EARA
EUROPEAN ALLIANCE FOR REGENERATIVE AGRICULTURE

European Alliance for Regenerative Agriculture

A Regenerative Livestock Strategy for Europe

Reconnecting Animals, Land, and People - A Place and Pasture-Based Future for Resilient Rural Economies

Adaptation of EARA's Submission to the EU Livestock Workstream Consultation into a Publication-format Paper

Published July 7

Executive Summary

Livestock production in the European Union is at a critical inflection point, facing mounting pressures from global trade instability, climate risk and biodiversity degradation, animal disease outbreaks, rural abandonment, and shifting market demands. A profound transition is needed in the way we approach livestock production, one that will allow for the creation of an agrifood ecosystem that fits Europe's needs, is tied to its landscapes, and serves its strategic interests. This is not a question of whether Europe needs a livestock sector. Livestock is woven into Europe's landscapes, cultures, rural economies, and food systems, and, when managed well, it can contribute to ecosystem regeneration, nutrient cycling, and food sovereignty. The question is what kind of livestock sector Europe chooses to build, and the current model is failing on almost every dimension that matters.

In its current state, the livestock sector:

- causes significant climate, environmental and health impacts
- is heavily dependent on agricultural subsidies
- is vulnerable to external shocks and diseases
- is highly dependent on feed inputs coming from outside the EU
- is deeply exposed to geopolitical instability
- cannot guarantee a stable income to farmers due to heavy price fluctuations and decreasing margins
- is moving towards intensive housed systems and centralized animal feeding operations (CAFOs), threatening rural livelihoods and communities

We, the European Alliance for Regenerative Agriculture (EARA), believe that these are all symptoms of a greater root cause, a central paradigm that needs to be changed. The European livestock system is in large part reliant upon the disconnection between animal production and place; a synthetic system based on external inputs, processed through an animal and converted into "cheap" outputs while environmental impacts and costs, as well as health impacts, are externalised. These systems are based on razor-thin margins, supported by public subsidies and, as a result, are fragile. Nor are they cheap when societal costs are considered as well. But another highly productive way is possible.

The disconnect between animals and the ecosystem services they provide has been driven by the pursuit of large volumes of cheap products through intensification and efficiency at all costs. Our health, animal welfare and our environment are paying the price. However, we see these as "false solutions" because these industrial systems do not accurately consider the externalities they produce: ecosystem, community and human health. This is because intensification makes livestock production appear economically viable in places where it would not be supported by natural cycles.

We argue the next EU Livestock Strategy should transition the European agrifood ecosystem towards a more place-based, nature-working model of livestock production, which the science and practice literature, listed in this paper, suggests can improve resilience, lower input dependence, support animal welfare, and deliver ecosystem services currently underprovided in today's system.

That future system significantly reduces reliance on external inputs, and with the appropriate local and regional infrastructure in place following the transition, could create a European animal product supply chain that doesn't require public subsidies. This system eliminates much of the waste in the system while progressing towards a true, competitive bioeconomy.

We argue that the next EU Livestock Strategy should embark on a transition towards a more decentralized, human-scale livestock production system in line with natural cycles, and rooted in bio-intensive, pasture-based, and properly managed grazing systems, where animals are integrated back where they have been for thousands of years: on the land.

This central paradigm shift is articulated in the different sub-topics throughout the submission, depicting how the future of livestock in Europe could look like, and how to get there. Here are the key arguments:

Economic sustainability: from inputs- and export-reliance, to resilience and self-sufficiency

In order to help guarantee a stable income to farmers and to build resilience in an increasingly unstable global trade environment, the EU Livestock Strategy should foster systems that promote protein self-sufficiency and focus on a high-value internal market first rather than seek to dominate exports.

Currently, the EU is heavily dependent on imported high-protein feed materials, with average import dependency of around 72% for that category over the past decade[1]. Regenerative, pasture-based systems can be more self-sufficient and focus on providing a high-value product for the local and regional economy, in line with natural cycles, making farmers and their market much more resilient. With the right policies and infrastructure in place, many could scale to supply throughout Europe in addition to their regional markets. Moreover, getting livestock back onto the land en masse can significantly reduce production costs in many contexts by integrating livestock production with primary feed sources, while waste is converted into beneficial nutrient cycling for soils where emissions may also be reduced, depending on the system and management.

Competitiveness: from high volumes and low prices, to high value for the internal market

The current livestock system is struggling to compete on volumes and prices with outside producers despite scale and public subsidies, and this will become increasingly difficult with the upcoming Mercosur Free Trade Agreement which will break many of the current livestock production systems. Rather than engaging in a race to the bottom where quality and high-standards are sacrificed for the sake of perceived competitiveness, the Livestock Strategy should instead centre competitiveness on an increase in high-quality production with better nutritional values, animal welfare and environmental footprint that respond to shifting market demands. Access to local processing infrastructure lowers the cost of production to make these higher quality products accessible to more people. Several studies show that products from pasture-based products have much higher nutritional values and are healthier than conventional products, which then reduces stress on national healthcare budgets. Consumers are increasingly demanding healthier food with a lower environmental impact. The opportunity is there, and high-quality products should be promoted and better communicated.

Disease Outbreaks: From sterility and control, to ecosystem integration

Disease outbreaks have an increasingly important economic impact on livestock producers in the EU. The current paradigm is based on sterility and total environmental control to remove all the possibilities of contamination. However, livestock farming inevitably coexists with environmental pathogens, climatic variability, and biological complexity. It cannot realistically become a sterile production environment. Raising animals in high-concentration closed environments only creates the conditions for devastating outbreaks, and it relies on heavy use of pharmaceutical inputs. The Livestock Strategy should promote an approach that re-integrates animals with the ecosystem and focuses on building ecosystem resilience, animals' immune systems and breaking up diseases with multi-species integration and pasture rotation. Regenerative farmers are already doing this with great success across Europe but local, national and European regulations often inhibit the expansion of these practices to allow for achieving scale.

1 FEFAC, Feed and Food 2023 (Brussels: FEFAC, 2024), 11

Animal Welfare: from a cost of doing business, to an integral part of productivity

In the current system, animal welfare becomes a cost of doing business that can put EU producers at a competitive disadvantage due to production structures that force animals into unnatural living conditions disconnected from the ecosystem. The Livestock Strategy should promote the shift to land-based systems, where animals live their lives working as ecosystem management tools where they are allowed to exhibit their natural behaviours while also producing food and fibre.

Environmental impacts: from increasing efficiency and intensification to promoting natural cycles and integration

The current model seeks to reduce emissions and environmental impacts through greater efficiency and intensification, while increasingly separating animals from the land and concentrating them in high-density areas. However, production systems that remain highly dependent on external inputs and weakly connected to local ecosystems are unlikely to fully close nutrient and water cycles or reliably contribute to soil carbon sequestration, and their environmental performance therefore remains constrained. By contrast, well-integrated, planned pasture-based management systems may provide a range of ecosystem services, including improved soil fertility, nutrient and water cycling, conservation of permanent grassland and associated biodiversity, and potential gains in soil carbon sequestration. At the same time, many current assessment methods, including many life cycle assessments, often find higher emissions for pasture-based systems than for intensive systems, but these results depend strongly on methodological choices such as system boundaries, functional units, and whether soil carbon sequestration, biodiversity, and other ecosystem services are included. As a result, the evidence base remains incomplete, and more comparative, farm-level research is needed to better quantify the full environmental performance of well-managed pasture-based systems.

A note on terminology

Throughout this submission, we use several terms to describe the livestock production approaches we advocate for. These are not interchangeable labels for the same thing, but rather a family of related practices united by a common principle: that animals managed in ways that mimic natural grazing cycles regenerate rather than degrade the ecosystems they are part of.

Pasture-based systems refers broadly to production systems where animals spend a significant part of their lives on grassland, feeding primarily on forage rather than imported grain-based feed.

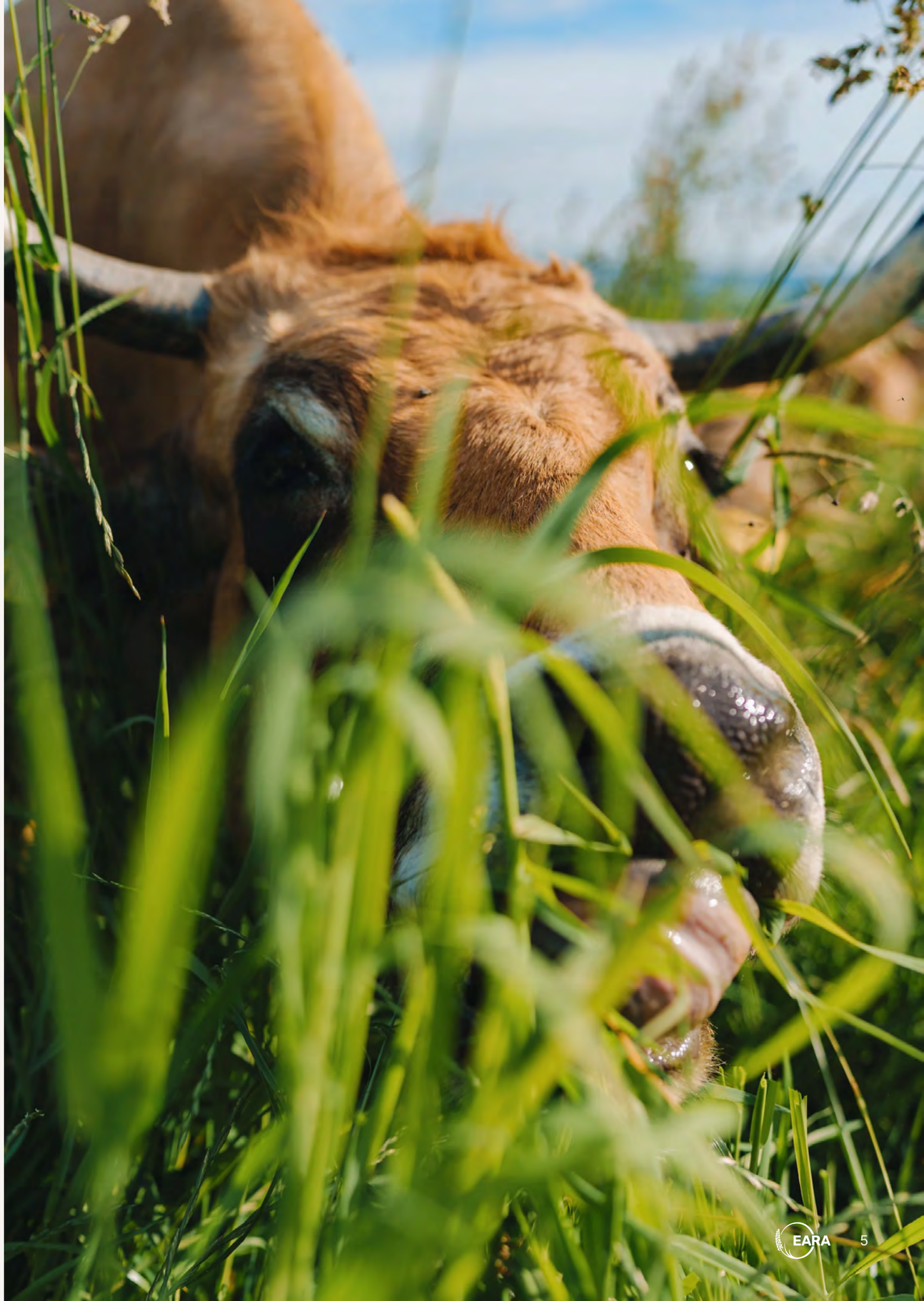
Planned/rotational grazing and adaptive multi-paddock (AMP) grazing refer to managed grazing strategies where livestock are moved between paddocks on planned rest-and-graze cycles designed to maximise plant recovery, photosynthesis, and soil health through improving ecosystem processes and function.

Regenerative livestock production is the broader umbrella: place-based, ecosystem-integrated livestock management that uses the above practices in combination to deliver measurable improvements in soil health, biodiversity, water cycling, and farm resilience, while producing nutrient-dense food. This is the vision this report calls for.

Where we refer to the problems of the current system, we use intensive housed systems or CAFOs (Concentrated Animal Feeding Operations) to describe the model that dominates EU production today, a strategy we should move away from.

Extensive systems are livestock systems with lower dependence on external inputs, where stocking densities, grazing pressure, and recovery periods are adapted to local ecological conditions rather than set by a fixed density threshold.

These bio-intensive systems maintain high biological productivity through active management of plants, animals, soil, and recovery periods, while reducing reliance on external inputs and improving ecological function.



Environment

A future-proof livestock farming functioning within planetary boundaries

The livestock sector as it is currently designed in the EU is a major source of environmental contamination and carbon emissions. There is an urgent need to shift towards regenerative strategies for livestock production, which can turn animals on farms from environmental harms into environmental goods, through their role in nutrient cycling, water cycling and improving soil fertility. But what does regenerative livestock farming look like?

Rather than industrial livestock farming and Concentrated Animal Feeding Operations (CAFOs), where animals are mostly fed on imported grains in concentrated and/or housed systems, we must move towards getting animals back on the land, to feed mostly on high-quality, diverse perennial pastures. This would contribute to fostering natural carbon sinks and methane cycling, maintaining permanent grasslands that support biodiversity and sequester carbon, and producing higher value and more competitive products. Specifically, adaptive multi-paddock grazing has higher potential for carbon sequestration compared to continuous grazing, and in some examples it has even been shown to achieve carbon neutrality[2].

Enhancing Ecosystem Function Through Livestock Integration

Shifting to pasture-based systems provides significant environmental benefits and reduces the harms associated with CAFOs and industrial systems. These benefits are enhanced in the case of rotational grazing systems such as adaptive multi-paddock grazing.

Carbon Footprint
Pasture-based systems are sometimes associated with a higher carbon footprint compared to intensive systems. When using conventional and limited metrics (such as GWP100 or boilerplate LCAs), extensive livestock products often rank highest in terms of carbon and land use footprint[3]. However, several studies[4] show that a more nuanced analysis is needed to accurately assess this difference[5]. Specifically, standard metrics often:

- Underestimate the impact of nitrification / denitrification that creates nitrous oxide (N2O) as a byproduct from synthetic fertilizers, a potent greenhouse gas.
- Underestimate Soil Organic Carbon (SOC) fluxes in arable land that is used to produce feed for intensive livestock operations
- Underestimate SOC storage potential in well-managed permanent grasslands
- Misrepresent methane fluxes by overlooking the role of methane-degrading and producing microorganisms, and focusing only on ruminant emissions

Methane
Methane emissions associated with cattle represent a significant source of greenhouse-gas emissions, and in pasture-based systems animals often have longer lifespans, which can lead to higher cumulative methane emissions over their lifetime.

2 Johnson, David C., Richard Teague, Steven Apfelbaum, Ry Thompson, and Peter Byck. "Adaptive Multi-Paddock Grazing Management's Influence on Soil Food Web Community Structure for: Increasing Pasture Forage Production, Soil Organic Carbon, and Reducing Soil Respiration Rates in Southeastern USA Ranches." PeerJ 10 (July 2022): e13750.

3 Stanley, Paige L., Jason E. Rowntree, David K. Beede, Marcia S. DeLonge, and Michael W. Hamm. "Impacts of Soil Carbon Sequestration on Life Cycle Greenhouse Gas Emissions in Midwestern USA Beef Finishing Systems." Agricultural Systems 162 (May 2018): 249–58.

4 https://rootssodeep.org/amp-research/published-research

5 https://rootssodeep.org/amp-research/published-research

However, many current assessments do not fully account for the potential for methane consumption in soils by methanotrophic bacteria (methane-oxidizing microorganisms). These methanotrophs are present in many grassland and pasture soils and can partially offset methane emissions, but their activity is sensitive to soil conditions, grazing intensity, and land-use management; heavy or poorly planned grazing can reduce methane-oxidation capacity, whereas light or well-managed grazing may help maintain or even enhance it[6]. Although the quantitative contribution of soil methanotrophs to the net methane balance of extensive grazing systems is still uncertain and context-dependent, better integration of this soil-sink term into carbon-assessment methods could shift the apparent emissions profile of pasture-based systems[7][8].

Methane emissions from ruminants are strongly influenced by diet and digestive efficiency. Ruminants have evolved over millennia to digest grasses and forbs, but diets higher in readily fermentable starches or concentrates can increase fermentative activity in the rumen and, in many cases, raise methane production per unit of feed[9]. Conversely, well-managed pasture-based systems that rely on high-quality forages, improved grazing practices, and reduced concentrate inputs can help moderate enteric methane emissions, while also supporting soil health and biodiversity[10]. More comparative, long-term research is needed to quantify how regenerative and holistic grazing practices affect both enteric emissions and soil methane oxidation, so that policy-relevant carbon accounting frameworks can properly reflect these dynamics[11].

Nutrient and Water Cycling
Livestock play a key role in cycling soil nutrients by digesting biomass produced through photosynthesis. When animals are housed and fed forage, disconnected from the land, that process is extractive because the forage is transported from its place of origin, often over long distances, with the GHG emissions associated with its harvesting and transportation, and then the manure, urine and bedding from the animals become waste streams that must be managed in order to avoid nutrient leaching, methane emissions and eutrophication of water bodies. The land from which the forage originated is depleted, requiring external inputs to promote regrowth.

When livestock graze forage where it grows, the additional GHG emissions from harvesting and transporting feed are avoided, and compounds in their saliva, transferred to the plant as they graze, may even support faster regrowth. The gut microbiome from the animal is transferred to the soil together with the digested biomass, making its incorporation into the soil and decomposition of that forage faster, further promoting plant regrowth, increased soil organic matter and soil organic carbon, and greater soil microorganism biodiversity. Nutrient cycling is enhanced, rather than extractive. Getting livestock back onto the land en masse can reduce the true costs of production, by integrating livestock production with primary feed sources, while livestock waste is instead beneficial nutrient cycling for soils, with the added benefit of more nutrient-dense foods for humans, animals and plants, in addition to water resiliency[12] and drought resistance[13].

Through increased organic matter and soil microorganism biodiversity, well-managed grazing with high stock densities during short periods and long recovery periods can improve soil water retention, reducing water runoff and negative consequences such as effluent downstream pollution and floods during wet periods, and droughts during dry periods. Improved water retention can also support small water basins which not only safeguard biodiversity but also create small water cycles in the hot seasons, improving climate adaptation locally, and potentially affecting larger water cycles at the territorial level[14].

Biodiversity Conservation
Permanent grasslands and rangelands are ecosystems that have been shaped by large herbivores and human activities for millions of years, and can be considered natural habitats for a wide range of native biodiversity. In these landscapes, animals contribute to keeping woody biomass under control, reducing fire risk, fertilizing the soil, and converting inedible biomass into fertile organic matter. All these processes sustain local wildlife[15] and as wild large herbivores have gone extinct, this ecosystem function can be maintained by herds of grazing animals that are managed in a way that mimics their behaviour, through practices like adaptive multi-paddock grazing. Extensive grazing systems with low grazing pressure support biodiversity and climate goals, while both overgrazing and undergrazing can reduce grassland health and its ecological function[16].

Improved LCA of animal feed under regenerative management
Current life cycle assessments show that feed production accounts for a large share of the total environmental burden of livestock products, often 60-70% of the carbon footprint, depending on system boundaries and allocation rules[17].

However, most standard LCA models still treat feed crops as largely comparable inputs and do not fully capture the differences between conventionally managed feed crops (with high synthetic fertilizer and tillage inputs) and regeneratively produced feed (emphasizing no- or reduced-tillage, cover crops, diverse rotations, and integrated livestock). Early comparative LCAs of maize and soybean under regenerative protocols already show lower per-hectare greenhouse-gas emissions and more balanced ecosystem-impact profiles than conventional systems, but these benefits are sometimes diluted on a per-tonne-of-feed basis due to lower yields[18]. Better-integrated LCAs that explicitly include soil-carbon changes, biodiversity indicators, and resource-cycling effects (e.g., nutrient retention, water use efficiency) would therefore be needed to reveal the full environmental advantage of regeneratively produced feed, especially when combined with pasture-based livestock systems[19].

Emissions from management of wool-as-waste
As demand for wool has dropped in favour of cheaper petroleum-based materials for textiles and other uses, wool management has become a waste stream for conventional and regenerative farmers alike. Those producers who don't have access to nearby wool washing and processing facilities (for example, Spain currently has only five wool washing facilities for 13.5 million sheep in 2023/2024, while Portugal has none for 2.1 million sheep) are left not only paying for their sheep to be sheared annually, but then must pay for its disposal at a landfill. A common practice to avoid this additional cost is to burn it, causing significant CO_2 emissions.

6 Pan, Hong, Haojie Feng, Yaowei Liu, et al. "Grazing Weakens Competitive Interactions between Active Methanotrophs and Nitrifiers Modulating Greenhouse-Gas Emissions in Grassland Soils." ISME Communications 1, no. 1 (2021): 74.
7 Abell, Guy C. J., Nancy Stralis-Pavese, Angela Sessitsch, and Levente Bodrossy. "Grazing Affects Methanotroph Activity and Diversity in an Alpine Meadow Soil." Environmental Microbiology Reports 1, no. 5 (2009): 457–65.
8 Wang, Shilin, Xindong Chen, Wen Li, Wenlong Gong, Zhengwen Wang, and Wenxia Cao. "Grazing Exclusion Alters Soil Methane Flux and Methanotrophic and Methanogenic Communities in Alpine Meadows on the Qinghai–Tibet Plateau." Frontiers in Microbiology 14 (December 2023).
9 Muetzel, Stefan, Rina Hannaford, and Arjan Jonker. "Effect of Animal and Diet Parameters on Methane Emissions for Pasture-Fed Cattle." Animal Production Science 64, no. 3 (2024): AN23049.
10 Savory Institute, An Exploration of Methane and the Role of Grazing Management in Addressing Climate Change, 2015
11 Li, Yong, Yaowei Liu, Hong Pan, et al. "Impact of Grazing on Shaping Abundance and Composition of Active Methanotrophs and Methane Oxidation Activity in a Grassland Soil." Biology and Fertility of Soils 56, no. 6 (2020): 799–810.
12 "Fatty Acid Composition of Grain- and Grass-Fed Beef and Their Nutritional Value and Health Implication - PMC." Accessed April 1, 2026.
13 Kim, JungJin, Srinivasulu Ale, Urs P. Kreuter, W. Richard Teague, Stephen J. DelGrosso, and Steven L. Dowhower. "Evaluating the Impacts of Alternative Grazing Management Practices on Soil Carbon Sequestration and Soil Health Indicators." Agriculture, Ecosystems & Environment 342 (February 2023): 108234.
14 Resilience. "Millan Millan and the Mystery of the Missing Mediterranean Storms." Resilience, July 17, 2023.
15 Logan Thompson, Jason Rowntree, Wilhelm Windisch, Sinéad M Waters, Laurence Shalloo, Pablo Manzano, Ecosystem management using livestock: embracing diversity and respecting ecological principles, Animal Frontiers, Volume 13, Issue 2, April 2023, Pages 28–34.
16 European Commission Analytical Brief N° 13: Grassland and livestock dynamics
17 Monteiro, Alessandra, and Jean-Yves Dourmad. Life Cycle Assessment of Feed Ingredients. n.d.
18 Alberto, Cavallito, Bianchi Iacopo, Mancia Tommaso, Catania Davide, Rossi Marta, and Marchetti Barbara. "Evaluating the Sustainability and Productivity of Conventional, Organic, and Regenerative Agriculture in Maize-Soybean Rotations: A Modelling LCA Study." Scientific Reports 16, no. 1 (2026): 8189.
19 McAuliffe, Graham A., Taro Takahashi, and Michael R. F. Lee. "Framework for Life Cycle Assessment of Livestock Production Systems to Account for the Nutritional Quality of Final Products." Food and Energy Security 7, no. 3 (2018)

Several farmer-led examples already show how regenerative livestock systems can scale across different territories and production models:

Bleu-Blanc-Coeur
Cooperative from France

Somos Omnivoro
Regenerative Pastured-fed Meat Digital Marketplace from Spain

La Carne del Pasto
Digital Marketplace

Poultree
Large-scale Pastured Chickens in Spain, 2026 CAP Network ARIA Award Winner, with Digital Marketplace

Pulicaro
Large-scale Pastured Multi-species Livestock System in Italy

Tancoskert
Large-scale Pastured Multi-species Livestock System in Hungary

Pasturebird
Large-scale Pastured Chickens from the US

White Oak Pastures
Large-scale Pastured Multi-species Livestock System from the US

Market and Infrastructure Conditions for Emission Reduction

Scaling up of regeneratively grazed livestock is inhibited by the lack of available processing, which keeps costs high for the end consumer and business cases unattractive for all except the most convinced. More processing at local and subregional levels such as abattoirs, meat packing, and food processing facilities are key infrastructure that would significantly reduce the cost of production and make grazing more attractive to producers at scale. Additional facilities such as wool washing would further reduce emissions because wool could be used as a key material in the bioeconomy instead of being sent to landfills, incinerators or through on-farm incineration, as is often the case due to lack of markets and processing.

Creating robust, shorter-chain markets is essential to scaling up regeneratively grazed livestock while reducing emissions along the entire feed-to-meat (and fiber) chain. A key lever is the development of national and local marketplaces that directly connect feed producers to livestock farmers, enabling more transparent, resilient, and low-carbon feed sourcing. Such platforms can match regional grain, forage, and cover-crop producers with nearby livestock operations, reducing transport distances, avoiding long-haul imports of feed, and lowering the overall carbon footprint of feed while supporting soil-health-building rotations. By strengthening these local feed-livestock linkages, farmers can shift toward higher-quality, regionally adapted feed (including diverse forages and legumes) that can help moderate enteric methane per unit of production, while also reducing dependency on synthetic inputs and the associated upstream emissions from conventional feed cropping. Over time, these marketplaces can also aggregate demand to support investment in infrastructure (e.g., mills, mixers, storage), further improving the cost-effectiveness and scalability of regenerative feed systems for both intensive and pasture-based producers.

Towards a Holistic Methodology for On-Farm Emissions

A holistic methodology for measuring on-farm emissions must move beyond conventional livestock LCAs and account for both emissions and removals across the farm system. The epistemological, methodological and data foundations of these livestock systems LCAs have far-reaching implications for private-sector investment, public-sector policy, and scientific and think-tank research decisions.

However, current LCAs on livestock systems carry multiple methodological and data limitations, some linked to biased design choices and others to a lag in integrating advanced scientific research, leading to reductionistic and incomplete assessments of the climate impacts of livestock production systems that can impede change. Even when focusing solely on on-farm emissions, current measurements often fail to capture the full carbon balance, because they neglect significant carbon and methane sinks as well as certain nitrogen-related fluxes.

Soil organic carbon fluxes
Current LCAs often do not account for soil organic carbon (SOC) fluxes in arable lands used to produce feed for livestock systems, nor fully capture SOC fluxes in grasslands or the effects of different grazing management practices. In many cases, SOC losses from arable cropping are underestimated, while the potential for SOC sequestration under well-managed grazing systems remains underrepresented in standard LCA frameworks.
A life cycle assessment carried out on a large regenerative grazing farm in the USA (White Oak Pastures) suggests that, under those specific conditions, high rates of soil carbon sequestration can offset a large share of emissions, resulting in a net carbon-neutral or marginally carbon-negative system in that case study[20].

20 Thorbecke, Mariko. Carbon Footprint Evalution of Regenerative Grazing at White Oak Pastures. n.d.

Nitrogen- and methane- fixing soil bacteria
Although substantial amounts of terrestrial nitrogen inputs come from free-living soil-hosted biological nitrogen fixation, these contributions are not systematically reflected in current LCAs. Likewise, soil CH_4 fluxes are driven by CH_4-producing (methanogens) and CH_4-consuming (methanotrophs) microorganisms that determine whether soils act as net sources or sinks of this potent greenhouse gas. Although it is now possible to measure these fluxes in situ, they are rarely integrated into current LCAs.

Nitrogen emission factors
Nitrogen is highly mobile and complex. Research indicates that, in some contexts, current methods used to estimate nitrous oxide (N_2O) emissions from synthetic nitrogen fertilizer use may underestimate actual emissions by up to several-fold[2122].

At the same time, newer research suggests that, for some pasture systems, measured N_2O emission factors from dung and urine can be up to an order of magnitude lower than IPCC default values[23].

In addition to carbon and nitrogen fluxes, a more holistic methodology should also account for differences in energy use and water-use efficiency between conventional and regenerative systems. Evidence suggests that well-managed regenerative grazing can reduce reliance on external inputs such as synthetic fertilizers and heavy machinery, thereby lowering on-farm energy use, while improving soil water retention and reducing the need for irrigation in some contexts. Quantitative, region-specific data on these energy and water-related co-benefits are still limited but growing.

21 Grace, Peter, Daniele De Rosa, Iurii Shcherbak, et al. "Revised Emission Factors for Estimating Direct Nitrous Oxide Emissions from Nitrogen Inputs in Australia's Agricultural Production Systems: A Meta-Analysis." Soil Research 62, no. 1 (2023).
22 Liu, Shuwei, Feng Lin, Shuang Wu, et al. "A Meta-Analysis of Fertilizer-Induced Soil NO and Combined NO+N2 O Emissions." Global Change Biology 23, no. 6 (2017): 2520–32.
23 Krol, D. J., R. Carolan, E. Minet, et al. "Improving and Disaggregating N2O Emission Factors for Ruminant Excreta on Temperate Pasture Soils." Science of The Total Environment 568 (October 2016): 327–38.

Recognising and Rewarding Environmental Performance

As detailed above, reintegrating animals with the land and shifting towards extensive systems in line with natural cycles can provide numerous benefits when it comes to maintaining climate and biodiverse grasslands, promoting water resilience and nutrient management by closing nutrient cycles and improving soil retention capabilities, and contributing to overall GHG emission reduction through improved soil carbon cycling.

Therefore, public policies and measures should be geared towards rewarding farmers who are shifting their production systems, and favouring the transition towards pasture-based, regenerative systems. This could be linked through the sustainability compass, Farm Stewardship under the proposed CAP reform for post-2028, as well as through the sustainability transition plans, preferably with additional top-ups from Member State budgets.

Regenerative livestock management begins with a landscape question: how should this land function within its catchment (floodplain, slope, woodland pasture)? Livestock can then be deployed accordingly to support flood mitigation, drought resilience, and vegetation dynamics. This dimension is largely absent from current livestock policy discussions.

Why Markets Still Fail to Reward Environmental Services

Despite these benefits, current markets still do not adequately reward livestock systems that provide ecosystem services. Although payments for ecosystem services, not just carbon, would be an ideal measure to support this transition, carbon markets are not yet mature enough to support these payments that would increase demand for this type of livestock farming.

The Carbon Removal Certification Framework (CRCF) regulation should be expanded to include biodiversity and water, as well as improved nutrient management through pasture-based systems, and integration into the Bioeconomy Strategy.

> The animals are tools for achieving specific ecological outcomes, restoring soil health, encouraging native plant species, rebuilding hydrology. Resilience comes from diversity, locality, and ecological awareness. That is what makes a farming system durable over time.
>
> — Nick Viney, Leewood Farm
> Dartmoor, United Kingdom

Competitiveness & Trade

Creating the conditions for a competitive livestock sector

Reducing Costs Through Regenerative Efficiency

We believe that pursuing efficiency through intensification, as the European livestock sector has been doing, can only lead to false wins that appear to increase competitiveness when important externalities are neglected in terms of environmental, health and social impact. Moreover, the economic sustainability of livestock farmers is not only driven by their competitiveness, but also by their resilience to increasingly volatile market conditions, and the price cycles that affect many livestock products heavily in the EU (milk, pigs, and chicken above all).

The EU Livestock Strategy should go in a different direction. Transitioning away from concentrated animal feeding operations and towards pasture-based systems can reduce the production costs for livestock farmers, make farmers more self-sufficient and independent from external inputs thereby increasing resilience in the face of market shocks, and more competitive in the end when missing infrastructure that is limiting that competitiveness is put in place.

By connecting animals back with the land, livestock help to cycle nutrients from the soil and then back into the soil through forage, thanks to photosynthesis. In the current system, feed is primarily an externalised cost of production, and waste management is a cost of doing business. On the contrary, getting livestock back onto the land en masse can reduce the true costs of production, by integrating livestock production with primary feed sources, while waste is converted into beneficial nutrient cycling for soils, with the added benefit of more nutrient-dense foods for humans, animals and plants, in addition to water resiliency and drought resistance. The disconnection between feed production and livestock raising increases costs, GHG emissions, energy consumption, water usage and waste.

Even more importantly, it reduces their structural dependence on external inputs for feed and chemicals, which are strongly affected by external market shocks and supply chain disruptions, lowering their competitiveness. Agriculture is an essential part of the European economy and the excessive dependence of the current system on external inputs is a fundamental weakness for its competitiveness, autonomy and security. Rising prices for these inputs, from energy to fertiliser, weaken European competitiveness and stability.

EARA's farmer-led research shows that while average EU farms import over 30% of livestock feed from outside the EU, pioneering farmers can achieve similar yields using feed exclusively from within Europe and most within their bioregion[24]. These findings underscore the strategic advantage of regenerating systems in reducing external reliance while restoring degraded ecosystems that underpin long-term productivity.

Moreover, grazing livestock can play an even bigger role in lowering production costs in mixed livestock-crops systems. Integrating grazing livestock with crops into mixed rotation can help farmers transition away from the current agrochemical-intensive systems. Farmers in mixed systems can avoid significant input costs by incorporating fertility-building grass and clover 'leys' and/or diverse cover crops, then integrate grazing animals to produce human-edible food from them, in order to maximise productivity while significantly reducing external inputs[25].

24 Speciality Food Magazine. "Major New Study Shows the Long-Term Impact of Regenerative Farming | Long Article." Accessed April 1, 2026.
25 Apfelbaum, Steven I., Ry Thompson, Fugui Wang, Samantha Mosier, Richard Teague, and Peter Byck. "Vegetation, Water Infiltration, and Soil Carbon Response to Adaptive Multi-Paddock and Conventional Grazing in Southeastern USA Ranches." Journal of Environmental Management 308 (April 2022): 114576.

Building Competitiveness Through Product Quality

The European livestock sector should focus going forward on increasing the nutritional quality of its products through high-quality grass-based feed primarily from pasture-based systems. Many studies show that products from pastured animals tend to be healthier and more nutritious than products from animals that eat low-quality feed.

A key example is cattle. Grass-fed cattle, consuming diverse, nutrient-rich forage, produce meat and dairy with a healthier fat profile, including higher omega-3 levels and a better omega-6 to omega-3 ratio compared to grain-fed animals. They also produce richer and more diverse polyunsaturated fat profiles (with two or more carbon bonds) than plant-derived fat profiles, resulting in reduced inflammation, improved cardiovascular health and better metabolic function in humans consuming grass-fed products.

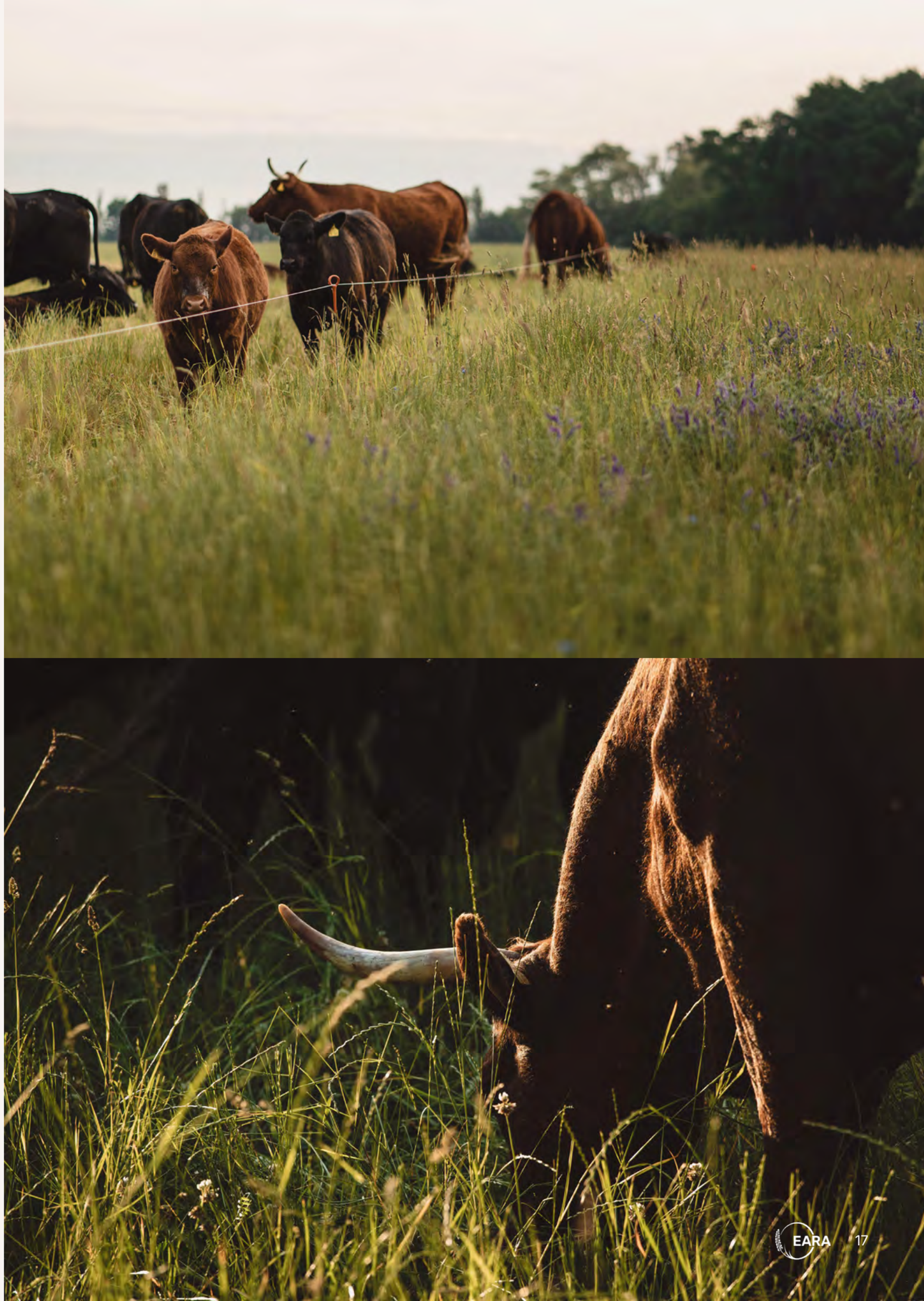
Pasture-based poultry systems, where birds have access to diverse forage and insects, can produce meat and eggs with improved nutritional profiles compared with conventional systems, including higher levels of omega-3 fatty acids and antioxidants and a more favourable omega-6:omega-3 ratio, which may support cardiovascular health and reduce chronic inflammation in consumers[26].

Grass-fed livestock can also provide meat and milk higher in antioxidant levels, which may benefit shelf life and the potential healthfulness of meat and milk for consumers.
All of this is important because proper fat balance supports energy metabolism, lowers chronic inflammation and reduces the risk of obesity and heart disease.

Communicating the Value of High EU Standards

The value of high EU livestock standards should be communicated through the concrete benefits they deliver to consumers, ecosystems, and rural economies. Agricultural markets are already shifting due to a variety of factors, including consumers' environmental concerns and demands for increasingly healthy and local products. Products from pasture-based regenerative systems meet all the criteria that European customers are looking for, given the ecosystem services they provide (soil health, nutrient and water cycling, increased soil carbon storage, etc.), their short supply chains which build trust, and their superior quality in terms of human health (demonstrated for example by the beef fat spectrum described above).

Cheap, low-quality imports cannot compete with regenerative European products on these points. And while a portion of customers will still pursue the cheaper product, the EU should shift its support for higher quality products, and improve its communication to valorise all these aspects so that consumers understand the benefits both to human health and the environment. There must be a concerted effort to communicate the value of these high-quality regeneratively-raised animal-based proteins so it's understood by consumers that "it's not the cow, it's the how", ensuring that in Europe the "how" means livestock managed with nature, providing those benefits to humans and the environment together.



26 Sergin, Selin, Vijayashree Jambunathan, Esha Garg, Jason E. Rowntree, and Jenifer I. Fenton. "Fatty Acid and Antioxidant Profile of Eggs from Pasture-Raised Hens Fed a Corn- and Soy-Free Diet and Supplemented with Grass-Fed Beef Suet and Liver." Foods 11, no. 21 (2022): 3404.

Markets & Supply Chains

Enabling a Fair and Market-Driven Livestock Supply Chain - Promote livestock systems that respond to market demands and offer fair, stable, and remunerative income for farmers

Aligning Livestock Systems with Market Demand and Farm Income Stability

In the current global landscape, it has become increasingly clear that the European livestock sector cannot rely so heavily on external markets as it has in recent years, due to increased competition, global instability and important partners like China improving their own production. The EU must shift from a volume-driven, export-dependent model toward a value-driven, regionally resilient livestock economy. This means focusing on premium quality in terms of nutrition, health, and environmental services, rather than quantity for export.

Farmers' income depends both on feed costs, efficiency and total output, and on the margin per kg of protein that they sell on the markets. These factors can be improved by: 1) moving towards feed independence and higher feed efficiency, and 2) shifting from export- and commodity oriented markets to an internal, value-based market with shorter supply chains.

When livestock is disconnected from the land into concentrated animal feeding operations, they require allocation of arable land to produce livestock feed that is in competition to human food and, in the European context, forces imports of protein to feed these animals[27]. Average EU farms import over 30% of livestock feed from outside the EU, and this is a significant source of instability in the context of global price volatility and uncertainties. EARA's farmer-led research shows that pioneering regenerative farmers that focus on pasture-based systems can achieve similar yields using feed exclusively from within Europe. Promoting such grass-based and forage-based systems, would therefore increase the EU's protein sovereignty and farmer's income stability.

On the other hand, producing livestock as an export-oriented commodity also exposes farmers to price volatility. In this context, the EU livestock sector should focus on producing more valuable products for internal markets which are increasingly demanding a lower environmental footprint, better animal welfare, local sourcing, healthier products. All of this can be achieved through regenerative grazing practices, as detailed in the dedicated sections. Such products can guarantee a higher margin for farmers through premium- and origin-labelling.

In this context, shortening supply chains and fostering the creation of local and regional markets that connect extensive producers, to local processors and final customers, would have a positive impact on income stabilization for farmers and their independence from global market volatility.

Strengthening Farmers' Position in the Supply Chain

Strengthening the position of livestock farmers in the increasingly unstable global situation should start with fostering the transition towards extensive, self-sufficient, pasture-based systems, and towards shorter supply chains rooted in local and regional economies. To achieve this, many policy and strategic avenues need to shift, and most importantly they need to work in a coordinated way.

27 Source: EARA CAP Policy Paper

The most important lever is the CAP infrastructure (see the CAP section for a more detailed description). The current infrastructure favours large, intensive operations that depend heavily on external inputs and on export markets through direct uncoupled payments. In these systems, livestock farmers are a small part of a very long supply chain, strongly affected by price cycles which routinely see milk, chicken and pork prices crash in the EU. And while existing ecoschemes within the CAP aim to reward more sustainable, pasture-based systems, they are often not effective at doing that. Farmers need flexibility to apply regenerative practices suited to local contexts. Current schemes rely heavily on practice-based, uncoupled payments that often fail to reward outcomes. Payments should be results-based to drive transformation.

Secondly, local and regional markets and infrastructures are key missing pieces for the transition towards regenerative livestock systems. Supporting extensive livestock producers alone is not enough, since many enabling conditions are also missing. Effective policies should facilitate and reduce the bureaucratic burdens for local scale and artisanal processing, packaging and storage of livestock products. This would facilitate value-adding activities and promote a more integrated local food economy. Extensive, regenerative producers should be able to access affordable abattoirs, processing and packaging facilities, without needing to adapt their practices to fit the current infrastructure, geared towards large-scale, intensive operations. Unlocking this kind of infrastructure at the local and regional level would increase the amount of high quality meat production at competitive prices, while reducing the demand for low-quality cheap imports.
Related to this is the creation of local and regional markets that can valorize these products, connect livestock producers with feed producers, processing facilities, and final consumers.

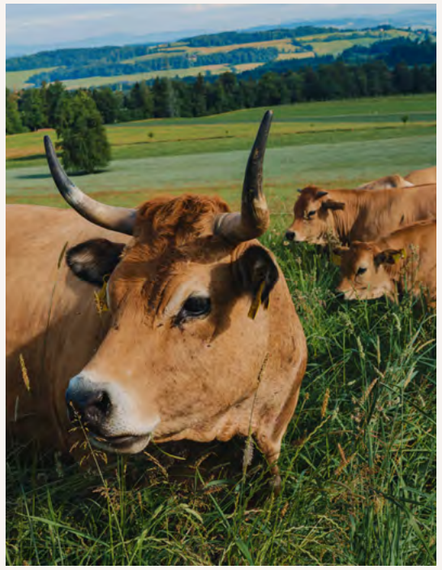
This is especially important when coupled to policies that foster the use of the whole animal, including secondary products that go beyond meat and dairy. A key example here is the production of wool in northern Spain, a region that is characterized by extensive sheep grazing. Here, the lack of wool washing and processing facilities makes it difficult and expensive to commercialize the product. Meanwhile, local markets for these products remain underdeveloped, and integration between producers and potential local industry buyers (e.g., car manufacturers) is limited. Policies that favour local infrastructures and markets and that valorize secondary products would go a long way in supporting extensive livestock producers and their competitiveness.

Finally, increased policy coherence across various EU domains would ensure that livestock support other EU policy objectives while at the same time increasing their value. In the case of wool, for example, there is a clear need for integration between agricultural policies and bioeconomy/circular economy objectives, as they are closely interlinked. Developing sustainable, extensive wool can support the objectives of all these policies, and the farmers that are part of this process should be rewarded for it.

However, policy incoherence often hampers this. In the case of wool, the European Council position in 2024 on Product Environmental Footprint (PEF) adopted a methodology that disadvantaged natural fibres relative to synthetic, fossil fuel-derived materials, potentially misrepresenting their environmental impact. This not only puts sheep farmers' livelihoods at risk, but also prevents other policy objectives related to circular economies, bioeconomy and rural livelihoods. It's important to understand that while some metrics may show a higher carbon footprint for animal products, they often do not correctly assess all the other services they provide, and their impact on creating sustainable local economies.

Regenerative grazing cuts the costs associated with external inputs, expensive infrastructure and feed. When animals are connected to the land, the farm becomes more self-sufficient and more competitive, not less.

— Trond Ivar Qvale
Organic Regenerative Farmer, Norway



Common Agricultural Policy (CAP)

Smart CAP support - Calibrating CAP Support for Sustainable Livestock Systems

Targeting CAP Support to the Farms Most in Need

Firstly, it's important to assess how we define which livestock farmers are most in need of support in the EU. Livestock farms and farmers have been disproportionately affected by the demographic stress that is seen throughout the agricultural sector in Europe. The total number of farms has decreased 40% since 2010, while farm sizes have increased, and small- and family-farms continue to struggle to survive.

Within the EU, the number of farms has declined by 37% (14.4 to 9.1 million) between 2005 and 2020, with livestock (-1.6 million) and mixed farms (-2.6 million) most affected. Overall figures for ruminants in the EU have decreased, and the largest part of these have disappeared from grass-based systems[28]. The number of extensive and mixed livestock farm holdings shrank dramatically by more than 70% between 2010 and 2020 according to Eurostat, indicating that these systems are particularly vulnerable due to their economic position in the market. According to DG Agri, the current CAP structure places a focus on permanent grasslands at risk of being lost to crop land, but it does not effectively focus on grasslands that are at risk from abandonment.

Currently, animal foods production uses 82% of the European Union's agricultural subsidies[29]. However, the majority of CAP funding goes to concentrated animal feeding operations and connected stranded assets in the downstream supply chain. Moreover, a sizable chunk of these subsidies is dedicated to feed costs, as subsidy intensity in these operations (in € per kg of product) approximately doubles after the price for feed is included.

It's clear then, that EU livestock farmers are in need of support, and the most in need are extensive, small-scale and mixed-farms that not only contribute to the EU's food production but also offer several ecosystem services (as detailed in the dedicated section), and contribute to resilient local economies.

EARA's position on CAP reform is further detailed in our CAP Policy Paper. At its core is the idea that, to farm for resilient and nutritionally rich food security in the 21st century, we need to farm for biodiversity, water and carbon. According to an up-to-date understanding of agronomic and ecological sciences, carbon farming works through farming for net primary productivity (NPP) and soil health. Net primary production (NPP) describes the net carbon gain by plants through photosynthesis.

Currently, the majority of CAP support is based on uncoupled, hectare-based direct payments, a system that is strongly opposed by several actors from academia, environmental NGOs, and smallholder farmer groups. We propose to transition to a new system rooted in hectare-based, simple, direct payments that are specifically designed to fairly remunerate and incentivize agroecosystem health performance, sustainable factor productivity and farmer livelihoods. The two key aspects to reach this are result- and outcome-orientation, as well as a focus on sustainable total factor productivity.

NPP serves as an indicator for the carbon assimilation through photosynthesis on an area of land, typically measured over one year.

28 European Commission Analytical Brief N° 13: Grassland and livestock dynamics

29 Kortleve, A.J., Mogollón, J.M., Harwatt, H. et al. Over 80% of the European Union's Common Agricultural Policy supports emissions-intensive animal products. Nat Food 5, 288–292 (2024).

Moreover, it indicates how well the area of land was cooled and moisturised by plants through (evapo) transpiration, which enables habitats for vital biodiversity and stabilisation of the biosphere. NPP can thus indicate the effects of land use management on water cycles (water management performance).

Therefore, we propose that a future CAP to start remunerating farmers for Net primary productivity (NPP) and soil protection results per year and per hectare, as well as per absolute and year-over-year results, benchmarked to the results of other plots from the same pedoclimatic region and land use category. This allows for virtuous farmers that are regenerating the land to be fairly compensated, while at the same time remunerating the year-on-year transition from conventional to regenerative.

When it comes to livestock production, we believe that a similar CAP structure would incentivize farmers to reintroduce animals on the land and promote mixed farms, thanks to the important role that animals play in regenerating soil health. This structure would allow farmers to focus not only on productivity, but also on the ecosystem services that they can provide, and allow small-scale, extensive livestock producers that employ regenerative practices to thrive. Moreover, a similar structure would also reduce the amount of subsidies necessary for feed, and promote higher quality products and the ecosystem services associated with them.

The key criteria to be prioritized by a similar CAP structure are: photosynthesis and NPP, soil health and soil cover, and resource efficiency. An in-depth description can be found in EARA's Policy Paper on the CAP.

Policy Conditions for Sustainable Livestock Systems

We believe sustainable livestock systems should be pasture-based, extensive, in line with natural cycles, rooted in local economies and in regenerative practices. Strategies and policies should focus on promoting this model, or at least not create obstacles that make it unfeasible for farmers to pursue it. Unfortunately, this is often not the case, with most policies and norms being moulded to fit intensive, large scale operations. This reduces support and creates unnecessary burdens for farmers that want to transition to more sustainable models.

Regenerative livestock systems cannot be integrated into an industrial livestock policy paradigm. Attempting to insert small adjustments into a fundamentally industrial framework will not deliver soil restoration, biodiversity recovery, or resilience. A different logic of land management is required.

The first important lever is the CAP. As outlined above, it should move away from uncoupled, hectare-based payments and towards performance, results-oriented payments which reward transition towards regeneration, and ecosystem outcomes. Crucially, farmers need flexibility to apply regenerative practices suited to their local contexts. Current EU funding relies too much on practice-based, uncoupled payments that do not reward outcomes. Payments should be results-based to drive transformation.

However, it is also crucial to recognize that farmers are by nature incredibly resourceful and innovative. They are land stewards, and always find the most efficient and adapted solutions to obtain specific outcomes. However, as policies are usually geared towards large scale and intensive models, farmers find it difficult to implement the best and most sustainable practices for their land. European policies should be able to recognize these contexts and give more leeway to farmers to innovate and create alternative and regenerative systems.

Animal Diseases

Enhancing prevention and preparedness against animal diseases

When it comes to animal diseases, we argue that a paradigm shift is necessary in how we look at the issue. Once again, it's necessary to adopt a more holistic view, in which animals are reintegrated with the land and the ecosystem that surrounds them, rather than being confined in strictly controlled environments.

The current model seeks the pursuit of total environmental control, animal isolation from the outside environment, and complete sterility to prevent diseases. However, many studies show that the intensive operations associated with these models are contributing to the development of more virulent and highly transmissible pathogens, due to the unnatural concentrations of animals that are raised together[30].

Conversely, in extensive, well-managed, pasture-based systems, the new paradigm focuses on ecosystem resilience rather than sterility and environmental control. This allows us to act on the root cause (the unnatural living conditions of animals in intensive operations), rather than the symptom (disease outbreaks).

Livestock farming, particularly in extensive and pasture-based systems, is an activity that operates in direct interaction with natural ecosystems. It inevitably coexists with environmental pathogens, wildlife interfaces, climatic variability, and biological complexity. It will never be, and cannot realistically become, a sterile production environment.

From a technical standpoint, disease management in such systems should prioritize strengthening systemic resilience rather than attempting total environmental control. This includes:

- Selection of genetically robust and locally adapted breeds
- Improvement of baseline immune competence
- Nutritional strategies linked to diverse pasture systems
- Reduced stocking densities and lower physiological stress

In this context, the development of effective vaccines that prevent transmission, not merely reduce symptoms, becomes essential. Investment in next-generation vaccines capable of interrupting disease circulation within and between herds would allow control strategies that preserve productive activity instead of shutting it down. Transmission-blocking immunization strategies are more compatible with extensive livestock systems than mass culling or confinement-based biosecurity escalation.

Moreover, when evaluating disease control policies, assessments should not be limited to short-term economic cost. Assessments should incorporate:

- Environmental consequences (biodiversity loss, landscape abandonment, ecosystem simplification)
- Ecological balance (wildlife-livestock interface dynamics)
- Social impacts (rural depopulation, loss of generational farming knowledge)
- Strategic food sovereignty and the freedom of European citizens to choose how their food is produced

Livestock farming is not merely a production unit; it is part of Europe's territorial fabric and cultural identity. Policies that treat it as a sterile industrial activity risk undermining rural resilience and long-term food security.

30 Guo Y, Ryan U, Feng Y, Xiao L. Association of Common Zoonotic Pathogens With Concentrated Animal Feeding Operations. Front Microbiol. 2022 Jan 10;12:810142. doi: 10.3389/fmicb.2021.810142. PMID: 35082774; PMCID: PMC8784678.

Safeguarding consumer and worker health remains non-negotiable. However, equating safety with sterilization reflects an industrial paradigm that does not align with regenerative, land-based agriculture. If livestock systems are required to function as closed, biosecure industrial facilities in order to survive regulatory frameworks, we risk eliminating precisely the forms of agriculture that are most ecologically adaptive and socially embedded.

A forward-looking European strategy should therefore balance epidemiological rigor with ecological realism, investing in prevention through immunity, vaccination science, genetic adaptation, and systemic resilience, rather than relying predominantly on containment and eradication models designed for high-density industrial systems.

In this context, extensive, well-managed, pasture-based livestock farming provides a series of benefits. In such systems, animals tend to be better adapted to their environment and may be less susceptible to diseases originating from wildlife due to: a natural, grass-based diet; active lifestyle; natural ventilation; reduced overcrowding; mixed pasture plant effects on parasite prevention; and reduced exposure through rotational grazing and multi-species integration. Healthier animals, in turn, means that less products to control microbial diseases and parasites need to be used. This lowers production costs, and it also reduces antimicrobial and antiparasitic resistance.

In extensive contexts, moreover, disease prevention also occurs through selection of naturally resistant or tolerant breeds and individuals.

Finally, multi-species livestock systems, and especially the integration of poultry with cattle and horse farming, are also key in preventing diseases while reducing the need for external chemical inputs. Poultry plays a key role in breaking up diseases and parasite cycles[31].

31 Lombardi, Wendy. Natural Parasite Control for Livestock: Pasture Management, Chemical-Free Deworming, Growing Antiparasitics, and More. Simon and Schuster, 2021.

The Role of Innovation in Disease Prevention and Detection

By shifting the paradigm from total environmental control to ecosystem resilience, and by moving from concentrated and intensive to extensive and pasture-based operations, we also reduce the role that technology, innovation and digital tools play in disease detection and surveillance.

The key point is that livestock farming is an activity that operates in direct interaction with natural ecosystems, and will never be a sterile production environment. As such, it inevitably coexists with environmental pathogens, wildlife interfaces, climatic variability, and biological complexity.

A well-balanced agroecosystem in which animals are integrated with the land that surrounds them, can develop resilience to diseases that helps reduce their impact on livestock. Animals in these systems are bred and selected to be adapted to their environment, have stronger immune systems, and live an overall healthier life. In an isolated and intensive ecosystem, animals develop a weak immune system, disease can spread much more rapidly, and there are no elements that can help break disease and parasite cycles.

Digital tools and innovation in this context, can be a supporting element for disease prevention, but they are secondary to a well-functioning and integrated agroecosystem.

More important innovation avenues with regards to disease prevention should focus on the integration of poultry into livestock systems (cattle or horses) and their key role in breaking parasites cycles.

Potential digital innovation could focus on diseases and animal genetics (e.g. softwares to track disease through family lines). However, it's imperative that digital innovation does not come with a substantive increase in bureaucracy and reporting requirements for farmers, and a need to invest big public resources in data monitoring.

Rethinking Biosecurity Through System Resilience

Once again, from the perspective of regenerative, extensive pasture-based systems, the focus is misplaced.

The concepts of biosecurity and disease prevention are geared towards intensive livestock production where animals are disconnected from the surrounding environment and the focus is on building sterile and "biosecure" ecosystems to prevent diseases from spreading. Biosecurity in this context typically aims to eliminate microorganisms that interact with animals.

On the other hand, in well-balanced grazing systems, the biodiversity of microorganisms, and their integration with livestock, wild animals and the land that surrounds them, is key to establishing system resilience and lowering the risks of disease outbreaks.

Animal health in these systems is based on their healthy lifestyle, adapted genetics and immunological quality.

And importantly, preventing diseases by creating this ecosystem is much more practical and cost-effective than creating isolated "biosecure" environments. In integrated agroecosystems, the need for antibiotics and other pharmaceuticals is minimal, as is the need for artificial ventilation, and disease surveillance. Once the ecosystem restores its balance, it regulates itself and this substantially reduces the work required to control it and the external inputs needed to maintain an artificially stable environment.

Public Support and Risk Management for Animal Disease Outbreaks

Public support for animal disease management should help livestock farmers transition towards structurally more resilient, extensive, pasture-based systems, while adapting insurance and crisis-response tools to reflect their specific risk profile. In order to facilitate the transition towards more resilient, extensive, pasture-based systems, it would be important to adapt animal health insurance schemes to reflect improved immune status of livestock, lower stocking densities, and similar structural health advantages.

Priorities for Disease Preparedness in Vulnerable Regions

In regions that are particularly vulnerable to disease outbreaks, preparedness support should focus on prevention, resilience, and continuity of farming activity. Strengthen research into vaccines that prevent diseases, so that disease control measures do not effectively eliminate livestock farming activities in those regions. Promote the integration of poultry into livestock systems (cattle or horses) and their key role in breaking parasites cycles.

Animal Welfare

Animal Welfare Without Structural Cost Inflation

Animal welfare only becomes a significant business cost when the business is based on raising animals in unnatural conditions, and at a scale which the natural environment would not normally be able to support. In such intensive and concentrated operations, even basic animal welfare requirements turn into significant costs that can undermine the product's competitiveness.

This is why, even when it comes to animal welfare, the key solution moving forward is to shift towards smaller scale, extensive, pasture-based systems. Getting animals back on the land allows them to live a natural life where their welfare is guaranteed by the ecosystem that they are a part of, rather than by strict control by humans.

In this context, animal welfare standards are not a cost, but rather a consequence of a model that increases farmers' economic stability by reducing external inputs (energy, feed, pharmaceutical products) and increasing the product's value (higher nutritional values, better environmental standards, in line with what the internal market demands).

However, animal welfare does not only depend on animals' living conditions, but also on the way that they are slaughtered to reach the final product. Currently, abattoir facilities in the EU are concentrated operations, geared towards large-scale intensive livestock producers. While EU standards exist, audits have found welfare issues in some facilities[32]. Most importantly, given their large-scale and concentrated nature, animals have to be transported, often for long distances, which significantly raises the animals' stress levels.

This is a significant problem especially for small-scale, extensive producers that often live very far from these sites, and are very interested in maintaining the highest possible welfare standards for their animals.

A solution to this is on-site slaughtering and the development of micro-abattoirs. This would have a great impact in reducing time and costs for smaller farmers, and in reducing animal stress from transportation and improving their welfare. It would also help in shortening supply chains in a more reliable way: extensive farmers that uphold high welfare standards would have the certainty that the meat from their animals does not get mixed with that of other producers, therefore allowing them to sell directly at a premium price. Finally, it would improve the resilience of the system by shifting the processing tasks in many local centers. This would avoid a stress to one part of the system (big, centralized abattoir) to stop the whole production, as happened with the Tönnies abattoir closure in Germany during COVID-19, which halted production for 1,000+ workers and exposed supply chain vulnerabilities[33].

However, at the national level, this kind of operations are often not allowed or significantly hampered by laws and bureaucracy that are not fit for purpose, and geared towards large-scale facilities. While preventing diseases and maintaining high hygiene standards is of the utmost importance, it is also clear that the same requirements and bureaucracy cannot apply to intensive large scale operations, and single producer field-level operations, where diseases are much less likely to spread due to the reduced number of animals that are processed. A significant effort should be made at the EU-level to allow small-scale, extensive farmers to build field-level micro abattoirs. Field slaughter is legal in Germany since 2011 for pasture-raised animals, providing a model for EU-wide norms[34].

32 EFSA 2020 report on slaughter welfare; Regulation (EC) No 1099/2009 "Animal Welfare at Slaughter | EFSA." January 6, 2026.

33 Driver, Alistair. "Tönnies Plant Forced to Close in Germany after Huge COVID-19 Outbreak." Pig World, June 18, 2020.

34 Kilcooley, Anna. "Small Abattoirs in Germany: You Get What You Pay For." Sustainable Food Trust, May 7, 2021.

Creating a Fair Competitive Framework for Animal Welfare

A level playing field on animal welfare will not be achieved by lowering EU standards, but by shifting competition away from volume and price toward quality, resilience, and ethics.

In this context, free-trade agreements with countries with different animal welfare standards can create an unlevel playing field that strongly affects producers. The commonly shared view is that regaining competitiveness means producing cheaper products through increased intensification and efficiency. However, we argue that this can only be done at the expense of animal (and human and environmental) welfare. Competing with non-EU producers on volumes and prices risks a race to the bottom that undermines our welfare standards.

The solution is to move towards a different direction, by focusing on product value, nutritional value, health aspects, environmental stewardship, resilience, ethics and welfare. This can only be done by moving towards a more human-scale in livestock production and processing, that is in line with what our ecosystems can support. This means promoting smaller scale, extensive, pasture-based livestock farming.

When we shift this paradigm, we understand the level playing field should be created not with outside players, but rather between intensive and extensive producers within the EU. Small-scale producers are often hampered by restrictions, legislations and bureaucracy that are not fit for purpose, outdated, or geared towards large scale players. We should identify and highlight these barriers, and remove them in order to promote this kind of production.

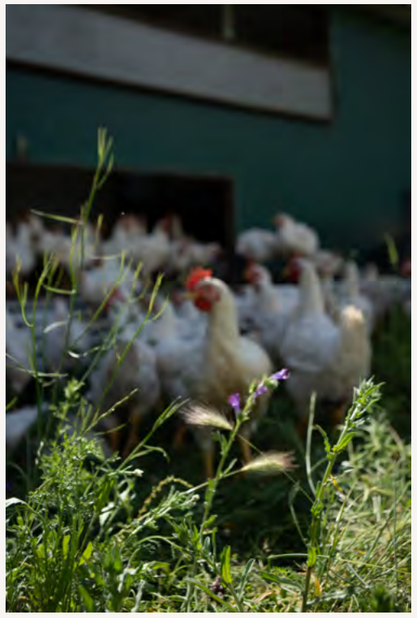
For example, the All-in all-out method which is mandated in some EU countries can be a significant barrier for the producers of pastured chickens which usually rely on lower-intensity but more continuous production cycles. These producers rely on natural cycles and can only produce what the land can support, so they cannot bring large quantities or birds in all at the same time, causing significant barriers to their operations.
Another barrier to pastured cattle production is tied to the breeding certifications that are mandatory in some countries (such as Hungary) to receive EU subsidies. This forces regenerative, pasture-based farmers to rely on genetics that are not developed and bred to fit their system, but rather the intensive model that is dominant throughout the country, while also preventing them to innovate and breed for grass-efficiency in their cattle, if they want to obtain certification-tied subsidies.

Innovation for Better Animal Welfare

Technological innovations that support the transition to extensive systems can improve animal welfare while also strengthening sector resilience. Virtual fencing, for example, is a very helpful tool that should be further promoted and subsidized to facilitate this transition.

The pursuit of total sterility and environmental control often creates the very conditions it seeks to prevent, concentrations of animals with weakened immune systems where disease spreads faster and harder. Ecosystem resilience is the real foundation of animal health.

— José Luís de Castro,
Villanueva de la Vera, Extremadura, Spain



Research & Innovation

Leveraging research and innovation for a more sustainable livestock sector

How CAP Can Drive Sustainable Innovation

The most impactful shift the CAP could make to support innovation in the livestock sector is to redirect financing away from Concentrated Animal Feeding Operations and towards place-based, regenerative systems. Today, the vast majority of CAP support flows to production models that are structurally dependent on external inputs, imported feed, and industrial infrastructure, creating little incentive for the kind of systemic innovation that would actually improve the sector's long-term sustainability and competitiveness. A reorientation of CAP funding towards pasture-based, land-integrated livestock systems would not only reward farmers already pioneering these approaches but would create the financial conditions for widespread adoption.

Within this reorientation, specific technologies that support the transition to extensive, regenerative grazing deserve dedicated investment. Virtual fencing is a particularly promising example: it allows farmers to implement adaptive multi-paddock grazing rotations with precision and flexibility, without the capital and labour costs of physical fencing infrastructure. This technology dramatically lowers the barrier to entry for planned grazing management, especially on larger or more complex landscapes. CAP support for virtual fencing, through investment aid, research funding, and field trials, would accelerate its improvement and uptake across diverse European farming contexts. More broadly, CAP innovation support should prioritise technologies that enhance farmer agency and ecological performance, rather than those that deepen dependency on industrial inputs or further disconnect animals from the land.

Research Priorities for Productive Regenerative Livestock Systems

One of the most underexplored and high-potential areas for livestock research is the breeding of ruminants for grass-use efficiency rather than grain-use efficiency. Decades of selective breeding have optimised cattle and sheep genetics for performance in grain-fed, housed systems, maximising output per unit of concentrate feed in ways that are poorly suited to pasture-based production. Redirecting breeding programmes towards traits such as forage conversion efficiency, resilience to climatic variability, longevity, and adaptability to specific pedoclimatic conditions would unlock significant productivity gains in regenerative systems, while reducing dependency on imported feed and pharmaceutical inputs. Preserving and developing genetic diversity through locally adapted breeds is central to this agenda: these breeds carry evolved resilience to the diseases, parasites, and climate stresses of their specific regions, and represent an irreplaceable resource that industrial homogenisation has steadily eroded.

A second major avenue lies in the valorisation of livestock byproducts and secondary outputs. Current production systems capture only a fraction of the value that animals can generate, meat and dairy dominate, while wool, hides, bone meal, tallow, and other co-products are frequently treated as waste or undervalued commodities. Research into new uses and markets for these materials, from natural fibres in industrial applications to bone-derived fertilisers in circular bioeconomy models, would significantly improve the economic viability of extensive systems, where margins are currently tight precisely because the full value of the animal is not captured. Nutrition research also deserves specific attention: emerging evidence, including the work of researchers such as Dr.

Stephan van Vliet on the nutritional density and bioavailability of pasture-raised animal products, suggests that the health value of regeneratively produced meat and dairy is substantially higher than conventionally produced equivalents. Incorporating this evidence into EU nutritional policy and public procurement frameworks would strengthen the market case for the transition.

Why Interdisciplinary Research Matters

The challenges facing European livestock systems are inherently interdisciplinary, spanning agronomy, ecology, animal science, human nutrition, rural economics, and climate science, yet research in these domains has historically been conducted in silos that prevent the kind of systemic understanding needed to drive genuine transformation. Interdisciplinary research programmes that bring together soil scientists, plant ecologists, animal nutritionists, human health researchers, and environmental economists alongside farmers are essential to developing livestock systems that are simultaneously productive, ecologically regenerative, economically resilient, and compatible with Europe's climate and health objectives.

EARA's own farmer-led research programme offers a model for what this kind of integrated approach can look like in practice. By placing farmers at the centre of the research process, as co-designers, data contributors, and interpreters of results, EARA's programme generates knowledge that is simultaneously scientifically rigorous and immediately applicable on the ground. Its first phase, covering 14 countries from 2021 to 2023, demonstrated that regenerating farms achieve comparable productivity to conventional systems while dramatically reducing synthetic inputs and sourcing feed exclusively from within Europe. This kind of research is only possible when the boundaries between scientific disciplines, and between research institutions and farming practice, are deliberately dismantled. The EU's Horizon Europe programme and the European Innovation Partnerships for Agriculture should prioritise funding models that embed this interdisciplinary, farmer-centred approach, treating farms not as objects of study but as living laboratories generating knowledge that flows in both directions.

Building Practical Collaboration for Innovation Uptake

Translating research into practice at scale requires infrastructure for knowledge exchange that goes beyond academic publication. Lighthouse farms, living labs, and demonstration farms, where pioneering farmers operate regenerative systems in real economic conditions and open their gates to peers, researchers, and policymakers, are among the most effective mechanisms known for accelerating innovation uptake in agriculture. Unlike controlled experimental stations, these farms demonstrate that the practices work under the full complexity of real farming conditions: variable weather, market pressures, labour constraints, and regulatory environments. The EU should significantly expand its support for this kind of farm-based demonstration infrastructure, both through direct funding and through CAP mechanisms that reward farms playing a public knowledge-sharing role.

Equally important is ensuring that the institutional architecture for collaboration, university research groups, extension services, industry bodies, farmer networks, is structured to enable genuine co-production of knowledge rather than a one-directional flow from laboratory to field. Farmer networks such as those EARA facilitates among its founding members create the conditions for peer-to-peer learning that research consistently identifies as the most effective driver of practice change in agriculture. Formalising and funding these networks as components of the EU's Agricultural Knowledge and Innovation Systems, rather than treating them as informal grassroots activity, would accelerate the uptake of regenerative practices at the scale and speed that Europe's ecological and economic challenges demand.

Across these domains, the central challenge is not simply to optimise the existing livestock model, but to support the transition toward systems that are ecologically grounded, economically resilient, and territorially embedded.

Introducing the EARA Farmers farming for Regeneration

Essi Ruuskanen & Pieter-Jan Van Damme

Tuiskula Farm
Siuntio, Finland
16 ha

We are a small family farm producing pasture raised eggs, pasture raised broilers and no dig-vegetables. We focus on animal welfare and biodiversity to boost the health of our plants and animals as well as us humans. Our aim is to produce clean, chemical-free and nutrient-dense food while making sure our farm thrives also 200 years from now.

Pastured poultry practices offer benefits for animal health, welfare, and broader economic and environmental outcomes. Birds raised on pasture tend to show improved resilience and higher wellbeing compared to those in conventional setups, while also supporting more sustainable land use and diversified farm income streams. However, current legislation is largely designed around the logic of intensive indoor operations and often fails to accommodate these more extensive systems, creating unnecessary regulatory obstacles for producers trying to farm this way. Local-level processing is also important: keeping slaughter and processing close to the farm is essential for maintaining animal welfare, product quality and traceability throughout the supply chain. As an example, models like all-in all-out make sense for intensive, high-throughput operations but are poorly suited to extensive, pasture-based grazing systems, which rely on more continuous production cycles.

Trond Ivar Qvale

Horgen Gård
Aulifeltet, Norway
320 ha

A certified organic farm in Nes på Romerike, just north of Oslo, run by the Qvale family since 1989. Around 150 Aberdeen Angus cattle live outdoors year-round on an exclusively grass and roughage diet. Regenerative practices include no-till, carbon sequestration and Holistic Management. The farm also raises free-range pigs, pasture hens and seasonal vegetables, and hosts public events and farm experiences throughout the year.

Regenerative grazing keeps animals outside and connected to the land. Through regenerative practices such as Holistic Planned Grazing, we can mimic natural grazing patterns that animals have evolved to follow throughout their natural history. This turns livestock farming's environmental impact from negative to positive, since livestock can provide a series of environmental services, including promoting plant growth and soil health by ensuring that grass is not overgrazed and by using animal hooves and manure to stimulate the land. In intensive operations, on the other hand, animals are raised in unnatural living conditions, their diets are altered, and they are treated with increasing amounts of antimicrobial products. This increases production costs and decreases competitiveness. Regenerative grazing practices, on the other hand, cut the costs associated with external inputs, expensive infrastructure, and feed while also reducing environmental impact by balancing methane emissions through natural processes.

Zoltan Lengyel

Táncoskert
Polgár, Hungary
200 ha

A family-run farm called Táncoskert in Polgár, Hajdú-Bihar, entirely certified organic and regenerative, focused on grazing animals and the direct sale of meat through a community farm and a local farmer's market, with ploughland producing the farm's own fodder. Zoltan is a Savory Accredited Professional and active on the boards of the Hungarian Agroecology Network Association, the Foundation for Regenerative and Sustainable Agriculture, and the Hungarian Savory Hub.

Holistic Planned Grazing offers benefits for the Hungarian cattle industry, including improved competitiveness and quality through reduced external inputs and better animal welfare. We need to shift the view of animal welfare from a production cost to a feature that is naturally built into diversified agroecosystems in which animals are integrated with the land that surrounds them. In intensive operations, even basic animal welfare requirements turn into significant costs that undermine product competitiveness, while in grazing systems animals live a natural and healthy life, reducing stress and improving welfare without increasing costs. There is also a need to remove barriers for local-level micro-abattoirs and field-level slaughtering, which can significantly reduce animal transportation costs and the animal stress associated with it. This would also help in shortening supply chains and making them more transparent, allowing for a more traceable product that can be sold directly from farmer to consumer, increasing its competitiveness and profitability.

Nick Viney

Leewood
Dartmoor, England
5 ha

A Dartmoor agroforestry holding in the Walkham Valley run by Nick Viney, artist, veterinary nurse turned regenerative grazier, with 30+ years in landscape restoration. Leewood produces 100% pasture-fed, chemical-free meat and fibre using adaptive multi-paddock grazing, with animals as active ecosystem engineers restoring biodiversity and hydrology at landscape scale.

Regenerative livestock farming is a land-led system built around planned grazing, high-density animal moves, and the integration of multiple species, rather than a model driven by maximizing output. The animals are essentially tools for achieving specific ecological outcomes rather than ends in themselves, and they can be managed with clear goals in mind, such as restoring soil health and encouraging the return of native plant species. This approach treats grazing as an active form of land management, where timing, density, and movement are all deliberately designed to work with natural cycles rather than against them. True resilience doesn't come from scaling up or specializing into industrial commodity production, but from the opposite: small, diversified mixed farms, slaughter and processing kept local to the farm, and land-sharing arrangements that allow different enterprises and species to coexist. This combination of diversity, locality, and ecological awareness is what makes a farming system durable over time.

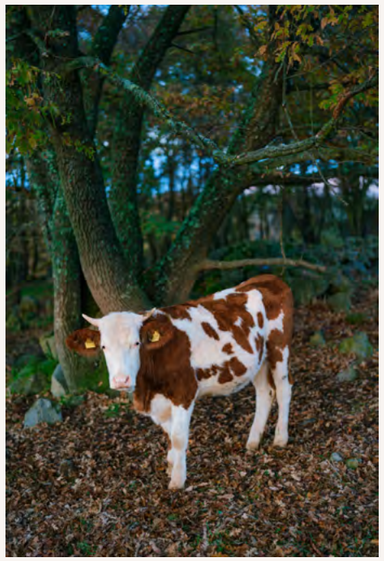
Marco Carbonara & Chiara Dragoni

Fattoria Pulicaro
Acquapendente, Italy
98 ha

Pulicaro Farm is focused on multi-species rotational grazing, managed with an ecosystem-based approach for sustainable balance and soil health.

Improving animal welfare and disease prevention starts with building well-balanced agroecosystems that integrate animals with their surrounding land. In an isolated and intensive ecosystem, animals develop a weak immune system, disease can spread much more rapidly, and there are no elements that can help break disease and parasite cycles. At the same time, these operations are also the leading cause of the development of antimicrobial resistance, which poses a significant threat to livestock systems in the EU. This is a paradox: the pursuit of absolute sterility actually increases the chances of stronger and more difficult to combat outbreaks.

Conversely, in a well-balanced agroecosystem, animals are healthier and less prone to be infected by disease, the whole ecosystem brings about resilience, and through multi-species grazing we can add elements that help break parasite cycles without the need for external inputs. This creates a series of positive impacts: grazing systems greatly reduce the need for antimicrobial and antiparasitic products, therefore reducing production costs and environmental impact, while increasing animal health and product quality.



José Luis García De Castro Rubio

Poultree
Villanueva de la Vera, Spain
190 ha

A family farm founded in 2019 in Villanueva de la Vera, Extremadura, Spain, combining 100% grass-fed beef and pasture-raised chickens under holistic rotational management. Cattle are moved with GPS virtual fencing; chickens rotate in portable coops every 3 days. Products sold direct through an on-farm butchery. The farm also trains and consults other livestock farms transitioning to regenerative practices across Spain.

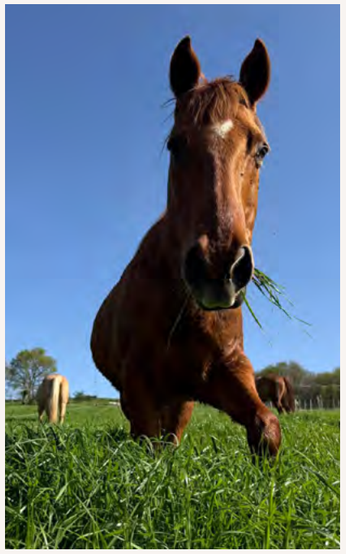
Improving animal health, welfare, and disease control requires a paradigm shift. The current model seeks the pursuit of total environmental control, animal isolation from the outside environment, and complete sterility to prevent diseases. However, the unnatural concentration of animals in this model often leads to the opposite effect: the development of more virulent and highly transmissible pathogens. We need to move towards extensive, well-managed, pasture-based systems, and the new paradigm should focus on ecosystem resilience rather than sterility and total control. This can be achieved by reintegrating animals with the land and through the selection of genetically robust and locally adapted breeds, improvement of baseline immune competence, adoption of nutritional strategies linked to diverse pasture systems, and reduced stocking densities and lower physiological stress.
In such a livestock model, animals are more adapted to their environment and less susceptible to diseases, therefore reducing the need for external antimicrobial and antiparasitic products, lowering production costs, improving animal welfare, and creating a higher quality product. Multi-species livestock systems are also important, with poultry playing a role in breaking parasite cycles for other animals.

Meghan Sapp & Iñigo Arana

Curly Creek Ranch
Oskotz, Navarra
3.5 ha

Curly Creek Ranch is a highly diverse off-grid farm combining pastured egg production, poultry, horses and goats together with market gardens using Holistic Management. It is the learning farm for Hub del Norte, where people come from all over Europe to learn from us and with us, creating community that nurtures the land, plants, animals and people alike.

Building livestock systems that work in partnership with nature is more effective than treating animals as isolated units of production disconnected from the wider ecosystem. Resilience comes from assessing ecosystems holistically, taking into account the interactions between soil, vegetation, water, and animals rather than focusing on ecosystem control through isolation. This kind of systems thinking, promoted by Holistic Planned Grazing, allows farmers to anticipate and respond to environmental pressures more effectively than narrower, production-focused approaches. Local-level supply chain integration is also of practical value in increasing the competitiveness of the livestock sector in the EU. A future in which processing, distribution, and value-added activities are kept close to the farm, rather than dispersed across long, fragmented supply chains, creates a true local circular bioeconomy that makes better use of all the products that livestock can provide us with. A key example of this is wool production in Spain, a product that is currently considered a cost rather than an asset given the lack of processing facilities and market buyers. By reintegrating these materials into local economic cycles rather than treating them as waste, we can significantly improve the competitiveness of the European livestock sector.



Acknowledgments

We thank the EARA farmers for opening their doors to showcase their regenerating ecosystems, and for contributing their data and knowledge to this paper.

About the European Alliance for Regenerative Agriculture

The European Alliance for Regenerative Agriculture is the independent, farmer-led coordination, advocacy and collective action organisation of the movement of regenerative agriculture at the European level. EARA is striving to enable the transformation of our agrifood ecosystems through accountable ecological, economic and social regeneration.

More information can be found on our website at **www.eara.farm**

Photos are all showing EARA Member Farms:

Benedikt Bösel, Germany
Christine Bajohr, Germany
Essi Ruuskanen & Pieter-Jan Van Damme, Finland
José Luis García De Castro Rubio, Spain
Meghan Sapp, Spain
Marco Carbonara & Chiara Dragoni, Italy
Nick Viney, U.K.
Sergio Nicolau, Portugal
Sandra Villumsen, Denmark
Trond Ivar Qvale, Norway
Zoltan Lengyel, Hungary

EARA is independently funded through mission-aligned, politically independent philanthropic partners and maintains no corporate or industry ties, ensuring our work remains farmer-led and free from commercial interests. We never accept funding that could have an influence on EARA's strategy or decision-making. All our funders decisively support EARA's farmer-led decision-making.