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

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)
Map consistent for France with that from Ryschawy

Hercule et al., 2017

Ryschawy et al., 2017

- Provisioning, vitality
- Multifunctional
- Cultural
- ‘Depleted’
Comparing representations: Brittany vs. Auvergne
Impacts and services provided by livestock farming

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)

Data available online:
- https://doi.org/10.15454/O78MYF

Thanks for your attention!