iSAGE Innovation for Sustainable Sheep and Goat Production in Europe

Euroopa Maaelu Arengu Põllumajandusfond: Euroopa investeeringud maapiirkondadesse

Trends and challenges for sustainable development of sheep and Goat Systems

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Aims of the presentation

- Give an **overview** of the status of the sector in Europe
- Present the main **challenges**, current **trends** and **opportunities**
- Provide **recommendations** based on iSAGE project
- Set a **new paradigm for the sustainable future** of the sheep and goat industry

The iSAGE Consortium

- iSAGE dealt with the **less developed** livestock sector in the Europe
- iSAGE involved all the major players in small ruminant sector in Europe

Approximately **16,000** sheep and goat farmers (**5.5** million sheep and goats)

Sheep and Goats in EU

- There are approximately **90 million** sheep and **13 million** goats in Europe
- The largest numbers of **sheep** are in the **UK, Spain, Romania and Greece**
- The largest numbers of **Goats** are in Greece, **Spain, Romania and France**
- **Greece and Spain** together hold more than 50% of the EU total goat population (32% and 22%, respectively).

	sheep	Goats
United Kingdom	22.756.000	111.000
Spain	15.478.620	2.659.110
Romania	10.358.700	1.594.800
Greece	8.427.000	3.580.000
France	7.105.000	1.242.000
Italy	7.000.880	1.058.720
Ireland	3.809.370	8.770
Portugal	2.219.780	316.480
Albania	1.758.330	862.870
Germany	1.556.500	141.000
Bulgaria	1.280.980	228.490
Hungary	1.061.000	63.000
Bosnia and Herzegovina	1.013.000	72.000
Netherlands	758.000	551.000
North Macedonia	684.000	87.000
Croatia	658.000	82.000
Iceland	416.000	1.600
Austria	402.660	92.500
Sweden	371.230	12.000
Slovakia	320.560	35.590
Cyprus	310.990	250.410
Poland	268.540	49.900
Czechia	213.070	29.210
Kosovo (under UN Security Council Resolution 1244/99)	189.100	27.200
Montenegro	182.100	28.700
Lithuania	152.100	15.100
Finland	144.880	5.930
Denmark	138.010	18.800
Belgium	117.320	38.590
Slovenia	110.260	24.360
Latvia	99.820	11.690
Estonia	73.100	5.200
Malta	13.160	5.590
Luxembourg	8.680	5.350
Total	**89.456.740**	**13.315.960**

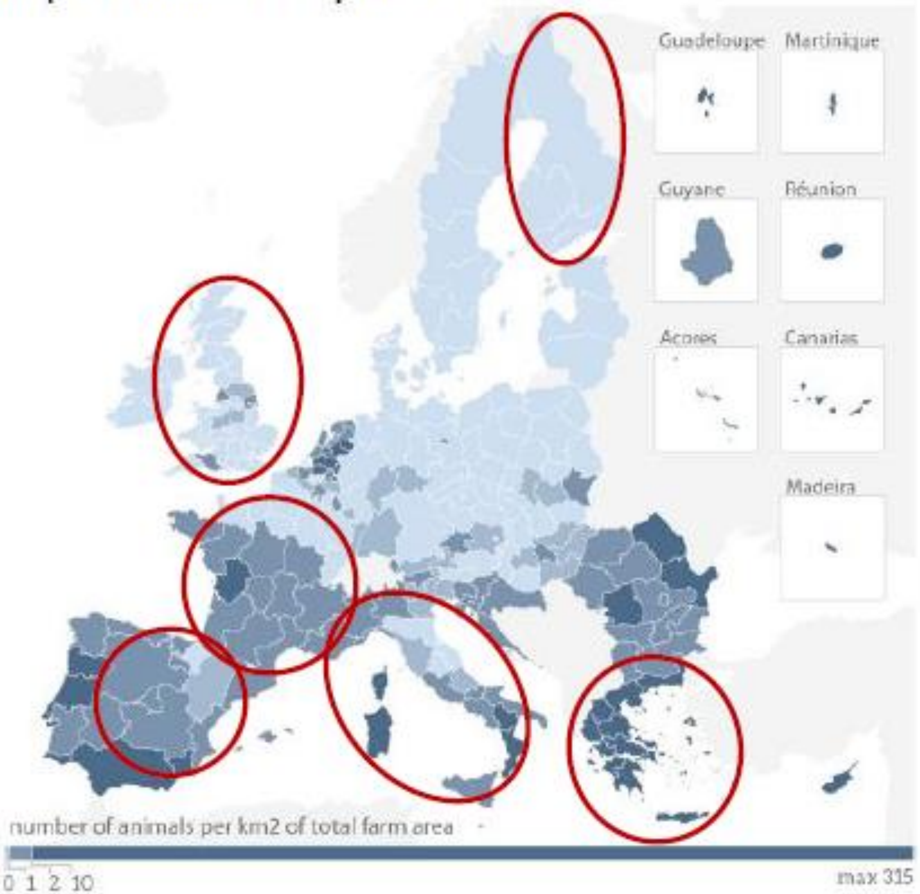
ec.europa.eu

Sheep and goat distribution & iSAGE coverage

Map 1 – Sheep flock density in the EU

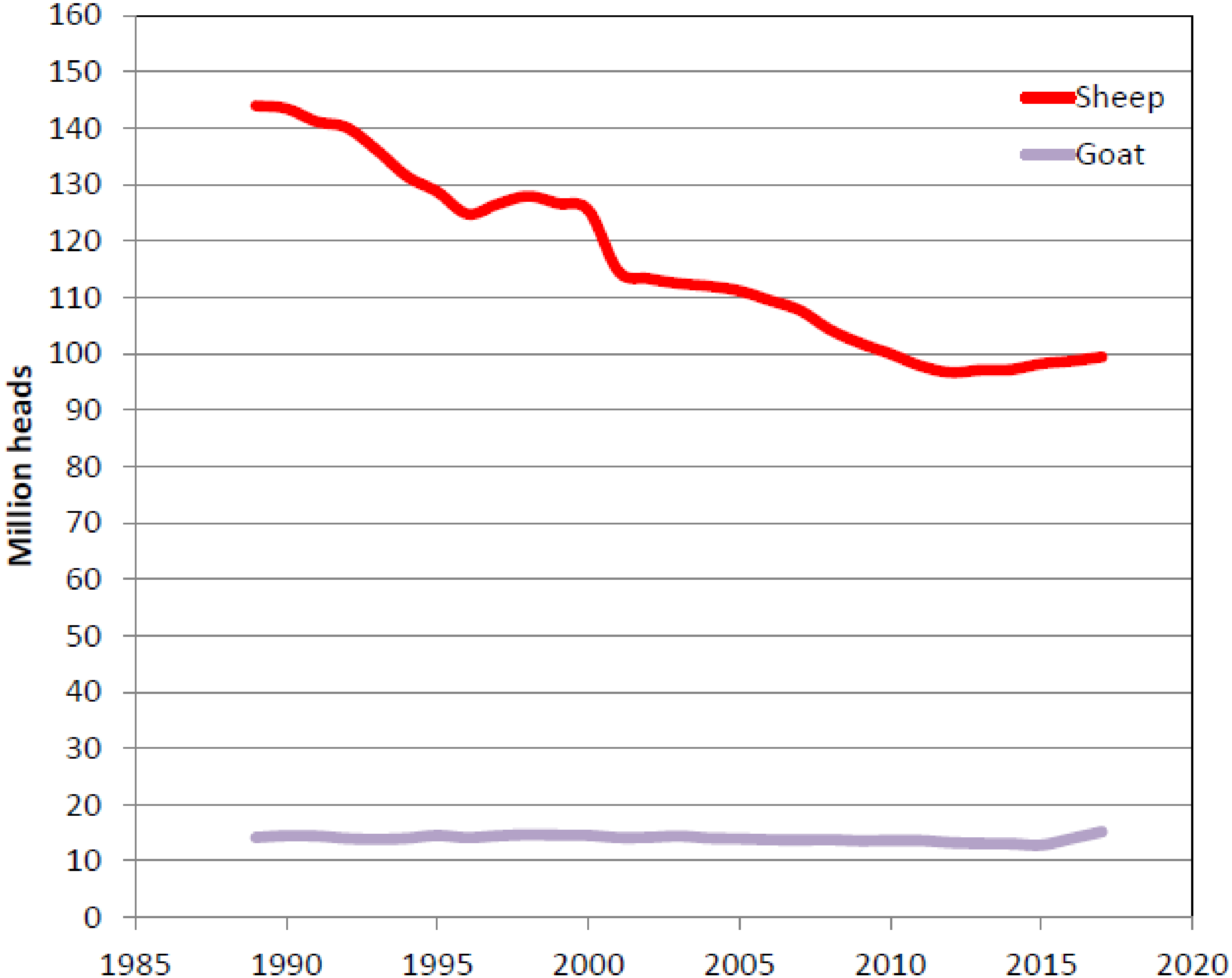
Data source: Eurostat, Farm structure survey, 2013.

Map 2 – Goat herd density in the EU



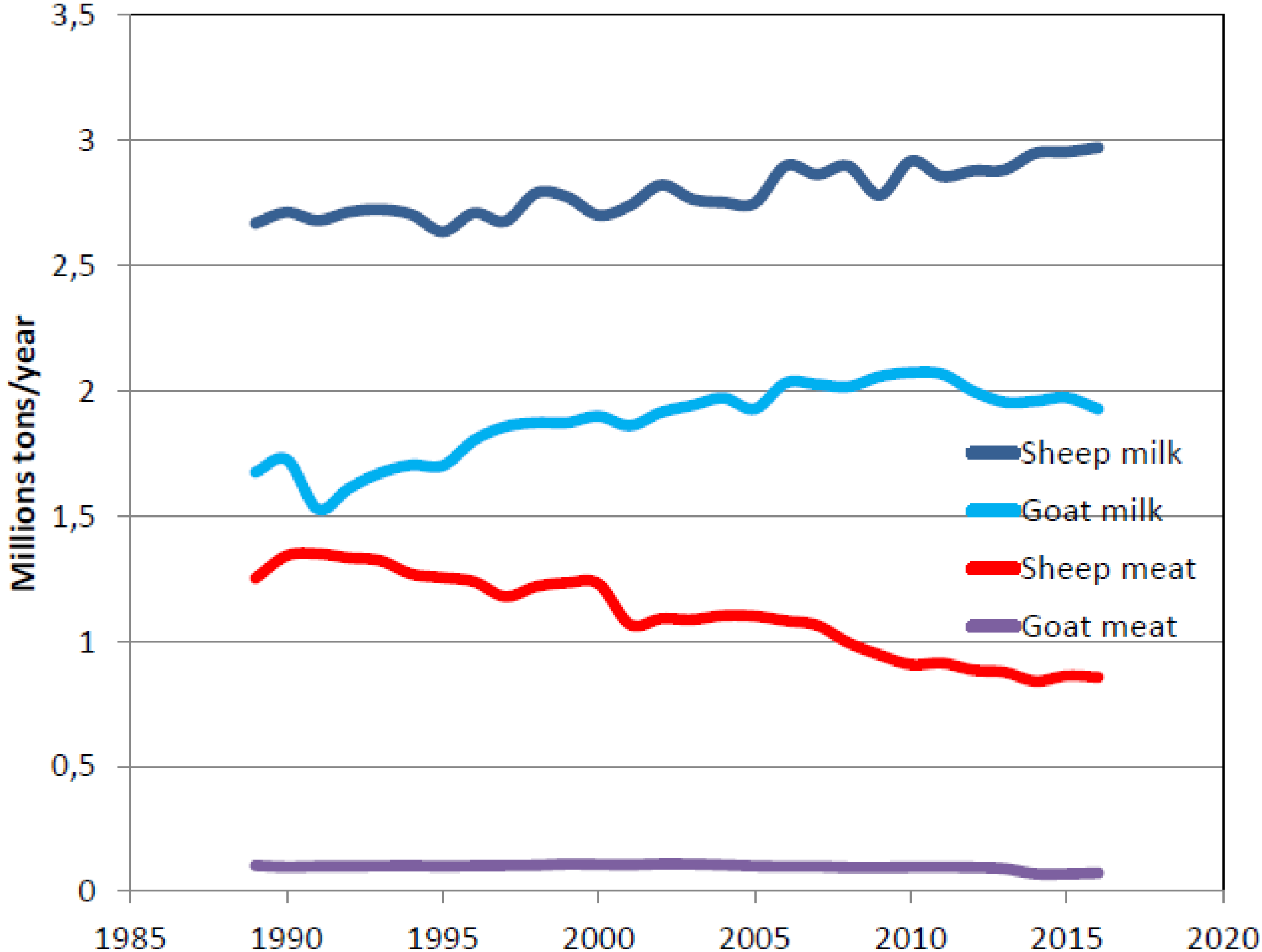
Data source: Eurostat, Farm structure survey, 2013.

European sheep and goat census



FAOSTAT 2019

Small ruminant production in Europe



Sheep and Goats in EU

- **6**% of the meat and **3**% of the milk production value in EU
- 850.000 sheep farms (**14% of the livestock farms in EU**)
- 450.000 goat farms (7% of the livestock farms in EU)
  - 113 sheep and 26 goats per farm
- Most farms are located less favoured rural areas and **provide employment, environmental** and **social cohesion**

Sheep and Goats in EU

- Small ruminant systems are a **small share** of the total EU livestock output in terms of production and added value.

- **Sheep and goat** meat production accounted for almost 755.000 tonnes with a value of **5.8 billion euros** (2% of total EU production and less than 6% of its value)

- **The sector** is not self-sufficient **in terms of sheep and goat meat**; the main importing countries are New Zealand (>80% of EU imports) and Australia (11%). **EU's exports** are limited consisting mainly of live animals from Romania and Spain

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Sheep and Goats in EU

- The **main product** of the sheep and goat sector **is meat**. Amongst EU Member States (before Brexit), sheep meat production is especially important in **UK and Ireland**
- **Milk, cheese, wool and skin products** are also of economic importance in many countries (e.g, Estonia).
- **Sheep and goat milk** is mainly produced in **Greece, Spain**, **France**, **Romania** and **Italy** and is mostly used for cheese-making

Sheep and Goats in EU

- Most **sheep milk** is processed by dairy industries into traditional cheese types some of which are PDO (e.g. Feta, Pecorino, Manchego, and Roquefort).

- **Goat milk** is often processed on farm into different local dairy products, including yogurt, and is mainly addressed to local or national markets.

- There are also **PDO goat cheeses** produced by dairy industries (e.g. Murcia al Vino) and pasteurized **goat milk for direct human consumption**

Sheep and Goats in EU

minor part of the total agricultural output.

- **In France**, it ranges from **1%** for dairy sheep milk and **2 %** for goat milk so around 3 % for small ruminants.
- **In Italy and Spain** it ranges from a minimum of **0.9**% to a maximum of 1.8%,
- **in Greece**, sheep and goat milk contributes approximately **9**%
- In the recent years, **consumption of meat has decreased**, whereas consumption of **goat's milk and cheese** has **increased significantly** in several Member States.

Typology of Sheep and goat systems

1. **Intensive dairy** sheep and goat farms (e.g. high input of purchased feedstuffs)
2. **Semi-intensive or semi-extensive** dairy sheep and goat farms (e.g. normally pasture fed animals)
3. **Intensive meat** sheep farms (e.g. high input of purchased feedstuffs)
4. **Semi-intensive or semi-extensive meat** sheep and goat farms (e.g. normally pasture fed animals)
5. **Dual-purpose** sheep and goat farms (farms where the farmer sees value in two or more different products such as meat and wool or meat and dairy).

Production systems: Diversity...

<u>GREECE</u>

From the **transhumance system** dominated by the use of mountainous small breeds to the **intensive systems** with high yielding indigenous breeds as well as foreign breeds.

<u>ITALY</u>

From **very intensive** irrigated farms in **lowlands** (12 ewes/ha), to **extensive pastoral** farms in **mountains** (2 ewes/ha)

<u>SPAIN</u>

From the small family cheese makers in **Basque** area (100 ewes) to the large milk producers in **Castilian** plateau (1000 ewes)

<u>FRANCE</u>

From the small family cheese makers in **Corsica** (100 ewes with 100 litres/ewe) to the intensive milk producers in **Roquefort** (500 ewes with 300 litres/ewe)

Production systems: Diversity...

GREECE:
– Entire national flock of dairy sheep. Importation of Assaf E and Lacaune in large numbers

ITALY:
– Dairy sheep is concentrated in Sardinia,

SPAIN:
– The sector is developing rapidly especially with the ASAF_E breed.

FRANCE:
– Localised production
- Milk sheep raised in 3 regions (Roquefort, Atlantic Pyrenées & Corsica)

– **Well organised and technically supported production**
- Milking recording
- **Controlled reproduction** by AI (~400,000 ewes) and genetic selection
- Can be used as example for other countries

Internal Challenges of the Sector

FARM
Slow adoption of innovations
Poor business management training
Lack of professionalization

FARMING SYSTEM
Low promotion of local breeds
Low adaptability of high productive breeds
Low integration of livestock and agriculture

SECTOR
Sector fragmentation / Lack of integration
Low cooperation between farmers
No attractive to young farmers
Low female involvement

OVERARCHING
Animal health issues
High subsidy dependency
Low competitiveness

External Challenges of the Sector

SOCIETY
Low consumer education in local products
Farmer role unrecognised by society
Low social knowledge about farming
Poor recognition of farming public services
Low consumer demand

MARKET
Market monopolised
Unfair trade / Lack of traceability
Uncertainty of meat and milk prices
Volatility of commodity prices

POLICY
Uncertainty in future subsidies
EU policy without scientific evidence
Environmental policy against intensification

ACCESS TO PRODUCTION FACTORS
Limited access to land
Limited access to capital

SCIENCES
Researchers not address real problems

ENVIRONMENT
Wildlife conflicts
Climate change threats

Socio-economic Challenges

- Farmer's **reluctance to modify** farming practices
- **Lack of innovation culture** across farmer communities
- Limited farmer **skills and knowledge** in some areas
- Low farmer **investment capacity**
- The **ageing** of farmer populations
- Rural areas **depopulation** trends

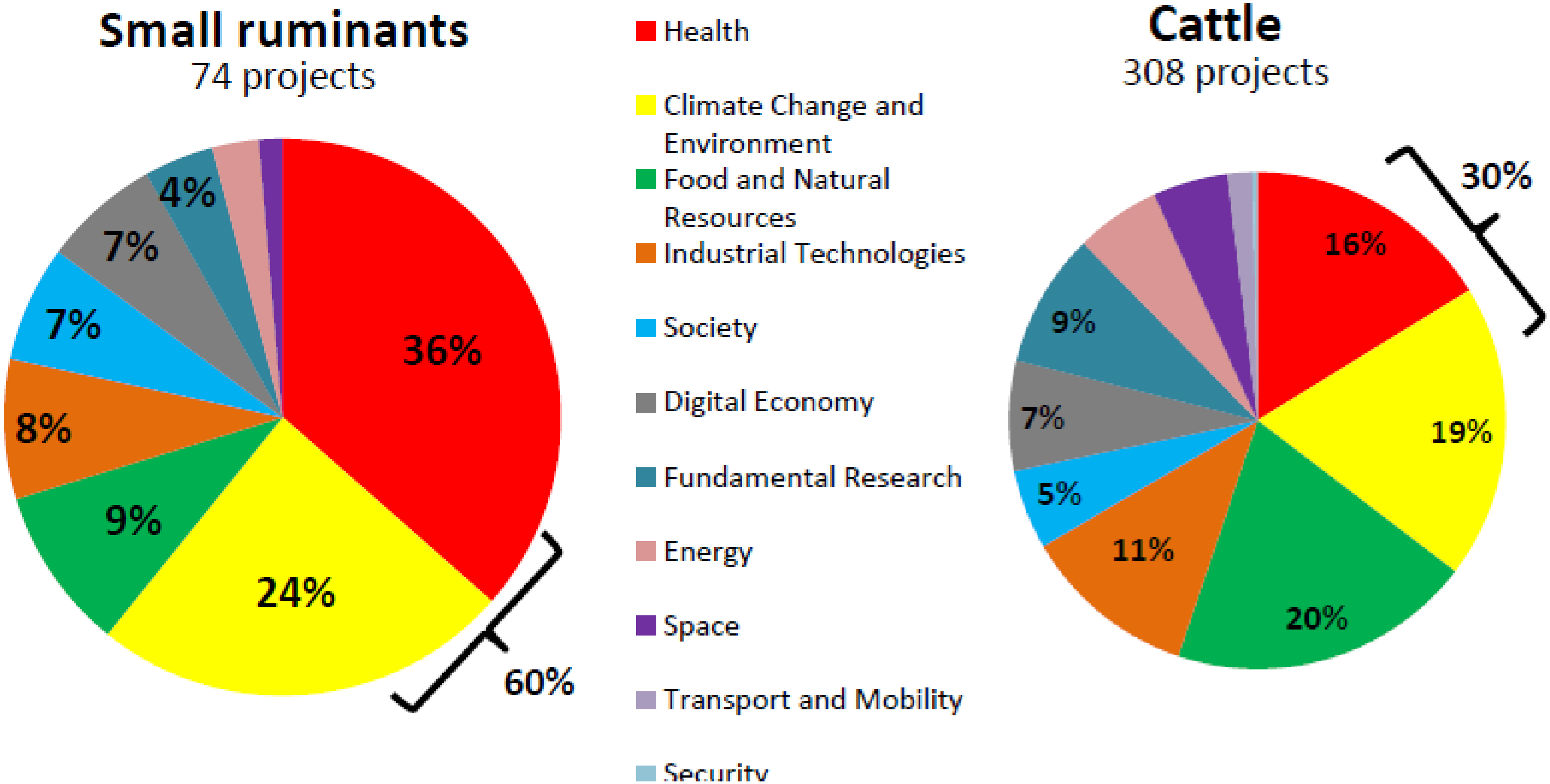
Structural Challenges at farm level

- Strong and long-term farmer's **collaboration** is required
- Recording and analysis of **farm data** is a key component of such collaboration
- The role of **farmers' institutions and collective structures** is decisive in regulating and managing such collaboration

Structural Challenges at sector level

- **Balanced relationships** between value chain actors are required
- A **strong vertical value chain** integration in inter-branch organizations will facilitate the adoption of innovative practices in products development and marketing
- Marketing innovations should focus on increasing **society's awareness** concerning the **multifunctionality** of the S & G farming systems

EU funding (FP7 and H2020)



First 5 Messages

1. Most of the challenges are **common** across species, type of product and intensification level
2. The **geographical region** (Southern vs Central Europe) is one of the **main drivers** that determine the relevance of these challenges
3. **Priority** should be focused on **education** at different levels (farmers, consumers, researchers and society)
4. Government, farmers, association of producers and academia are expected to **work together** to help facing sector challenges
5. The EU should re-think about the **research priorities** in the small ruminant sector

Trends and opportunities

- Only farms which take up innovative solutions to modernise and rationalise their **modus operandi** are likely to remain in business with an emphasis on
  - **flock size**
  - **management of feeding and grazing**
  - **marketing strategies**

- Current **technological trends** such as
  - digital technologies
  - Internet of Things (**IoT)**
  - decision support tools (**DSS**)
  - machine learning

  should be used **to re-design** the sheep and goat sector

Trends and opportunities

- The **gradual decrease** in consumption of sheep and goat meat within the EU the last 15 years is an **alarming bell**
- **Co-financed of EU promotion initiatives** with third countries is an opportunity but **at the moment is a failure**
  - EU funding is directed to campaigns focused on increasing sheep and goat meat consumption with emphasis on traditional products, but also towards introducing newer cuts with respect to consumer choices.
- **Opportunities arise** for systems that are more environmentally friendly and focus on animal welfare

Towards sustainable sheep and goat systems

- **Invest in Local Breeds**
- **Support young farmers** through an increase in direct payment schemes and education
- **Supporting products and supply chains.**
- Objective support of **sheep and goat meat** in the future:
  - increased **provenance labelling and assurance schemes**
  - providing **easy to cook and novel lamb meat cuts**
  - **"tell the whole story"** from the breed
  - Introduce **novel products and recipes**
    - **branded products** such as Protected Designation of Origin (PDO) Protected Geographical Indication (PGI)
    - **convenient formats** such as single-portion and fixed-weight product packaging
    - **organic plus fair trade**
    - **clear label cues or claims**.

Towards sustainable sheep and goat systems

- **Milk production is increasing** and the situation is expected to continue
- **Economic pressures will dictate production systems:**
  - Semi-Intensive and intensive systems will prevail
  - **Flock size** will increase but number of holdings will decrease
  - There will be major changes in **housing and nutrition**
  - **Machine milking** in dairy systems will be the norm
  - Smallholder flocks will fight for survival

The meat supply chain

- **Selling through different routes** is recommended in order to handle carcass imbalance and improve supply chain resilience in a volatile meat market
- **Product innovation**, flexibility and real-time adjustments
- **Working relationships** between supply chain members (from farm to fork)

The dairy supply chain

- **Setting trading conditions** relating to milk price, volumes and quality requirements before the milking season. Collective negotiations and written contracts
- **Logistics efficiency** is strategic in collection and delivery of milk (exploiting economies of scale)
- **Dual-purpose breeds** producing milk and meat can secure sustainable returns.
- **Product and market innovation** strategically implemented with the involvement of all supply chain members, including producers for the milk quality requirements and retailers to gain premium shelf space.

Conclusions

- The **main problem of the sector is low income** despite heavy reliance on subsidies from the Common Agricultural Policy (CAP)
- **Re-direction of subsidies** under CAP towards public goods (GHG, Biodiversity, animal welfare and rural livelihoods) **is premature**
- There is **poor uptake of innovations** mainly as result of disconnection with profit and relative education
- **Age structure and lack of new entrants** is a major threat for the future

4 to DO take home messages

(i) **Support supply chains** and increasing consumption of sheep and goat products through novel labelling, packaging and cuts,

(ii) **Deal with climate change** and greenhouse gas emissions using novel methodologies and technologies, and informing relevant policies,

(iii) **Breeding** for enhanced animal resilience, efficiency and adaptability, and promoting region-specific use of local breeds,

(iv) **Increase the adoption of relevant innovations**. The efficient adoption of innovations is expected to increase the sector's overall resilience and sustainability and decrease reliance on public support.

Thank you