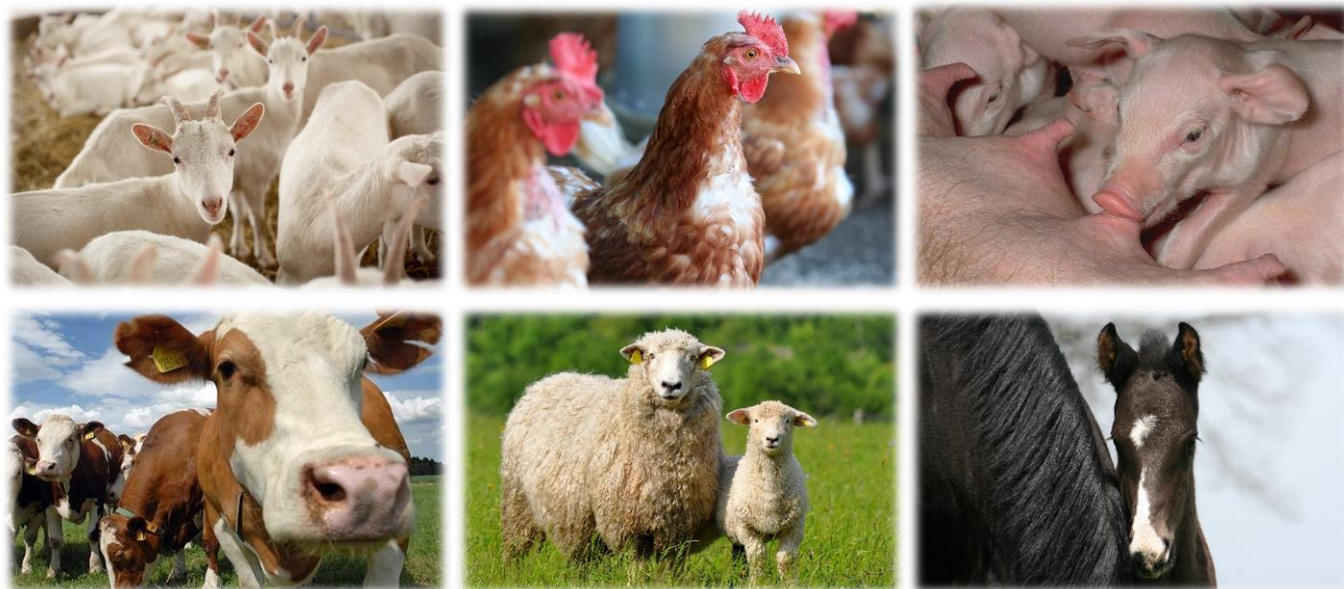


# Vision Paper

towards European R&I  
for a sustainable and competitive  
livestock production sector in Europe

A framework for suggested priorities for R&I  
within Horizon Europe



February 2019

# Current importance of the European livestock sector for global sustainable development in territories & agro-food systems



Figure 1: Contribution of livestock farming to UN SDGs (European case in Blue, world level (blue and green))

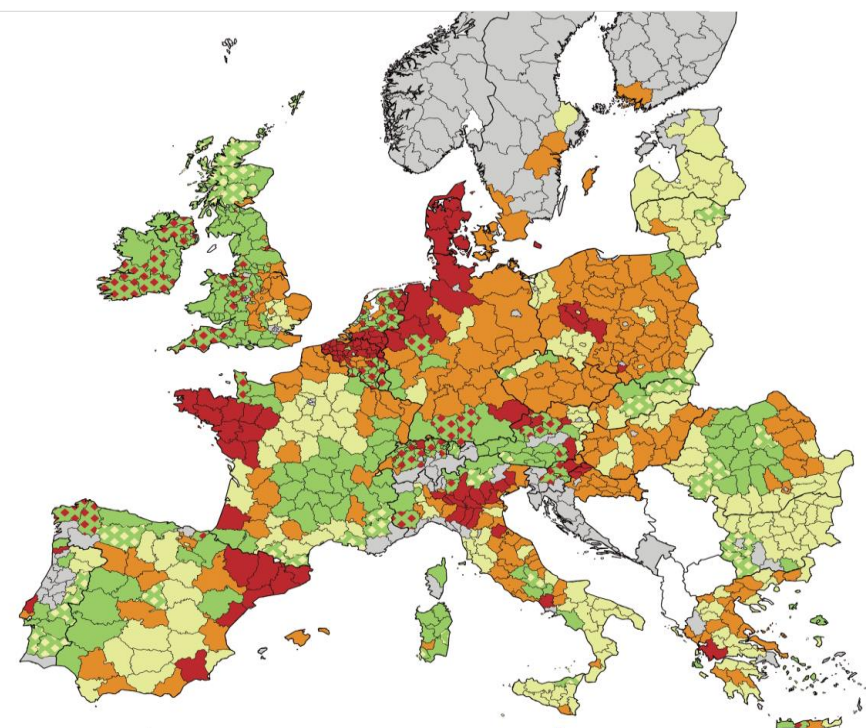
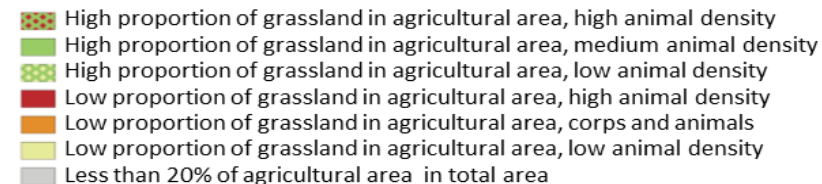


Figure 3: Typology of European livestock production areas (Source INRA based on Eurostat, 2010)

# EU livestock in a global perspective

- **Global demand for meat and milk is expected to increase considerably during the next 30 years in business-as-usual scenarios**
- **Given current trade flows with the rest of the world, small proportion of animal numbers reared and high environmental requirements in EU, EU-only solutions are likely to have a minimal impact on animal production's global footprint**
- **Pig and poultry production is growing fast in Ukraine and Russia. EU's share in global production is shrinking.** Supplier industries to the livestock sector are highly dependent on a **critical mass** in production in Europe. The livestock sector has to adapt to rapid changes in EU consumer preferences.
- **EU can help to reduce the worldwide impact of animal agriculture by exporting its knowledge and knowhow**

# EU R&I in a global perspective

- **Europe needs to place R&I at the heart of public policies to foster sector adaptation towards European sustainable and competitive livestock systems**
- **European livestock R&I needs an enabling policy environment providing a level playing field comparable to that of our competitors as a platform for knowledge development and application.**
- **Co-construction of knowledge and innovations with stakeholders and society is crucial** to avoiding resistance to innovation adoption.
- **Regulations for animal protection in animal experiments and research may hamper incentives to research and implementation of innovations in Europe**



# EU R&I to accommodate a paradigm shift in livestock farming within EU sustainable circular agri-food systems

- The future of EU agri-food systems lies not on linear but on circular approaches, with an integrated and regenerative use of natural resources and associated agri-biomass.
- The share of protein of animal origin in sustainable diets that is nutritionally adequate, more respectful to the environment and culturally acceptable and affordable must be evaluated considering a holistic approach of nutritional recommendations and environmental performances.

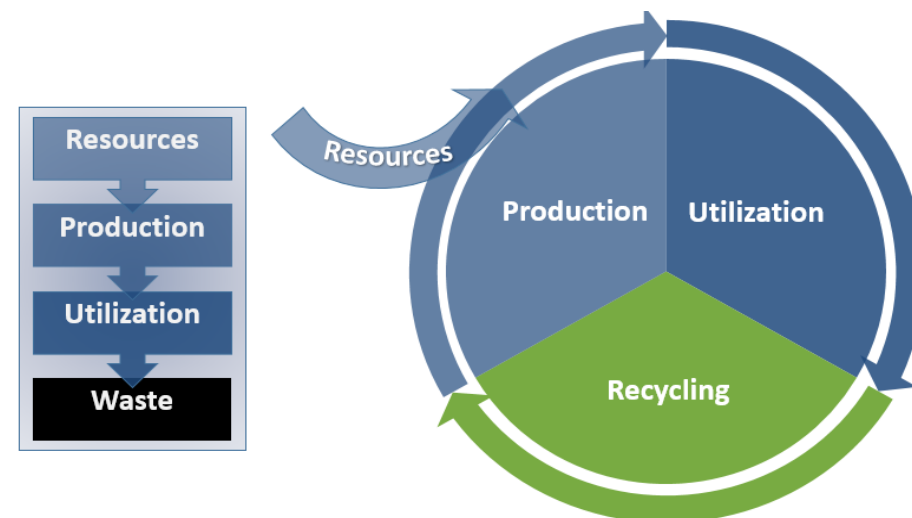


Figure 3: From a linear to circular agro-food systems

# **EU R&I to accommodate a paradigm shift in livestock farming within EU sustainable circular agri-food systems**

- **A “business as usual” approach is not sufficient to meet the challenges, a paradigm change is needed. Livestock farming must be part of a circular agriculture aiming to optimise the use of resources at farm, regional, national and even transnational levels while avoiding leakage of resources or pollutants.**
- **Management of animal health and welfare in the concept of One Health is a prerequisite for well-functioning circular and sustainable agri-food systems.**

# Expected contribution of R&I to achieve the potential of livestock in contributing to circular sustainable agri-food chains

## The potential of livestock for circular sustainable agri-food chains, providing:

- Protein rich, safe and healthy food
- Contributing to a more efficient agriculture, food and nutrition security
- Contribution to soil fertility
- Raw material for renewable energy production
- Valuable by-products
- Diversification of crop rotations
- Diversity of agro-ecological, social, cultural and economic services
- Huge biodiversity of breeds adapted to different environments

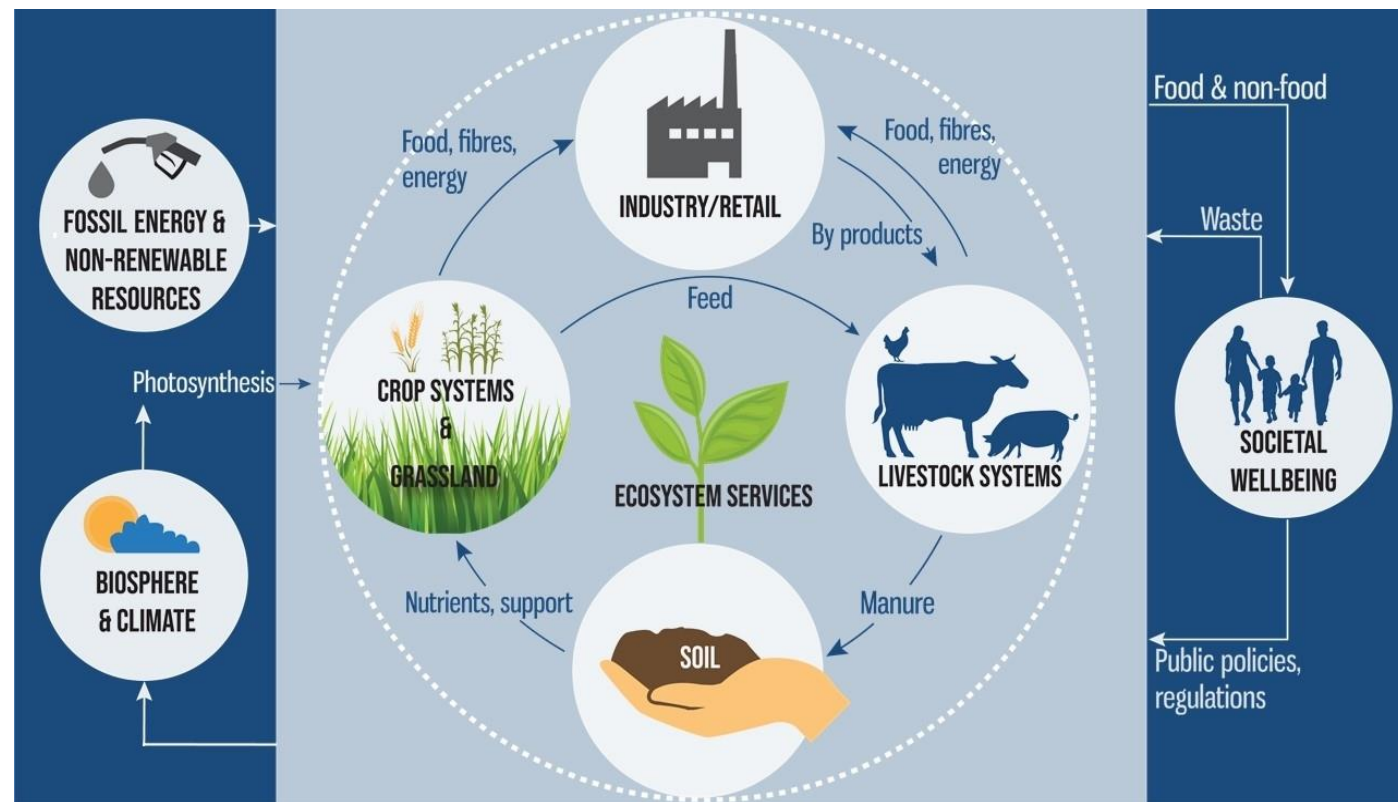


Figure 4: Livestock's role in realizing a European sustainable circular Bioeconomy

# Expected contribution of R&I to achieve the potential of livestock in contributing to circular sustainable agri-food chains

## Livestock is part of the solution in addressing its drawbacks

- Climate change mitigation
- Prevention of local pollutions
- Reduced vulnerability to health threats and risk of antibiotic resistance
- Animal welfare standards
- European protein security
- Livestock farmers' income and job attractiveness



# A framework for R&I mobilizing new concepts and approaches

## Different pathways towards the adaptation of livestock systems

1. Agro-ecological practices to increase sustainability of livestock farming systems
2. Circularity of biomasses towards more efficient and healthy agri-food systems
3. Innovative (bio)technologies to enhance the benefits of livestock systems
4. Governance of the sector and cooperation among stakeholders

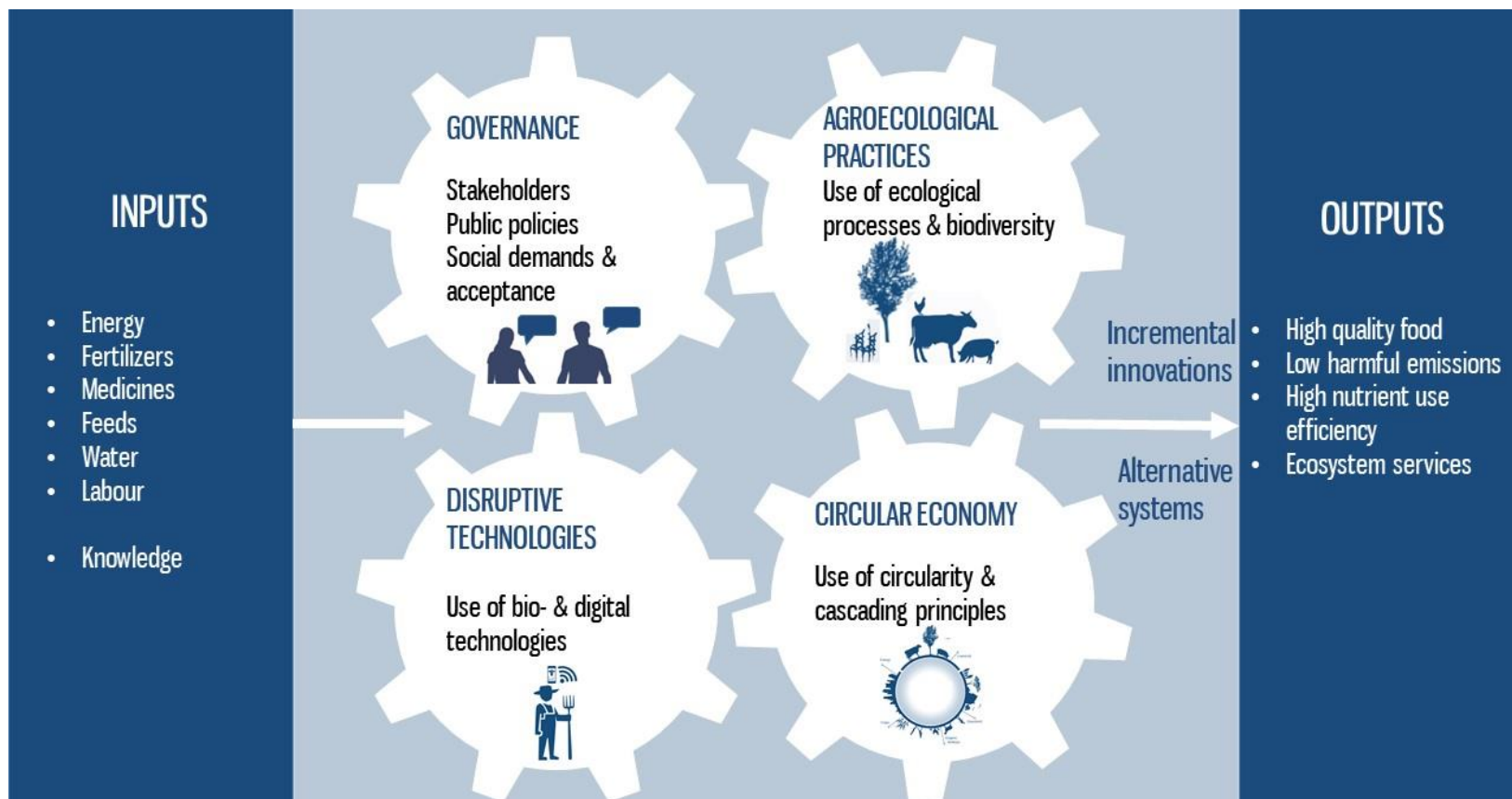


Figure 5: Framework for research and innovation to enhance the role of the European livestock sector in circular agri-food systems

# A framework for R&I to enhance roles of EU livestock sector in sustainable food supply chains

## Agro-ecological practices

- More efficient and robust animals able to cope with varied farming and climatic conditions without impairing product quality.
- Integration of health and welfare of animals at the level of the agricultural sector.
- Optimisation of the metabolism of agro-ecosystems with livestock.
- Use and preservation of biodiversity

## Circularity of biomasses

- Full exploitation of the ability of animals to convert a diversity of biomass not directly edible by humans into high-quality food
- Full exploitation of manure and other animal by-products as valuable resources
- Improved quality of animal products.

# A framework for R&I to enhance roles of EU livestock sector in sustainable food supply chains

## **Innovative (bio)technologies to enhance the benefits of livestock systems**

- Use of deep knowledge on genome and high throughput phenotypic approaches
- Mastering animal microbiomes and epigenomes and implementing early programming
- Development of new breeding techniques (NBTs)
- Advances in digital technologies: sensor, massification of data
- Advances in technological bio-refinery processes

## **Governance of the sector and cooperation among stakeholders**

- Ethics in animal production
- Understanding the development of controversies, the diversity of consumer attitudes and the role of public policies and supply chains
- Evaluation and regulation of non-market effects of livestock farming
- Design of new and consolidated public policies and regulations
- Increase in job attractiveness and farmers' income
- Assessment of the livestock system.

# Expected impacts of future livestock research and innovation priorities

- **Maintain an innovative and efficient research base in animal production in Europe**
- **Promote a diversity of livestock systems**
- **Increase preventive healthcare**
- **Improve European livestock production autonomy and maintain self-sufficiency in sourcing by linking more closely plant and animal production, by valorising organic streams**
- **Foster rural vitality through the supply of agro-ecological, social and economic services**
- **Regain consumer confidence**
- **Contribute to global food supply**