

EAAP and the drivers of Change in the livestock sector

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I. The European livestock sector

Major role in European agriculture

38.4% of the total agricultural output in 2020 → 159 billion €

1.9% of the active population ≈ 4 million people

with large regional differences

Large diversity in livestock farming systems

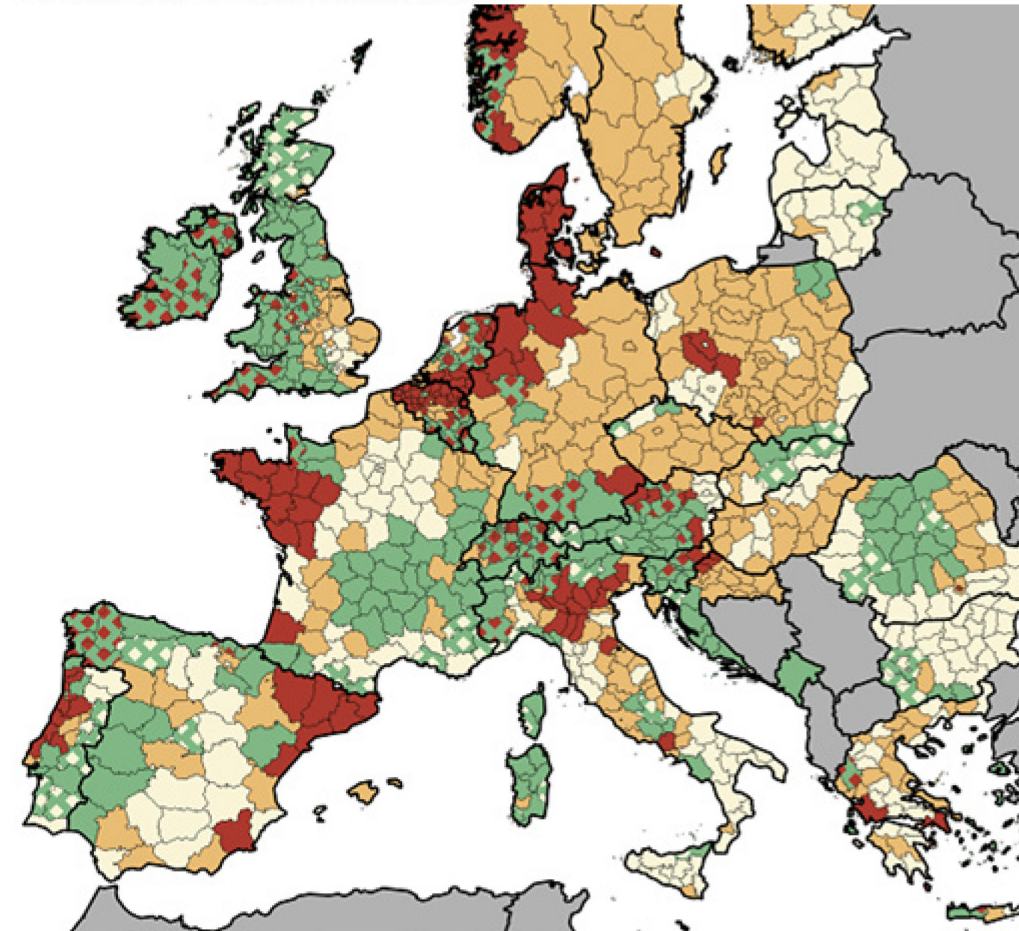
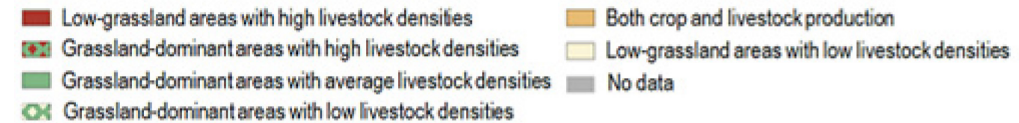
Associated to agricultural area and permanent grasslands

→ ≠ livestock species, farm management and products

→ ≠ impacts of and services provided by LFS

≈ challenges, ≠ solutions?

Typology of European livestock farming areas (INRAe, Eurostat 2010)



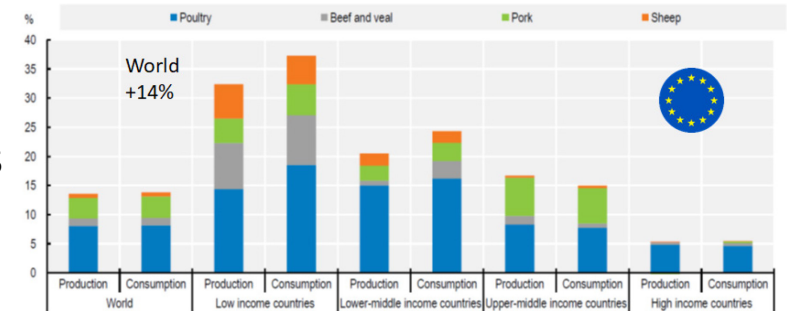
II. Challenges to the European (and global) livestock sector

1. Demand of high quality, nutritious and safe animal source food

Growing demand of ASF

global population: 9.7 billion by 2050 (UN, 2022); large regional disparities driven by population growth rate and structure, income and consumer preferences

Growth in meat production and consumption on a protein basis, 2021 to 2030



2. Sustainability of livestock production systems

Production systems must be resource-efficient, welfare- and environment-friendly, and guarantee the livelihood of farmers

Objectives of **GASL Consultation**, focusing specific European livestock systems

Food and nutrition security



Livelihoods and economic growth



Animal health and animal welfare



Climate and natural resource use



SUSTAINABLE DEVELOPMENT GOALS



III. R&D priorities for the European livestock sector

European Green Deal: carbon neutrality by 2050

Farm to Fork strategy: specific goals for agriculture up to 2030

*“development of **sustainable and competitive food systems** with **neutral environmental impact**, which help to **mitigate climate change** and **ensure food security, quality and affordability**, and a **sustainable livelihood for primary producers**”*

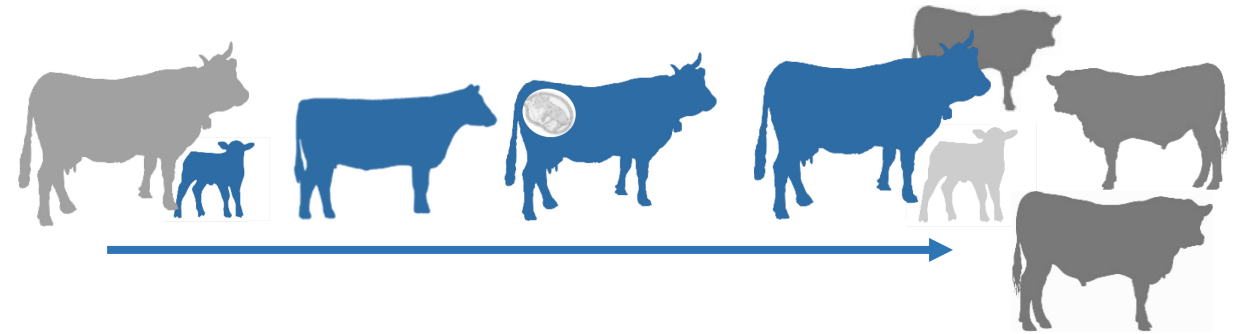


R&D priorities

1. Maximize the resource use efficiency
2. Improve animal health and welfare
3. Reduce competition with human-edible food
4. Reduce emissions from LFS
5. Promote circularity of agro-ecosystems
6. Enhance the positive externalities of LFS

1. Maximize the resource use efficiency

- **Improve productivity per head**
 - reproductive efficiency
 - growth, milk, eggs... (yield + quality)
→ lifetime performance



- **Improve feed efficiency**
 - breeding
 - nutritional management



diet composition - requirements
herd management
individually-tailored diets

alternative diets
novel feeds
forages



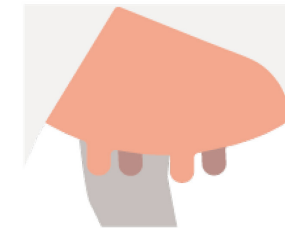
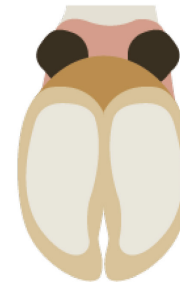
2. Improve animal health and welfare



synergies and trade-offs

- **Improve animal health**

- genetics: genome - epigenome + microbiome
- alternatives to AM use: feeding, management...



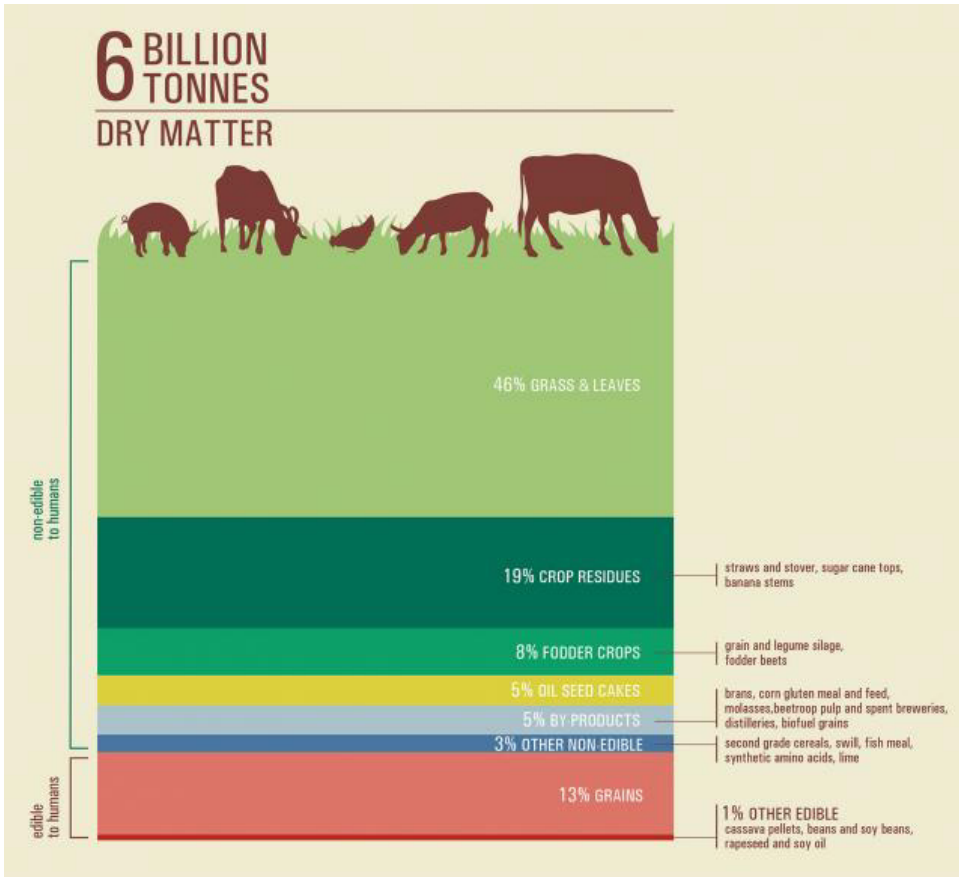
- **Improve animal welfare**

- genetics, nutrition, reproduction, management
- ≠ environments, management conditions
- birth to slaughter



**END THE
CAGE AGE**

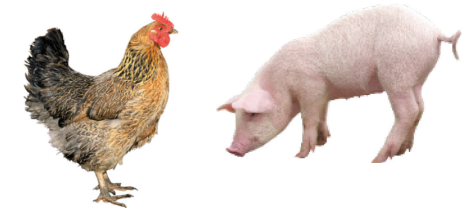
3. Reduce competition with human-edible food



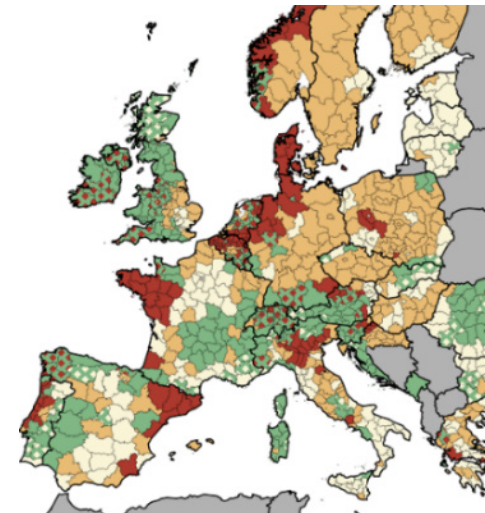
- Food security
- Feed security - Feed sovereignty
EU dependency on imported protein

Alternative feed sources

- insects, algae
- local forage crops (legumes-N)
- waste, industry and agricultural by-products and Former Food
- grasslands



- 73 million ha permanent grasslands (40% UAA EU)
- only ruminants can convert them into human-edible protein



Global livestock feed DM intake (FAO, 2017)

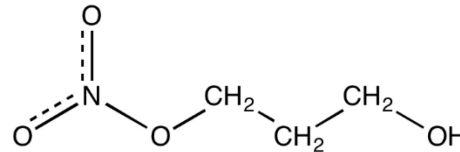
86%

14%

4. Reduce emissions and losses

How to mitigate livestock methane and ammonia production in LFS?

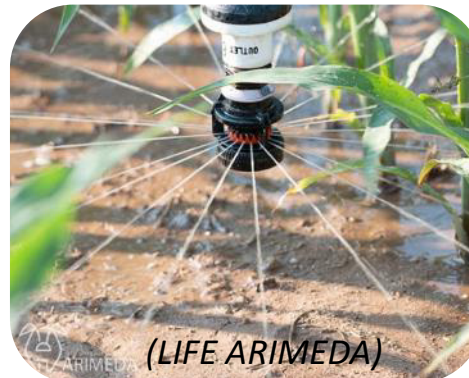
- **Breeding:** low heritability, but cost-effective and cumulative (CH_4)
- **Nutritional management**
 - highly digestible feeds (CH_4)
 - seaweed and micro-algae (CH_4)
 - feed additives (CH_4)
 - synthetic: nitrate, 3-NOP
 - natural: oils, saponins, tannins
 - legume forages (CH_4 , NH_3)
 - precision feeding (CH_4 , NH_3)
- **Manure treatments and management**
 - anaerobic digestion (CH_4)
 - acidification (NH_3)



(CRV)



(All about feed)



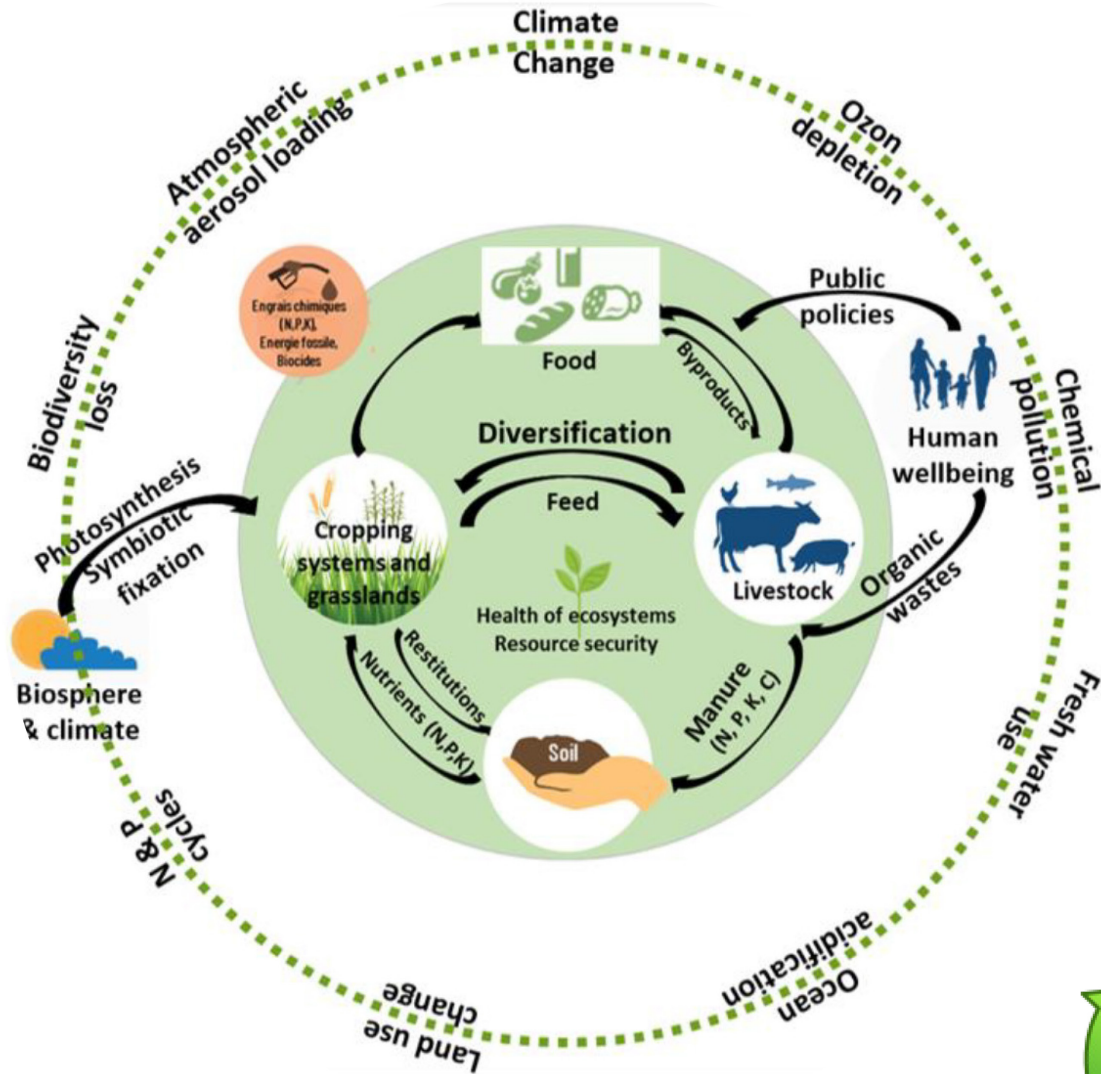
(LIFE ARIMEDA)



(Pomar and Remus, 2019)

(EIP-AGRI, 2017)

5. Promote circularity of agro-ecosystems and agroecology



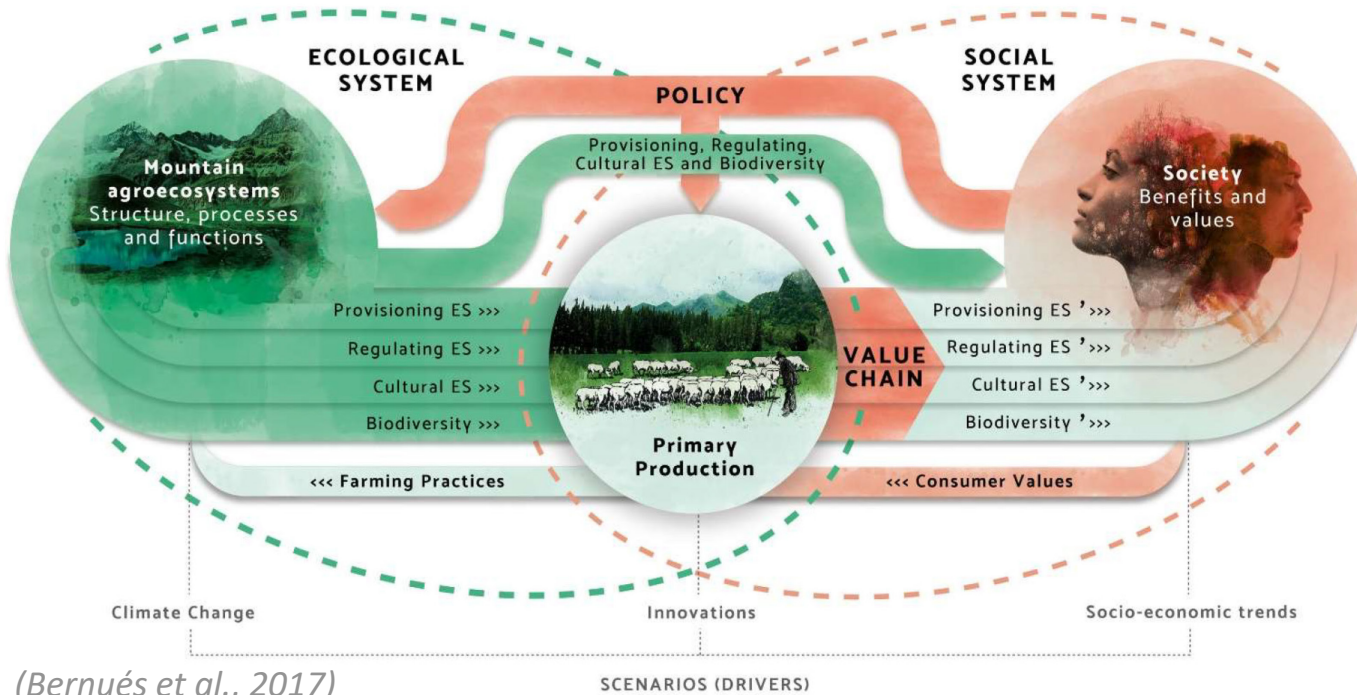
(ATF SRIA, 2021)



- **Efficient conversion** of local crops (grains, forages), grasslands and by-products (low opportunity cost) into human-edible protein
- Production of manure – **restitution of nutrients** to the soils



6. Enhance the positive externalities of LFS



Multifunctionality

Ecosystem services:

- Provisioning ES: material outputs (€)
- Non-Provisioning ES (public goods)
 - regulating ES: biophysical processes - climate, water
 - supporting ES: photosynthesis, nutrient cycling
 - cultural ES: recreational, spiritual, aesthetic

Livestock farming practices

promoting C sequestration
enhancing biodiversity
supporting cultural landscapes
reducing environmental hazards...

- benefits perceived by society (values)
- practices rewarded by policies (eco-schemes)

IV. The supporting role of the EAAP

What is the EAAP?

The network of animal scientists and professionals in **Europe and the Mediterranean basin** since 1949

35 Member Countries of the larger Europe

~ 5500 individual members

~ 900 research and scientific institutions

Our mission

To promote **research, discussion, networking and dissemination** of high quality and relevant animal science findings



The Dissemination and Networking

Our journals

The *animal* family of journals

<https://www.sciencedirect.com/>

Annual meetings

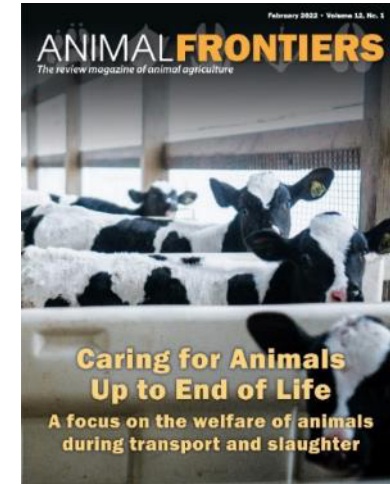


<https://eaap2024.org/>
Florence, Italy



<https://eaap2023.org/>
Lyon, France

- >2300 participants
- > 1900 presentations (theatre + posters)



Regional meetings

2nd EAAP Regional Meeting

24th - 26th April 2024, Nicosia, Cyprus

<https://regional2024.eaap.org/>

Thank you

**Multi-stakeholder collaboration
to strengthen sustainability and resilience
of livestock systems
in response to drivers of change**

13th GASL MSP Meeting
Hybrid | 30 October · 3 November 2023
Chiang Mai · Thailand

livestockdialogue.org

