



Benefits and costs of livestock systems in ten European case studies

Animal Future project

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Animal Future: Steering animal production systems towards sustainable future

Objectives:



- **Assess the multi-dimensional consequences** of innovations on benefits and costs
- **Facilitate change decision** by developing an indicator-based decision support tool
- **Improve innovation capacity** of livestock systems

Partners involved:

- A **multi-actor** approach
- A **farm network** of intensive and extensive production systems

Ten heterogeneous case studies across Europe

Highlands and Islands, Scotland
Extensive sheep and beef systems

Boulonnais, France
Dominant milk production based on permanent grasslands

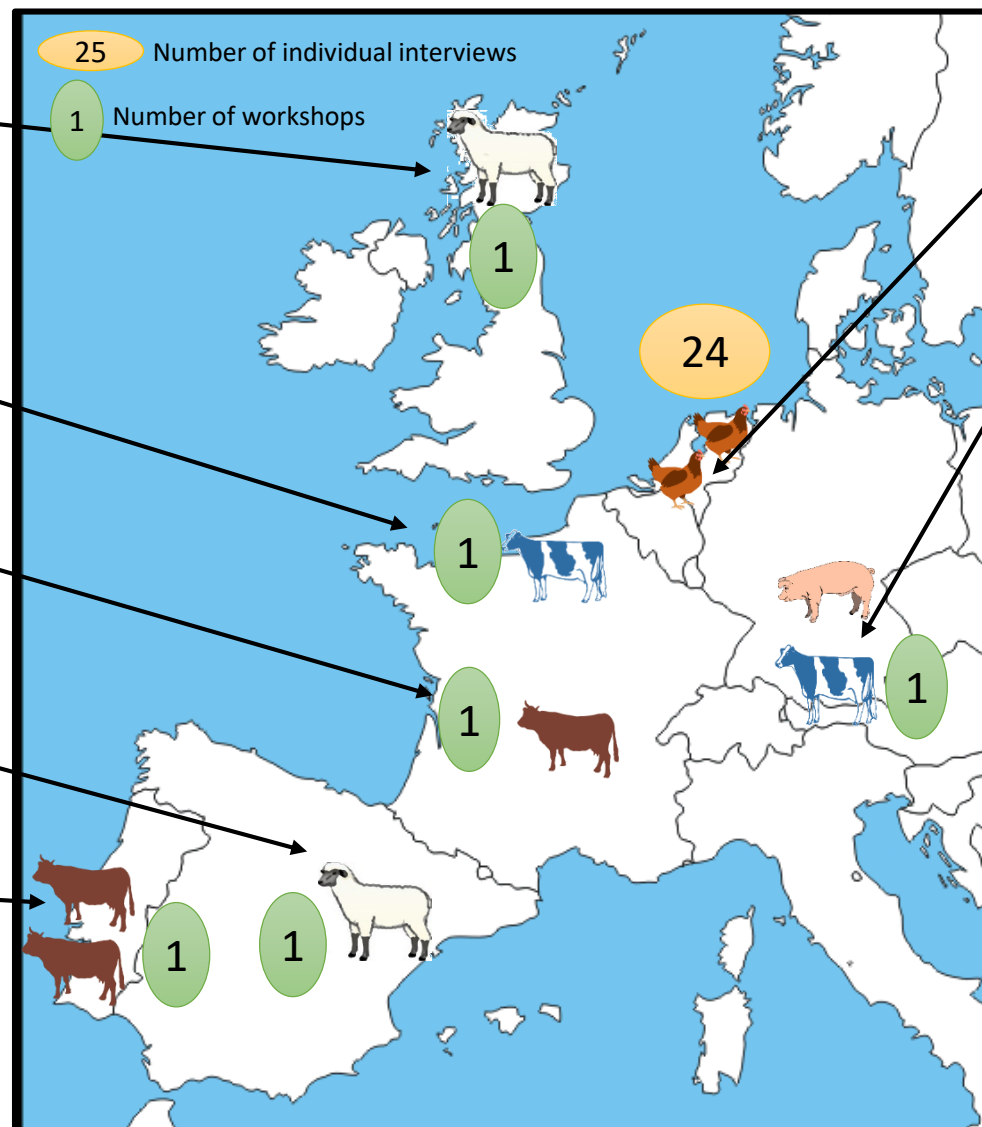
Bourbonnais, France
Extensive suckling cows systems

Aragon, Spain
Extensive sheep farming

Alentejo, Portugal
Extensive beef systems

Gelderland, The Netherlands
Laying hen in indoor systems

Bayern, Germany
Oberbayern : small-sized dairy farms
Niederbayern : fattening pigs in indoor systems



**6 workshops and
 1 set of individual
 interviews**

Methodology: workshops to catch stakeholders point of view about costs and benefits of the local livestock systems



Workshops aims:

- Share the **diagnosis of the strengths, weaknesses, opportunities and threats of the territory** (SWOT analysis)
- Identification of the **main issues at stake** for the livestock systems in the region
- List of the **costs and benefits** of livestock systems
- List of the **innovative practices** to enhance the benefits and limit the costs



Stakeholders involved

Local and regional actors: farmers, farmer organizations, advisers, processors, governments, NGOs etc.



Methodology

Participatory approaches and small groups



SWOT Analysis of the case studies according to stakeholders perception

<p>MAIN STRENGTHS</p> <ul style="list-style-type: none"> - Livestock as a provider of jobs and rural sustainability - High level of environmental services - Food production - A well structured branch which provides high level of services to farmers - Crop and livestock complementarity - Provider of good animal welfare 	<p>MAIN WEAKNESSES</p> <ul style="list-style-type: none"> - Low profitability and low income - High dependence on public subsidies - Lack of generational turn-over - Low level of farmers qualification and lack of innovation - Lack of adaptability on climate change - Trend to intensification
<p>MAIN OPPORTUNITIES</p> <ul style="list-style-type: none"> - Product differentiation by quality and better consumer image - Technical progress - Potential of organic market and diversification 	<p>MAIN THREATS</p> <ul style="list-style-type: none"> - Lack of communication with consumers and little social recognition - Regulatory restrictions - Uncertainty about CAP reforms and more generally the context - Trend in substitution of animal products / reduction of consumption

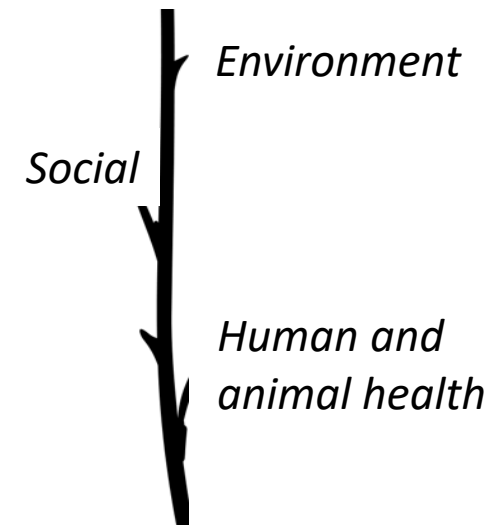
Concept: Portfolio of benefits and costs

Definitions

- **Benefits:** all livestock activities with positive contribution for the society to the three dimensions of sustainability (economic, environmental and social issues)
- **Costs:** activities with negative contributions on these issues
- **Portfolio:** represents a balance approach where the 3 pillars of sustainability are considered of equal importance



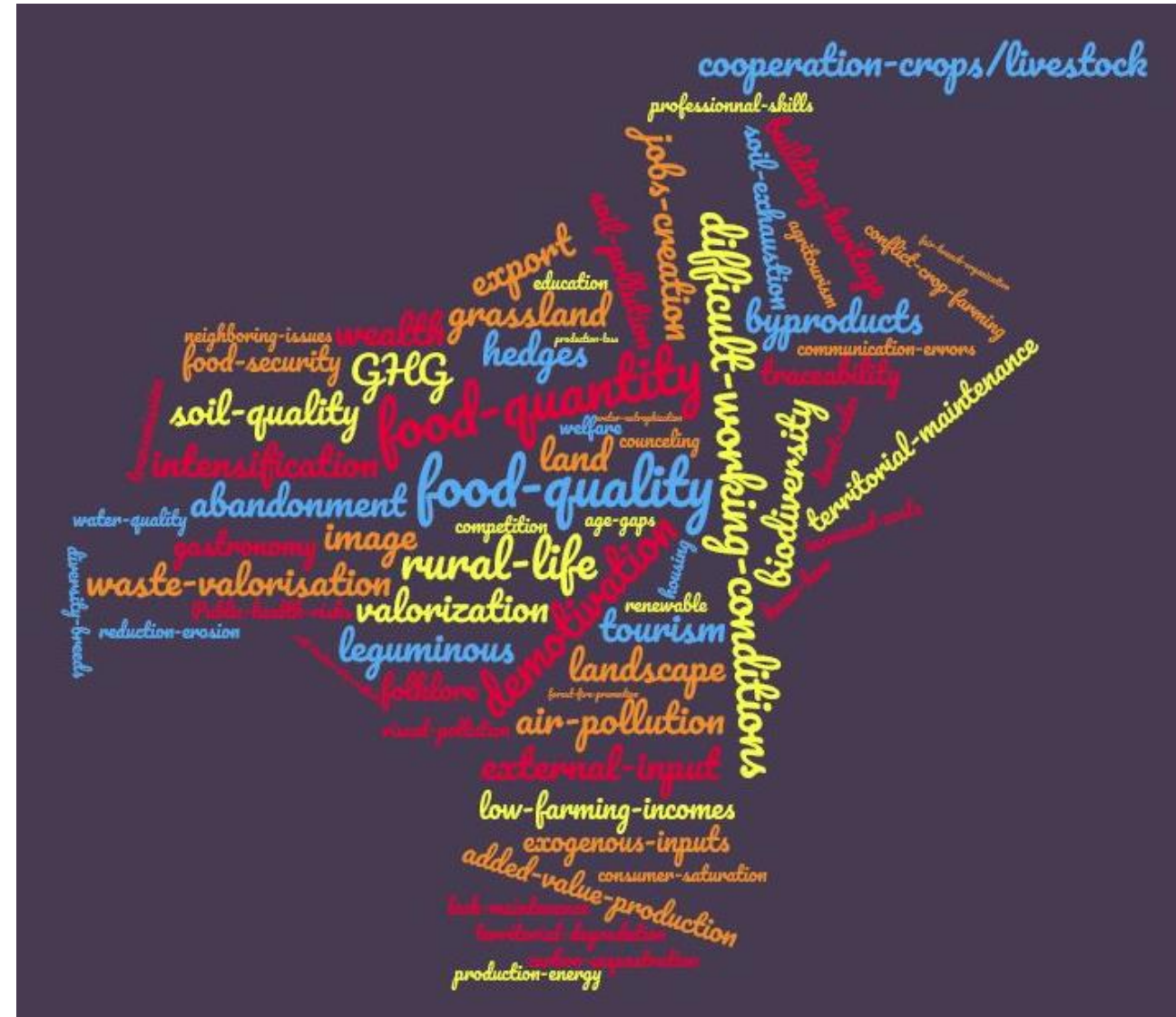
Petals = Benefits



Spines = Costs

Case studies Benefits and Costs according to stakeholders

- An inspiring subject for CS stakeholders
 - More than 122 occurrences: 17,5 benefits or costs/ workshop
- Items from the 3 pillars of sustainability
 - Especially environmental topics
- More benefits [26] than costs [17]
 - Livestock stakeholders express more easily benefits than costs when speaking about their production
 - Tendancy of overestimating the benefits and underestimating the costs



The Bertin Method as a way to analyse the data

- **Principle:**

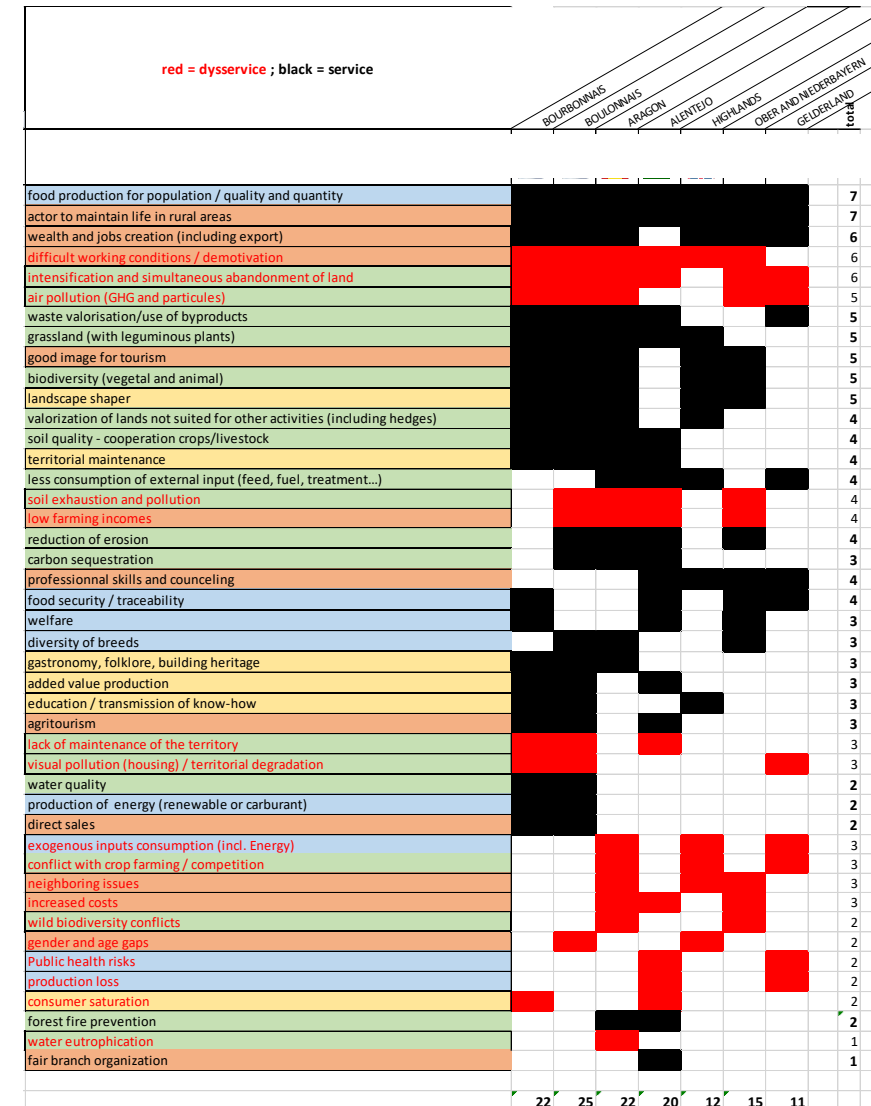
Swap rows and columns in order to show proximities between:

- Territories
- Benefits or costs from different chapters

- **Limits:**

- Many items for very few occurrences make it difficult to conclude
- Method and perception of CSF bias
- Stakeholders points of view may sometimes be biased
- Difficulty to isolate impacts from different livestock productions and systems in a territory

Main benefits and costs identified by CS stakeholders



A context based characterisation of Benefits and Costs

The analysis shows a system effect:

- In general more benefits for extensive systems (especially environmental and cultural) but specifically:
 - Synergies between grazing systems and ecosystemic benefits
 - Trade-off between high production systems and cultural benefits
- A more important focus on traceability/food security for intensive systems
- Costs: system effect less obvious



ENVIRONMENTAL ITEMS

*Gathers the majority of costs and benefits
Synergies for extensive systems*

PRODUCTION ITEMS

*Mainly benefits, main costs about inputs
consumption*



CULTURAL ITEMS


















*Cultural items are mainly seen as services
Synergies for extensive systems*

REGIONAL ITEMS

*Costs mainly internal to the farming job itself
More or less balanced for all case studies expect
Gelderland (no cost)*



A context based characterisation of Benefits and Costs

	General to all case studies	Context based
BENEFITS	<ul style="list-style-type: none"> Livestock offers multidimensional services <ul style="list-style-type: none"> food furniture for population [7] Actor to maintain life in rural area [6]  Livestock as an important economical actor <ul style="list-style-type: none"> Wealth and job creation [6]  Good image for tourism [6]  	<ul style="list-style-type: none"> Livestock provides environmental services <ul style="list-style-type: none"> Use of byproducts [5]  Biodiversity [5]  Soil quality [4]  Forest prevention [2]  Livestock as a territorial actor <ul style="list-style-type: none"> Landscape shaper [5]  Valorization of land not suited for other activities [4]  Livestock as touristic actor <ul style="list-style-type: none"> Agritourism [3]  Gastronomy, folklore, building heritage [3] 
COSTS	<ul style="list-style-type: none"> Livestock has a negative impact on land use: intensification or abandonment [6]  Livestock offers poor working conditions [6]  	<ul style="list-style-type: none"> Livestock has a negative impact on environment <ul style="list-style-type: none"> Air pollution [5]  Soil exhaustion and pollution [4]  Visual pollution [3]  Livestock as a risk for public health [2] 

To sum up...

- Lots of interesting material for each case study:
 - Diversity of benefits and costs
 - List of innovations related to this subject
 - Identification of stakeholders involved
- No conclusion about trade-off and synergies for the moment
 - But a confirmation of previous research work



As a conclusion

Perception of benefits and costs: a controversial subject

Livestock controversy registers (*E. Delanoue and al., ACCEPT project, 2017*)



Environment <i>Impact of human activities on natural environments</i>	Animal condition <i>How animals are raised</i>	Sanitary <i>Impact of livestock production on health</i>	Socio-economic <i>Development Models</i>
GHG Emissions	Welfare definition	Anti otic	Intensive system
Water pollution	Living conditions	Risks of epizootic diseases and zoonoses	Geographic concentration
Animal feed (soya, GMO)	Pain Ma agement		
Resource use (water, land)	Animal ethics		
Harmful effects (odours, noise)			

✗ Not identified by stakeholders
 → Livestock actors do not systematically express the same costs as citizens or NGO

Thank you for your attention !

To know out more:

- delphine.neumeister@idele.fr
- Presentation: Evelien de Olde (at 14.30)
- Poster: Aart van der Linden (nr. 19.13)



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