

# Regional diversity in bundles of impacts and services provided by livestock farming

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Bertrand DUMONT **Impacts and services provided by livestock farming**

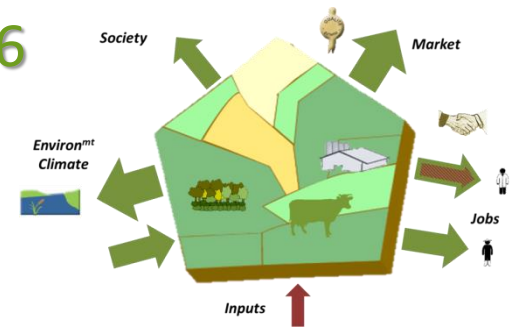
EAAP 2018, Dubrovnik, Croatia

## Roles, impacts and services provided by European livestock production

At the request of the Ministries for Ecology and Agriculture, and in cooperation with the French Environment and Energy Management Agency (ADEME), INRA has compiled a collective scientific expert report on European livestock systems and their products. Their roles, economic, social and environmental impacts, and the market and non-market services they render to society, were analysed by means of a major synthesis of data from the international bibliography. The findings, which also suggest action levers in different livestock systems, were presented and discussed during a symposium on 30 November in Paris.



## Belfast 2016



Dumont *et al.*: The **barn framework**;  
 Application to European grassland-based production areas

## Tallinn 2017

Ryschawy *et al.*: Crop-livestock areas  
 Benoit & Méda: Official signs of quality in livestock farming systems

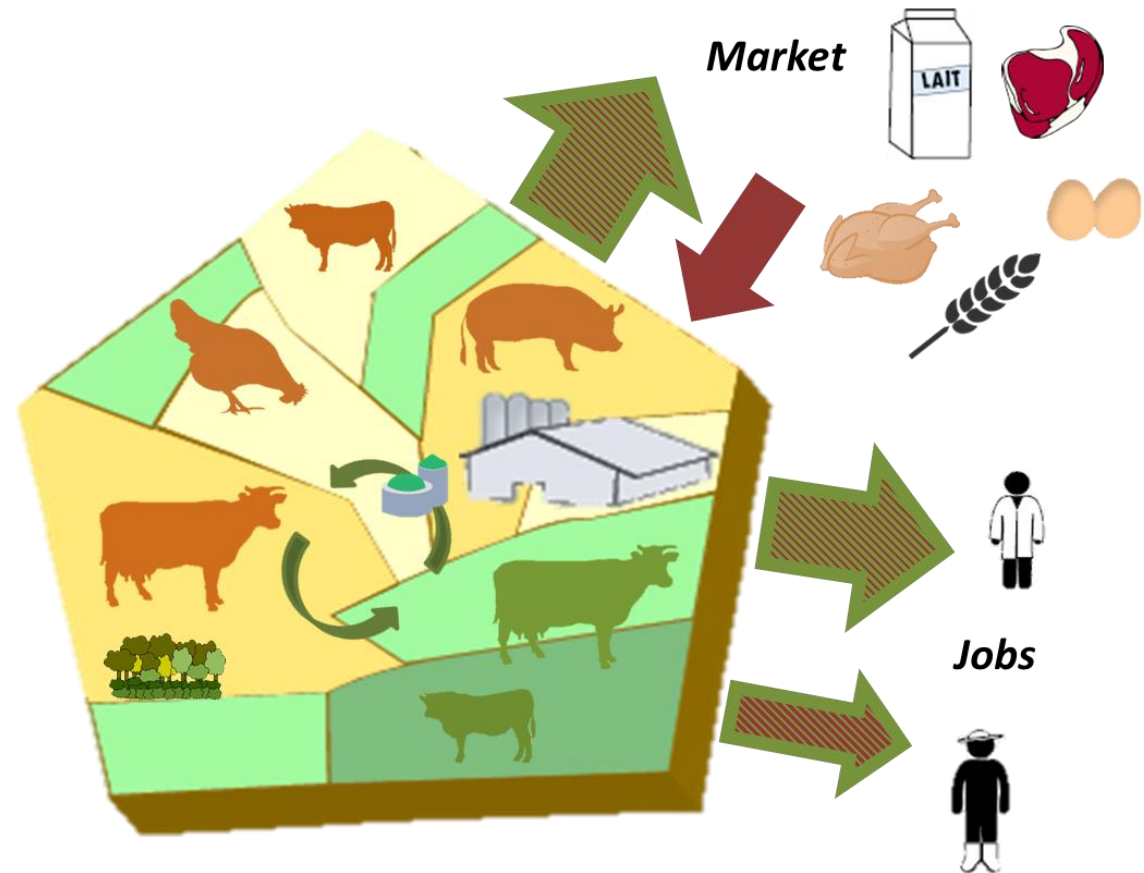
## Dubrovnik 2018

Associating the barn framework to a **typology of European livestock production areas** allows mapping bundles of impacts and services provided by livestock farming

# Key choices to answer the assessment request

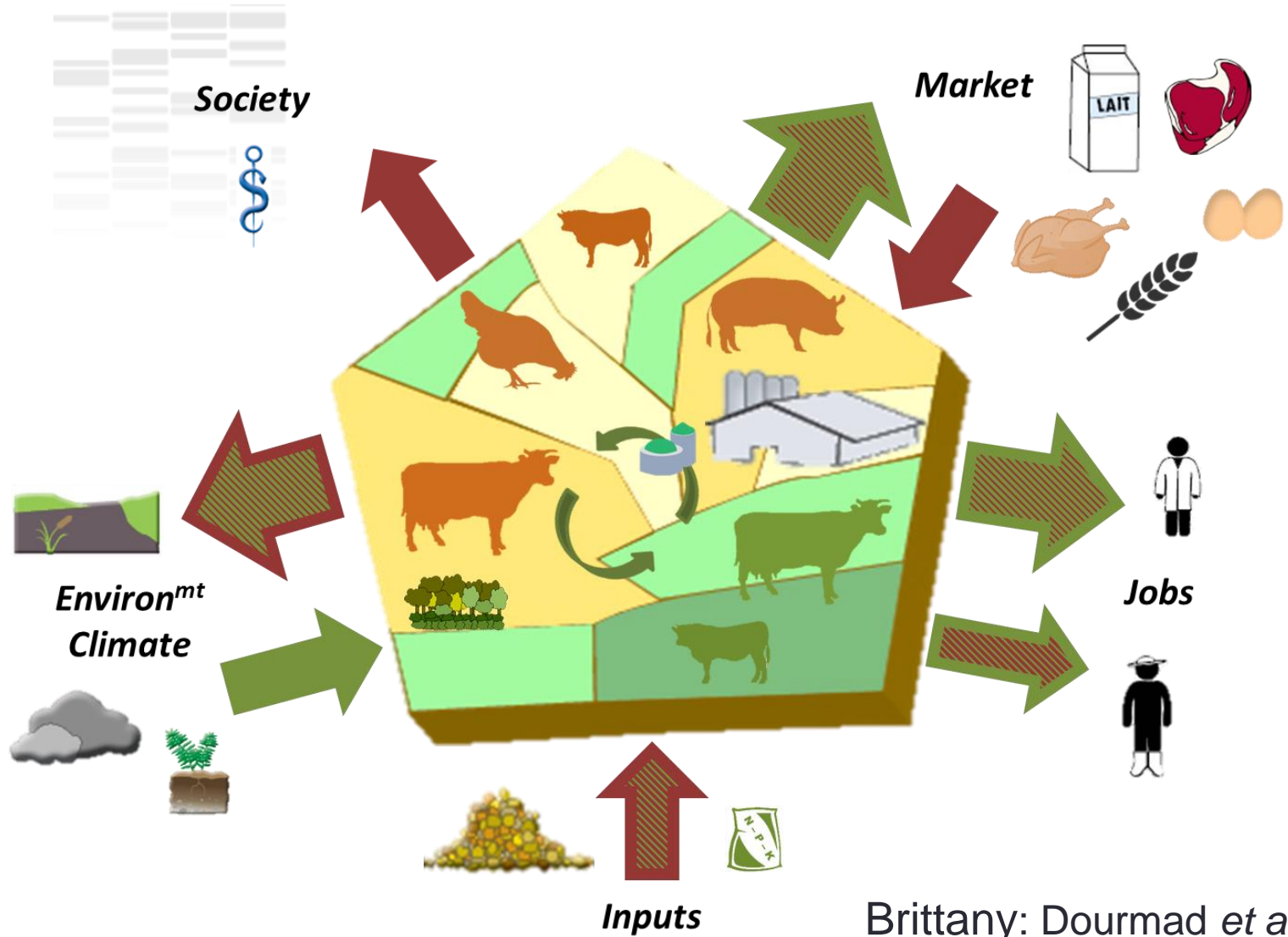
- ❖ Analysing **bundles of services**, i.e. sets of ecosystem services that appear together repeatedly across sites and through time (Raudsepp-Hearne *et al.*, 2010)
- ❖ Acknowledging the services provided by LFS should not hide the need to weight these services against their **negative impacts** (FAO, 2006; Aleksandrowicz *et al.*, 2016)
  - ➔ Detecting synergies and antagonism among services
- ❖ Developing a wide framework also accounting for the **social and cultural dimensions** that are often neglected due to lack of available indicators (Plieninger *et al.*, 2013; Beudou *et al.*, 2017)

# A tool to represent synergies and antagonisms



Brittany: Dourmad *et al.*, 2017

# A tool to represent synergies and antagonisms



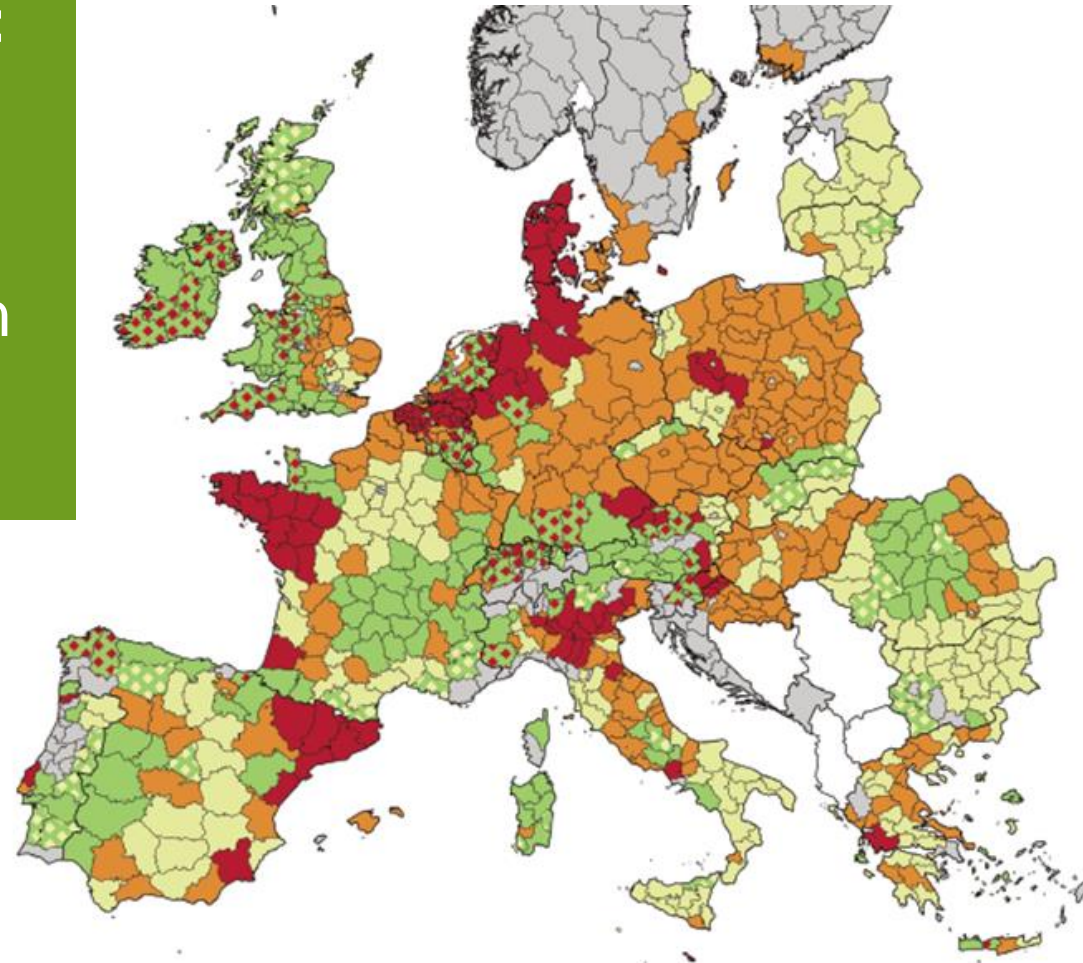
Brittany: Dourmad *et al.*, 2017

# Mapping livestock production areas across Europe

## Two main criteria to describe livestock production areas:

- Animal density (*LU/ha UAA*); *high* > 1.2, *low* < 0.4
- % of per. grassland within UAA; *grassland-based* > 40% (Pfimlin *et al.*, 2005)

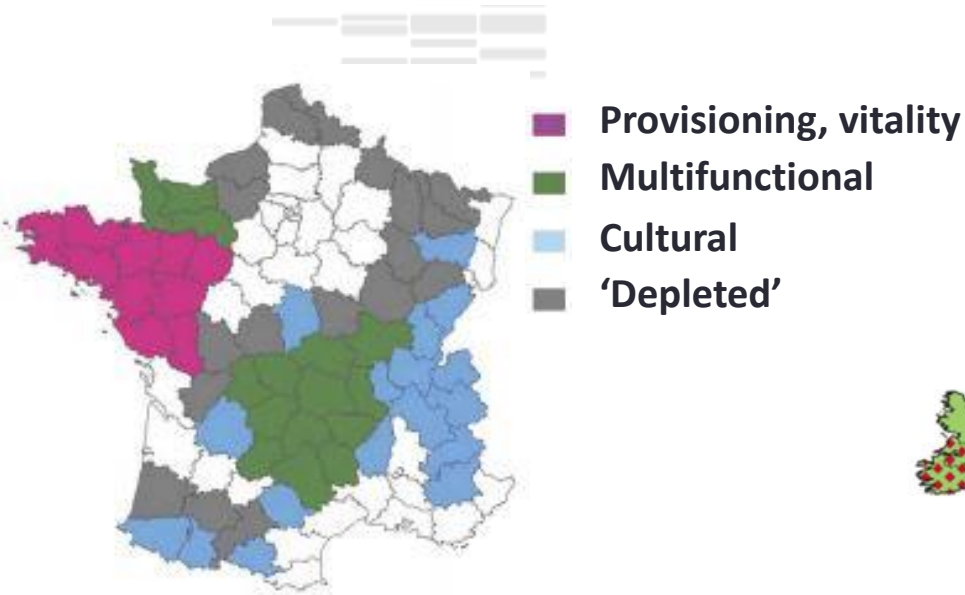
Hercule *et al.*, 2017 based on Eurostat (2010)



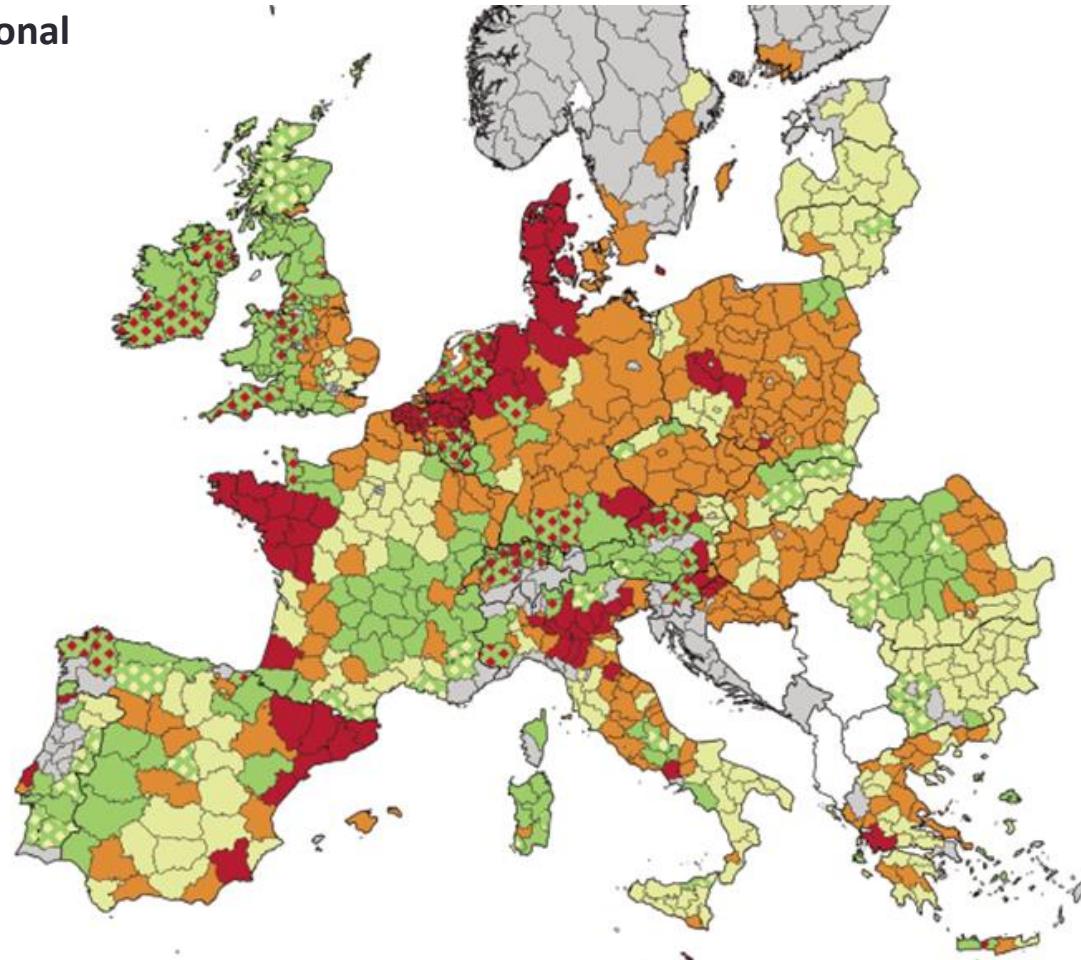
- High animal density regions**
- Crop & livestock regions**
- Grass-based regions**
  - High animal density
  - Intermediate density
  - Low density
- Low animal density regions**
- UAA < 20%**

# Map consistent for France with that from Ryschawy

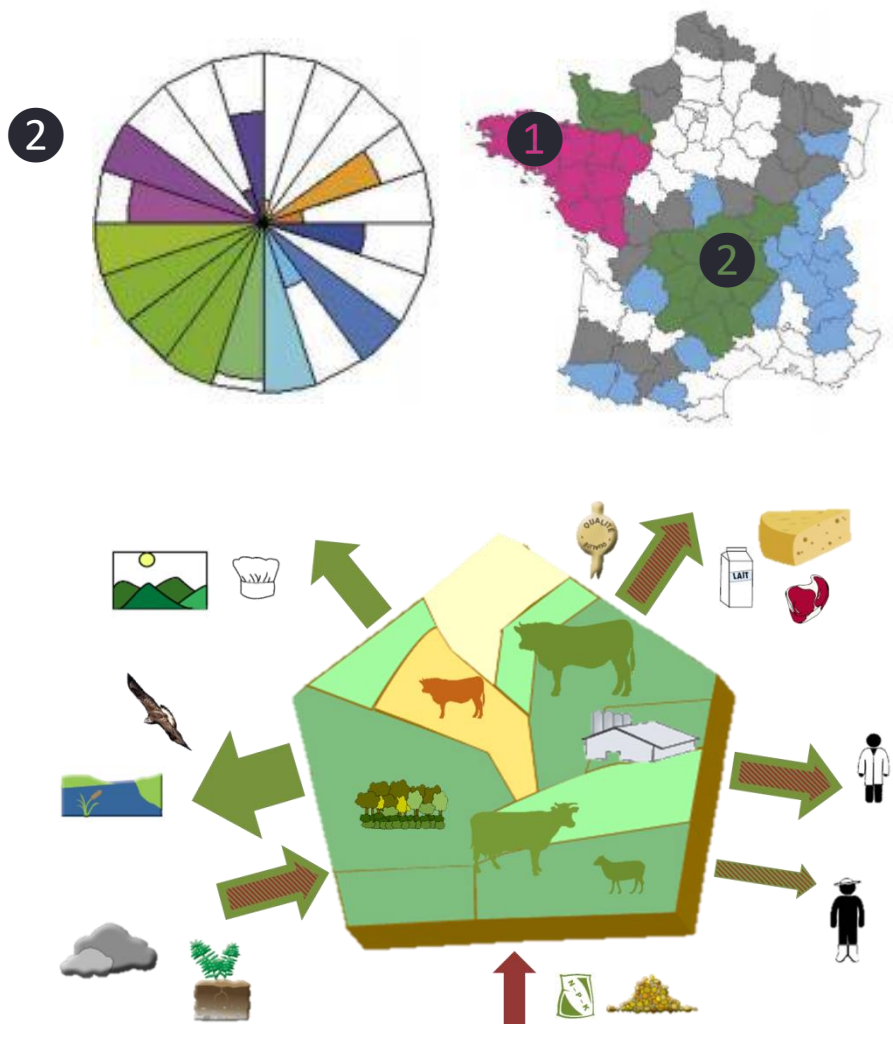
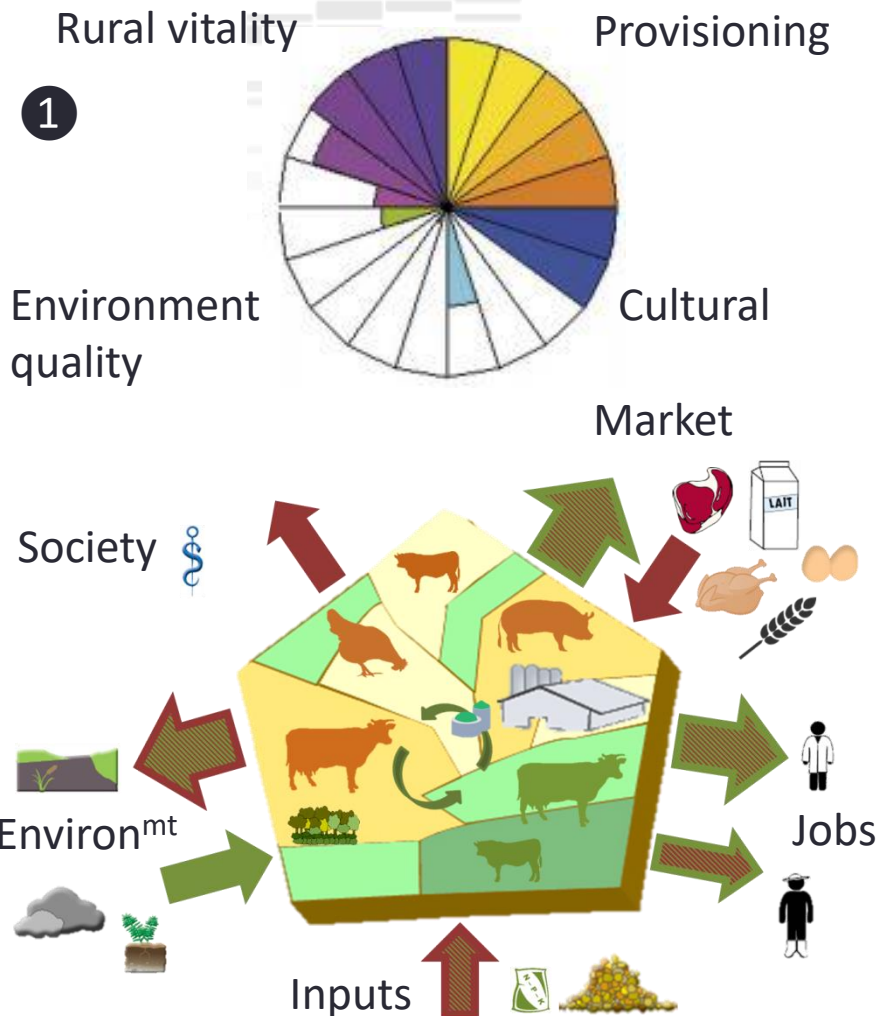
Hercule *et al.*, 2017



Ryschawy *et al.*, 2017

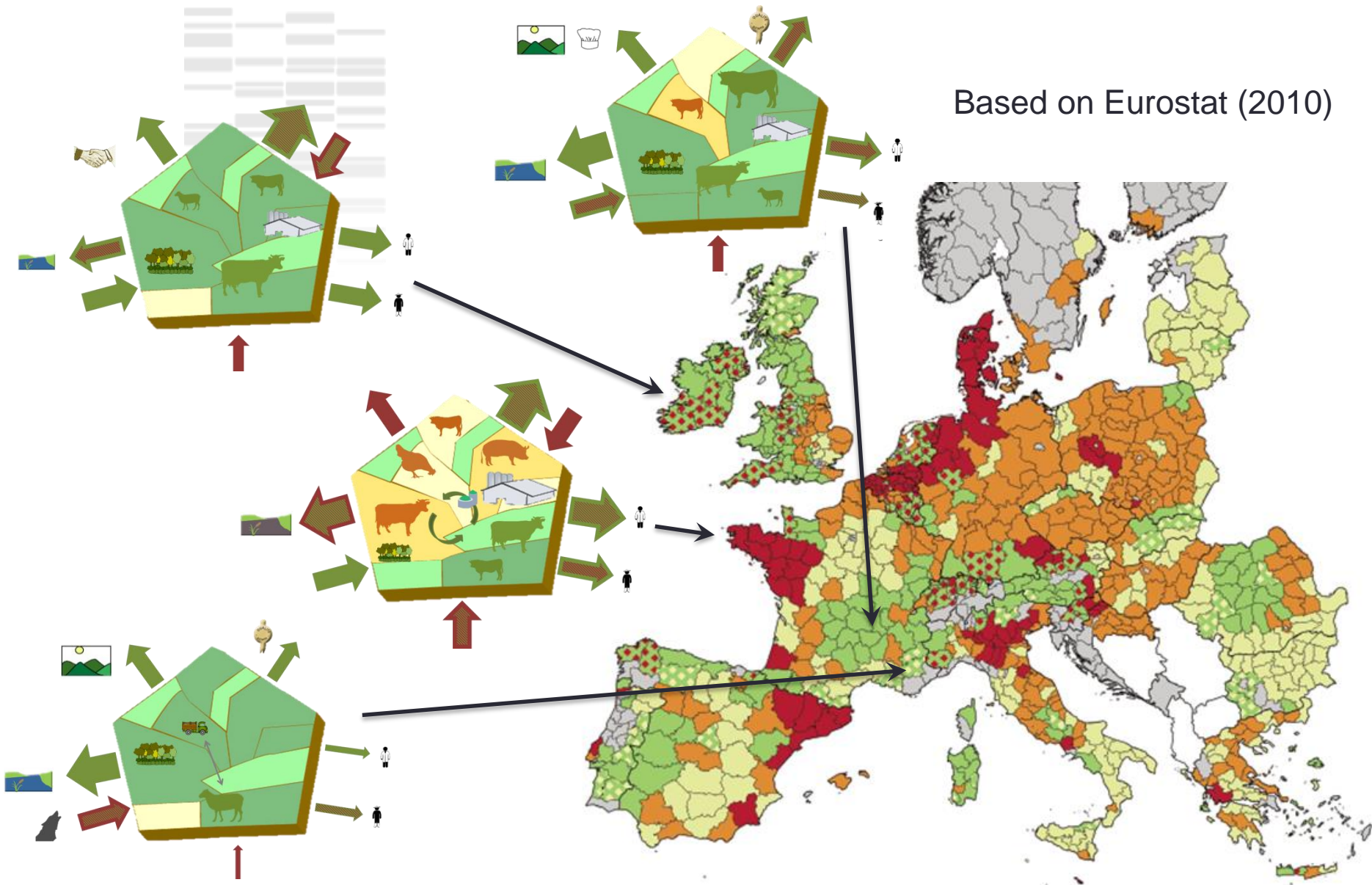


# Comparing representations: Brittany vs. Auvergne





Based on Eurostat (2010)



# Take-home messages

- ❖ The barn framework graphically summarizes the **ecological** and **socio-economic aspects** of livestock farming
- ❖ It accounts for both **services** and **impacts**
- ❖ Eighteen barns already provided: 14 landscape production areas, two Label systems (Méda & Benoit, 2017), periurban and urban areas (Delfosse *et al.*, 2017)
- ❖ New project with **stakeholders**, develop it as a **serious game**
- ❖ Associating the barn to a typology of European livestock production areas allows mapping bundles of impacts and services provided by livestock farming

# To read more

- ❖ Dumont *et al.*, 2019. Review: Associations among goods, impacts and ecosystem services provided by livestock farming. *Animal* (accepted)
- ❖ Huguenin-Elie *et al.*, 2018. The role of grasslands in biogeochemical cycles and biodiversity conservation, 27 pp.

Data available online:

- ❖ <https://doi.org/10.15454/O78MYF>



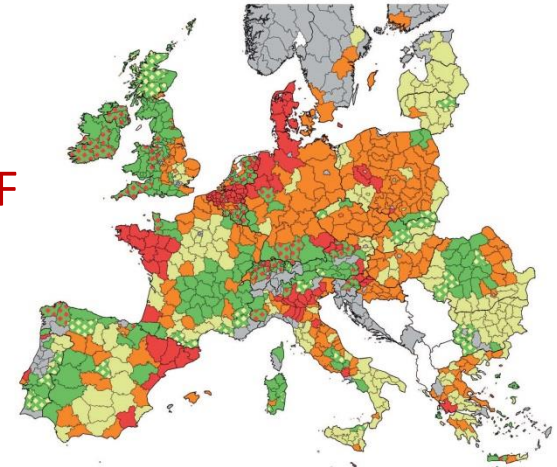
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une diversité de services et d'impacts



Thanks for your attention!

