic disease transmission and allow to a lower antimicrobial use.

In the realm of human health and nutrition, livestock provide foods that are rich not only in proteins but in **bioavailable micronutrients** - essential for cognitive development, immune function, and the health of vulnerable populations, including children, pregnant women, and the elderly. Moreover, animal-source foods, particularly those from pasture-raised or fermented systems, may carry functional health benefits that go beyond nutrition. The dairy matrix, for instance, contains bioactive compounds that promote gut health, help suppress inflammation, and contribute to metabolic regulation - areas of growing interest in nutrition science and public health research.

- Animal products provide **essential micronutrients** in bioavailable forms
- **Functional components** in milk (whey peptides, fermented dairy) support gut health, immunity, and chronic disease prevention

Relevance to EU: Farm to Fork Strategy (healthy diets), Horizon Europe (health research), One Health Strategy

ECONOMIC RESILIENCE AND FARM DIVERSIFICATION

Livestock systems are a cornerstone of **employment and economic diversification**. They generate jobs throughout the value chain - from breeding and feeding to processing, transport, and specialised services. Mixed farms that include livestock tend to be more resilient to price shocks and climate variability, and they often present more opportunities for innovation, diversification, and value-added production. Livestock also enable farms to stabilise their income by spreading risk across multiple products and revenue streams.

- By valorising non-food outputs, livestock systems can **diversify revenue** and reduce exposure to volatile meat/dairy markets
- Mixed crop-livestock farms show greater **economic stability** over time
- Co-product valorisation supports small and mid-sized farms in adapting to environmental and market shifts

Relevance to EU: CAP Strategic Plans, Just Transition Mechanism, SME Strategy

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POLICY CHALLENGES

- Misaligned metrics: traditional environmental assessments (like LCA) undervalue the ecosystem services of extensive livestock systems.
- Regulatory barriers: current rules often block the circular use of materials (e.g., food by-products for feed).
- Biased narratives: public and policy debates are polarized (e.g., pro-livestock vs. alternative protein), making it harder to build nuanced, sustainable strategies.
- Underinvestment in farmers' roles: farmers remain poorly represented in funding decisions, and there is weak support for new entrants or mixed systems.
- Disconnect in food systems thinking: food safety, nutrition, biodiversity, and climate policies are still fragmented.

POLICY OPPORTUNITIES

- Support circular livestock systems
- Integrate livestock into broader sustainability metrics
- Foster innovation and R&D
- Reframe public communication
- Create enabling conditions for diverse farming models

TAKE HOME MESSAGES

Livestock systems deliver far more than food. They provide ecological services, circular value chains, cultural continuity, and economic resilience. As Europe rethinks the future of food and farming, livestock should not be viewed as a linear protein production model - but rather as a **multifunctional infrastructure for a sustainable bioeconomy**. Future assessments and policies must reflect this reality, using metrics that go beyond emissions per kilogram and acknowledging the complex value livestock provide to people, nature, and place.

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Animal Task Force (ATF) is a European Public-Private Partnership and a leading body of expertise linking European industry and research providers for developing innovation in the livestock sector.
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