



Grassland ecosystem services: an analysis in five biogeographical regions of Europe from the perspective of key stakeholders and end-users

International Workshop
Ecological transition of agriculture:
opportunities and challenges

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Grassland ecosystem services: an analysis in five biogeographical regions of Europe from the perspective of key stakeholders and end-users



Introduction and objectives

Methodology

Results

Conclusions

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Introduction and objectives

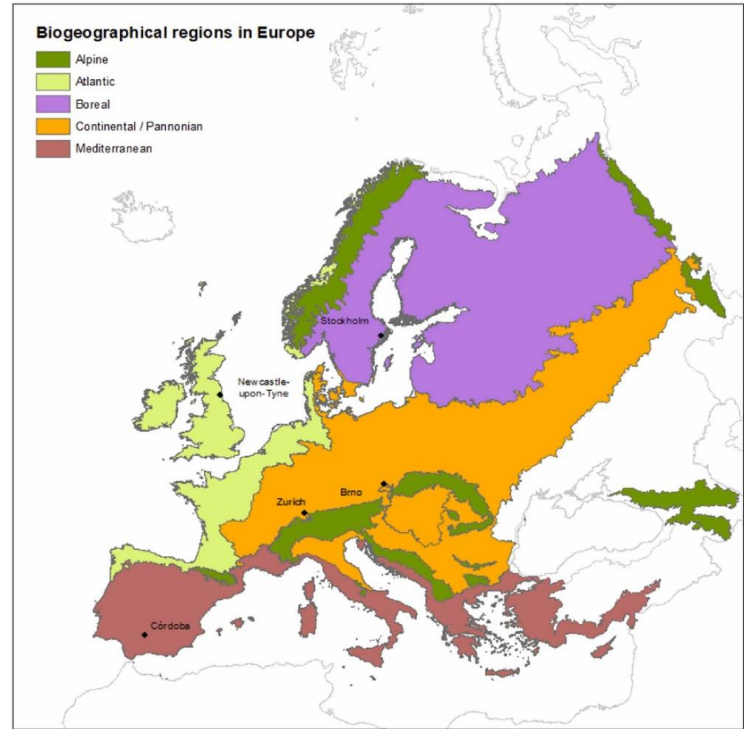
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Project SUPER-G

- Developing **S**ustainable **P**ermanent **G**rassland systems and policies (2018-2014)
- SUPER-G: Horizon 2020 Project
- **AIM:** To co-develop **sustainable permanent grassland (PG) systems** and **policies** that will be effective in optimising productivity, while supporting biodiversity and delivering a number of other public goods & services
- **WHERE:** 5 agro-climatic regions



<https://www.super-g.eu/>

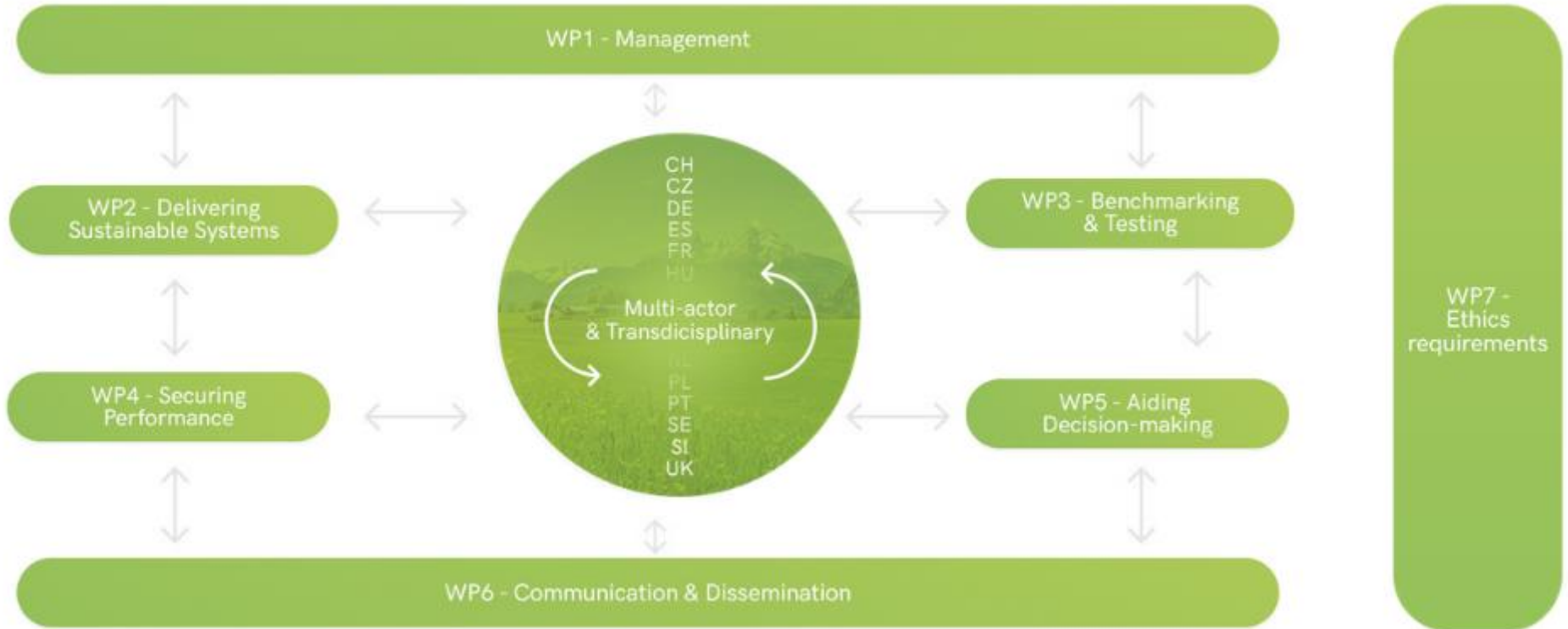
Project SUPER-G

- **WHO:** Consortium of 22 Project partners



Project SUPER-G

- **HOW:** 7 Work-packages



WP4. Securing Performance



Overall Objectives of the socioeconomic research in SuperG

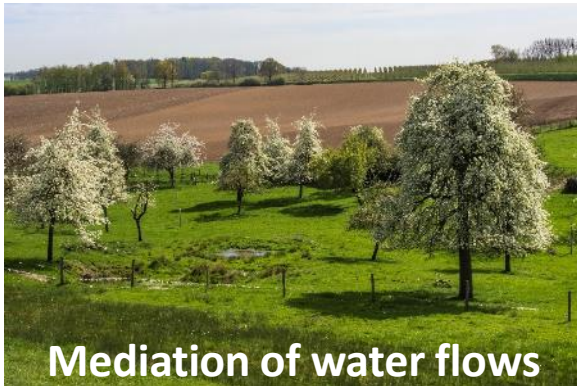
To assess **socio-economic facilitators** of, and **barriers to, adoption** of **sustainable PG systems** in different biogeographic regions

To provide evidence for, and develop, **policy options** to support **PG management** in each biogeographic region

To maximise research impacts through **knowledge exchange** and **consultation** with **key stakeholders and end-users**

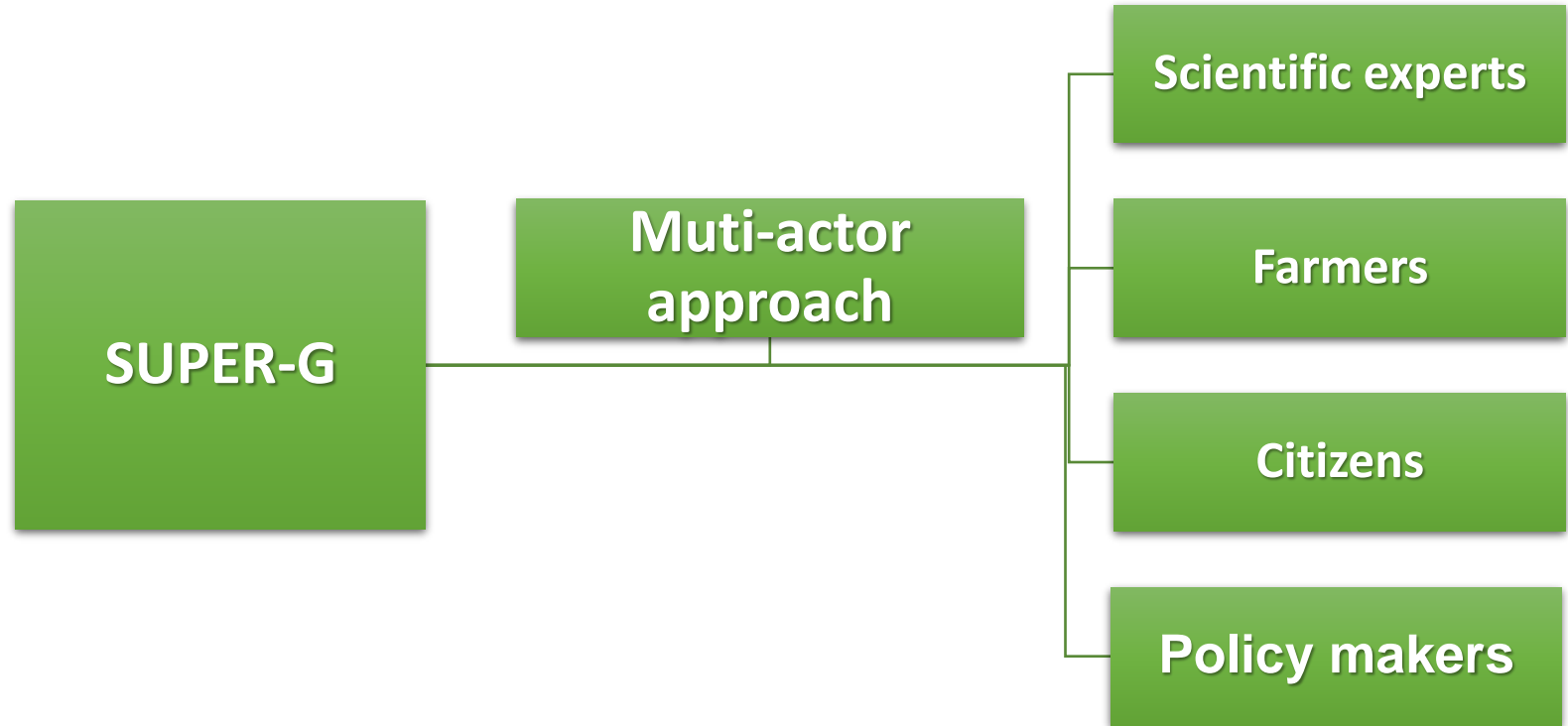
Project SUPER-G

- **FOCUS ON:** Permanent grassland ecosystem services



Our objective today is

- Disseminate the SUPER-G **main results** regarding Permanent Grassland Ecosystem Services from a multi-actor approach



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Methodology: WP4 & WP2

SUPER-G Tasks

4.1.Reviews of existing knowledge, policies and gap analysis

4.2.Farmers priorities and preferences for ES in relation to PG

4.3.Citizen priorities and preferences for ES in relation to PG

4.4.Developing policy options for ES in relation to PG

2.4.Experts opinions about the feasibility of PG management options and ES delivery

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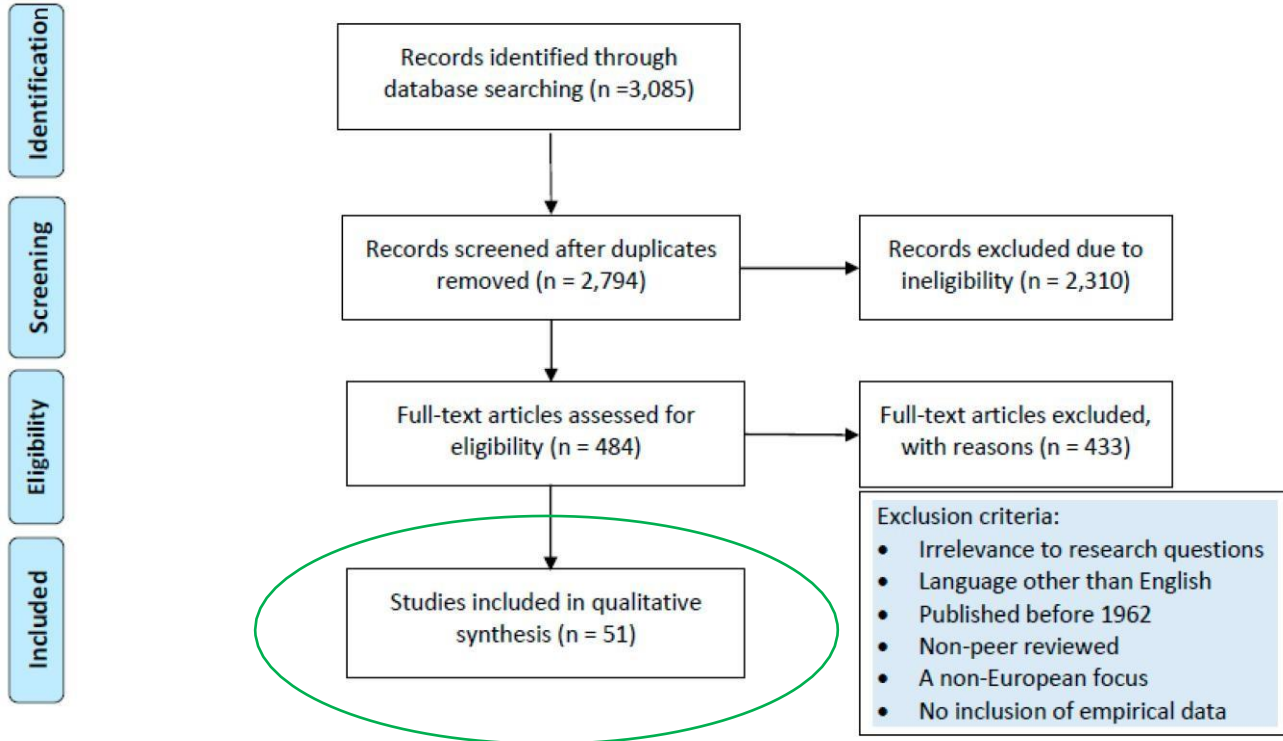
4.1. Reviews of existing knowledge, policies and gap analysis

Systematic Review to identify:

- The main **economic influences** shaping **management** and **maintenance** of PG
- The **risks and opportunities** for delivery of a range of Ecosystem Services associated with PG. e.g.
 - Productivist
 - Regulatory
 - Supporting
 - Cultural
- How does **policy**, in particular **CAP**, shape the **management** of EU grasslands **over time** and across **farming systems, countries, or biogeographic zones**.

4.1. Reviews of existing knowledge, policies and gap analysis

Search process



4.1. Reviews of existing knowledge, policies and gap analysis

Main conclusions

- **Shift** from Basis Payments under CAP for PG farmers is a huge **transition**
- PG **farmers** across the diversity of PG environments in Europe are **highly dependent on subsidies** to mitigate **economic pressures**.
- Farmers can **change land use** or **intensify** grassland management while receiving direct payments
- Targeted and locally focused approaches are needed to maintain and improve the **provision of ES** from grasslands (**Agri-Environment Schemes**)

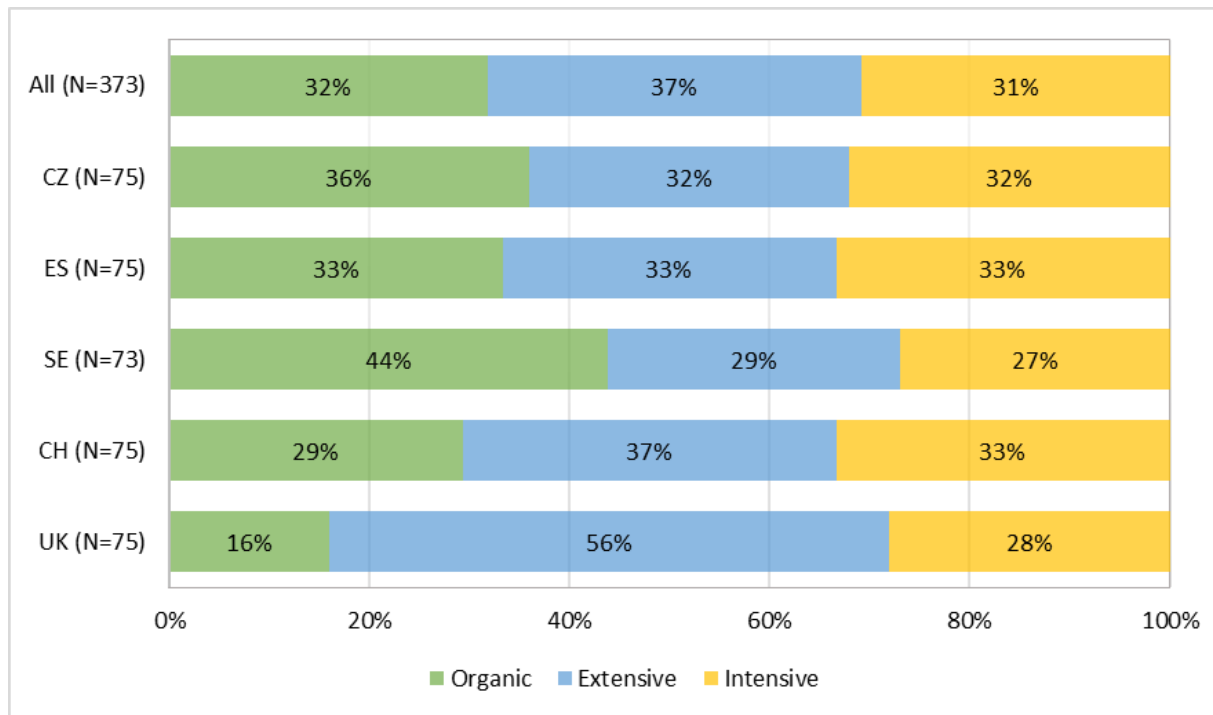
4.1. Reviews of existing knowledge, policies and gap analysis

Main conclusions

- Many PGs are associated with **valued landscapes**, and this can provide **opportunities** for **diversified income streams**, e.g.
 - Tourism,
 - Food processing,
 - Environmental management
- Supported by **market premiums** (e.g., organic, pasture-based).
- **“Tipping Points”** for farmers **decisions** associated with policy are not really understood

4.2. Farmers priorities and preferences for ES in relation to PG

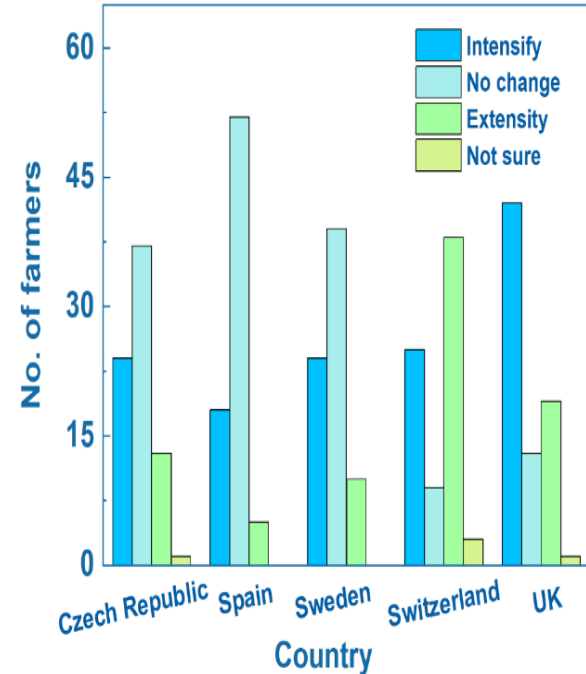
Farmer interviews: Farm intensity types of survey participants' farms (n=273)



CZ = Czech Republic ES = Spain, SE = Sweden, CH = Switzerland, UK = United Kingdom

4.2. Farmers priorities and preferences for ES in relation to PG

- Need information about what the **sweet spot** is in terms of ES delivery
- Access to advice and **technology**
- **“Productivist”** (focus on food security)
 - Predicted future management decisions resulting in **increased intensification** (and sometimes extensification) of farming practices on PG
 - ***How does this relate to AE schemes in terms of payments***
- Farmers prioritising current land management practice and **taking good care of the land on the farm**
- **“Good livestock management”**
- **“Lifestyle”** predicted changes
- **Access to agri-environmental schemes as income sources** were also correlated to farmers’ future PG management intention
- **Both the financial and non-financial impacts of policies and interventions on farmers need be considered (consultation) before policy-based interventions are enacted**



4.2. Farmers priorities and preferences for ES in relation to PG

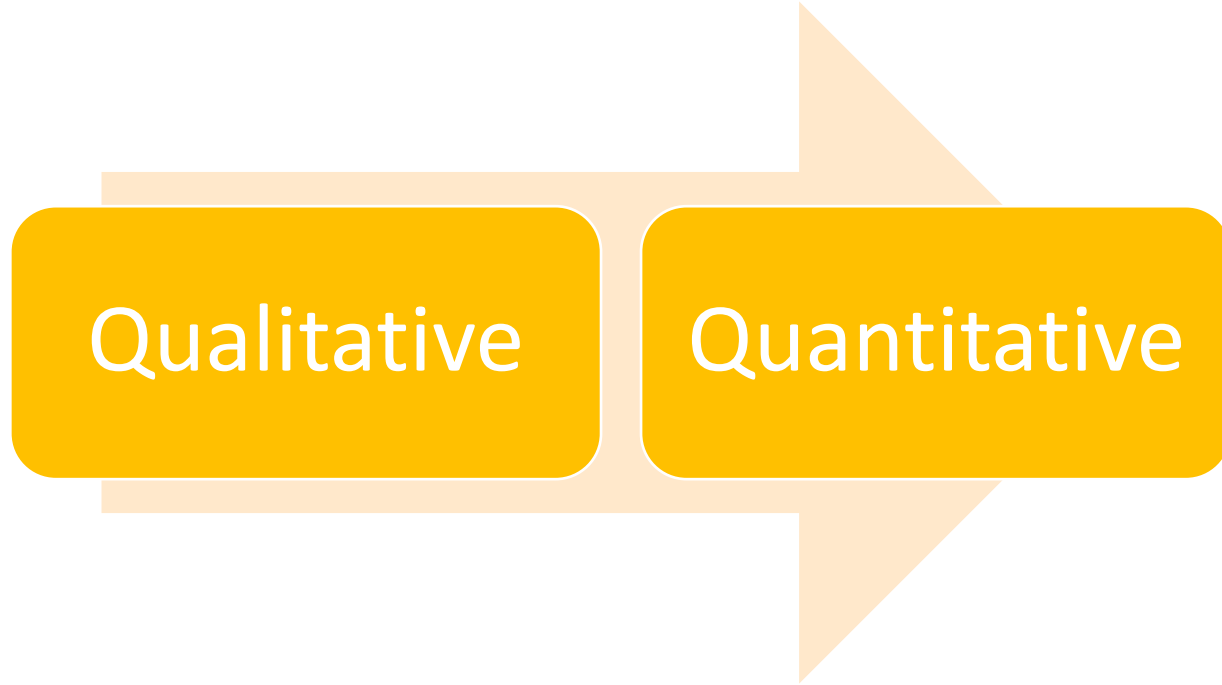
Tipping points and farmer decision-making

- Farmers' decisions can be understood as **critical thresholds**, or behavioural **tipping points**
- Farmers require **financial incentives** and **technical guidance** to trigger positive tipping points
- Changes to agri-environmental schemes and subsidy programmes are needed to deliver **more ES from PG**
- Other **decision drivers** include personal values, (perceived) agronomic barriers, and consumer demand
- **Land use/management change** should be appropriate, context-specific and align with farming values
- **Flexibility in (e.g.) payments**: Land abandonment, Stocking density



4.3. Citizen priorities and preferences for ES in relation to PG

2 Phases



4.3. Citizen priorities and preferences for ES in relation to PG

2 Phases



Qualitative

Phase 1: To explore issues relevant to **societal preferences** for ES from grassland using **focus groups** with citizens (Qualitative)

Quantitative

Phase 2: To link **citizen perceptions** of ES with their **attitudes towards environmental policies** (Quantitative)

4.3. Citizen priorities and preferences for ES in relation to PG

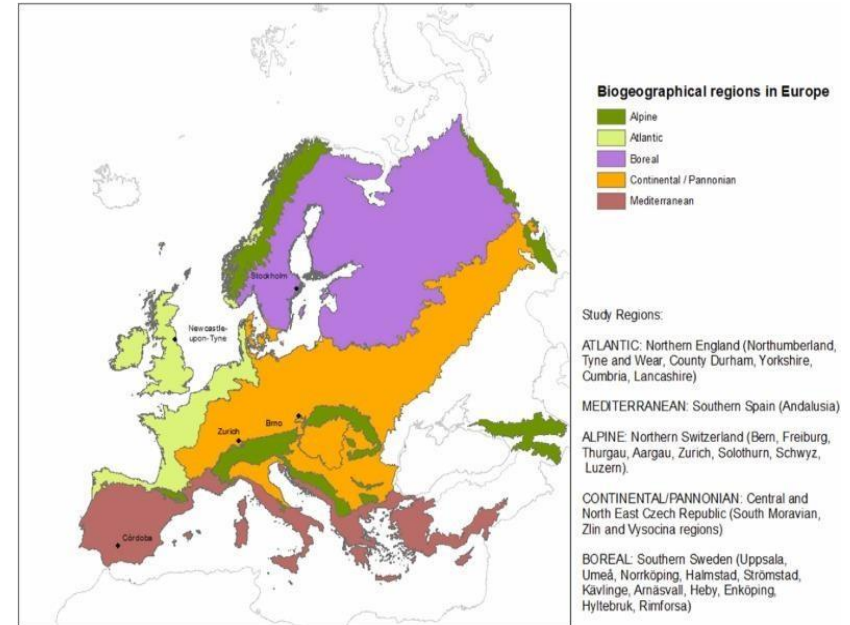
Focus groups with citizens

Data collection:

- **15 focus groups** with residents of
 - **rural** areas,
 - **urban** areas, and
 - **young adults** from rural areas (aged 18–26)
($N = 104$)
- Conducted across **5 European countries**
- (Czechia, Spain, Sweden, Switzerland and the UK) between 2020 and 2021.

Data analysis:

Transcripts were **coded thematically** based on the **key topics** covered in the focus groups



Map of biogeographical regions of Europe included in the study and case study regions (Tindale et al., 2023)

4.3. Citizen priorities and preferences for ES in relation to PG

Focus groups with citizens

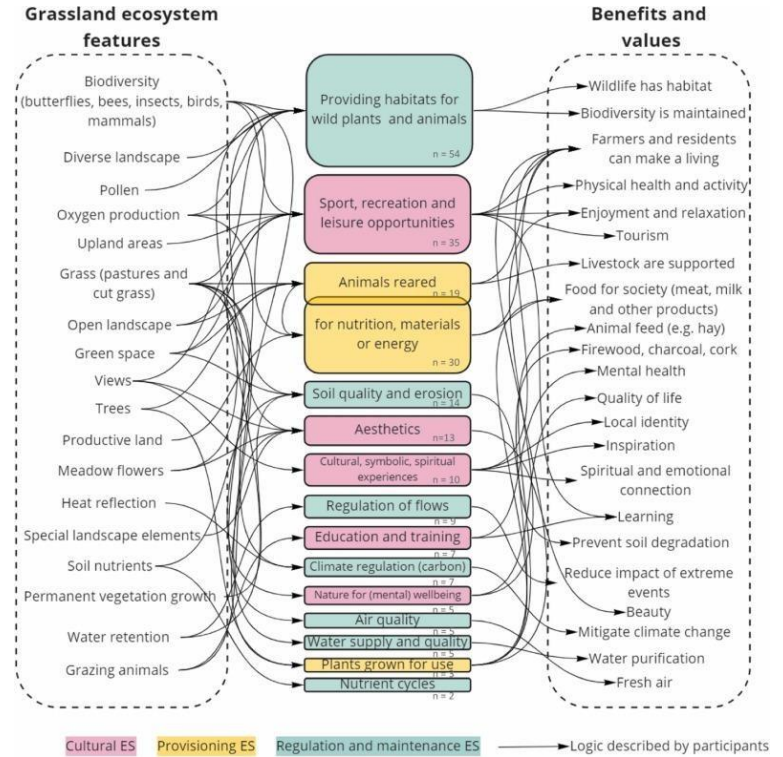
- **Citizens perceived grassland landscapes positively**
 - Experience
 - Emotions
 - Environmental characteristics
 - Access
 - Cultural identity.
- **Perceptions of problems were related to**
 - Reduction
 - Degradation
 - Abandonment of grassland
- Farming for biodiversity
- Trust in policy and land managers predicted acceptability of current practices



4.3. Citizen priorities and preferences for ES in relation to PG

Focus groups with citizens

- **14 ES within three categories** (cultural, provisioning, and regulation and maintenance) were mentioned when participants were prompted to discuss **benefits**.
- **Prioritisation of ES** from grassland varied between **countries**
 - Spain & Sweden: Provisioning
 - Czechia & Switzerland: Regulation and maintenance
 - UK: Cultural ES
- *How does policy reconcile different perspectives?*



Benefits of grassland as stated by participants (Tindale et al., 2023)

4.3. Citizen priorities and preferences for ES in relation to PG

Online surveys on citizen perceptions

Data collection:

Online survey data collected between 1 October and 1 November 2021 among citizens in five European countries ($N = 3,190$): (Czechia, $n = 649$; Spain, $n = 623$; Sweden, $n = 645$; Switzerland, $n = 641$; and United Kingdom, $n = 632$).

Data analysis:

- The dependent sample t-test
- The one-way analysis of variance (ANOVA)
- Partial least squares structural equation modelling (PLS-SEM)



Consumers across five European countries prioritise animal welfare above environmental sustainability when buying meat and dairy products

Jeanine Ammann^{a,*}, Gabriele Mack^a, Nadja El Benni^b, Shan Jin^c, Paul Newell-Price^d, Sophie Tindale^e, Erik Hunter^f, Victoria Vicario-Modroño^g, Rosa Gallardo-Cobos^g, Pedro Sánchez-Zamora^g, Simona Miškolci^h, Lynn J. Frewer^c



Segmenting consumers of meat and dairy products from five European countries: Implications for promoting sustainable food choices

Meng Yue^{a,1}, Shan Jin^{b,*,1}, Sophie Tindale^c, Victoria Vicario-Modroño^d, Pedro Sánchez-Zamora^d, Rosa Gallardo-Cobos^d, Paul Newell-Price^c, Lynn J. Frewer^{c,*,1}

4.3. Citizen priorities and preferences for ES in relation to PG

Key findings:

ES were overall valued:

Regulating and maintenance > cultural > provisioning ES.

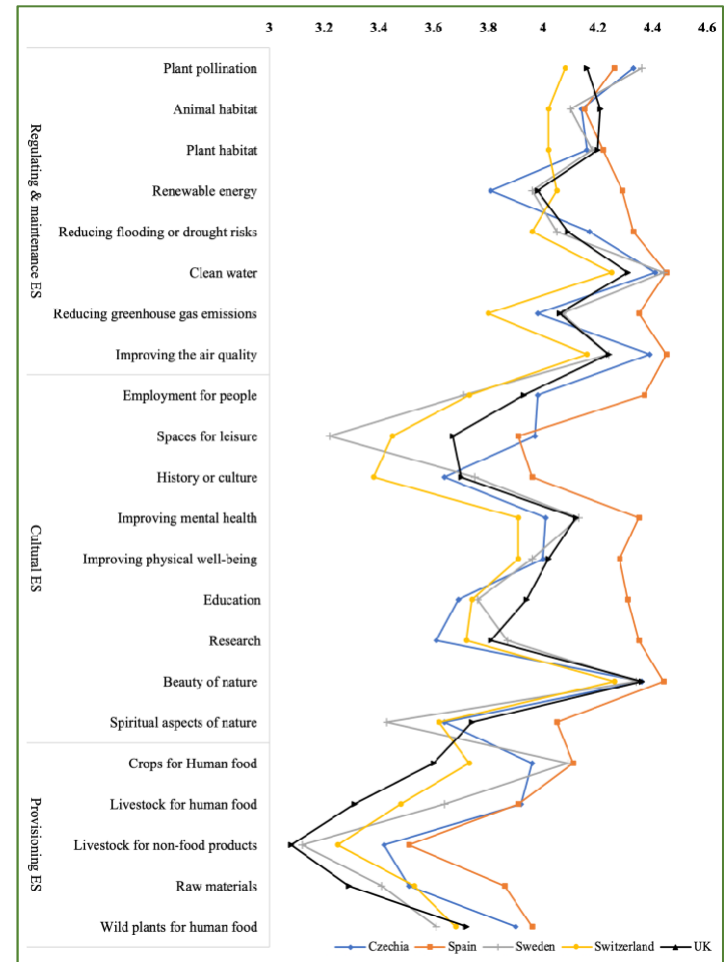
Specifically, ES most valued:

- *water purification,*
- *improving air quality* and
- *the beauty of nature*

The least valued ES: *raising livestock for human food*

Spanish participants perceived highest levels of benefits associated with three categories of rural ES among the countries.

Swiss participants had lowest benefit perceptions of regulating and maintenance and cultural ES, and both **Swiss and UK participants** had lowest benefit perceptions of provisioning ES.



4.3. Citizen priorities and preferences for ES in relation to PG

Policy implications from WP 4.3:

- Effective communication about the **management strategies** to citizens (enhancement of rural ES benefits and alleviation of rural threats);
- Increasing **citizens' linkages** of ES benefits with **rural areas**;
- Raising **citizens' awareness** of **threats** facing **rural areas**;
- Building higher **social trust in government** rural management;
- Building stronger **pro-environmental attitudes**;
- Considering the differences across countries and socio-demographic groups.






4.4. Developing policy options for ES in relation to PG

- Synthesize key project findings and develop policy briefs to support sustainable permanent grassland systems and ecosystem services
- 5 BGRs Webinars and Brussels Webinar

Newell Price, J.P.; Hunter, E.; Arndt, V.; Gallardo-Cobos, R.; Miškolci, S.; Sánchez-Zamora, P.; Sari, N.; Smith, K.; Tindale, S.; Vicario-Modroño, V.; Frewer, L.J. (2024) What policies are needed in Europe to protect grasslands and support their sustainable management?, 30th EGF Meeting, 9th to 13th June 2024.

2.4. Experts opinions about the feasibility of PG management options and ES delivery

- Delphi method
- Farmers surveys

Type	Management option	Description	
Sward manipulation	Sward renewal	Complete sward renewal with sward destruction (non-selective herbicide spraying or cultivation).	 Sward renewal
	Overseeding	Overseeding with different grass, herb/legume species or mixtures without complete sward destruction.	 Overseeding
Monitoring and predicting grass growth	Satellite and drone technology	Proximal and remote sensing (using drones and/or satellite imagery) for yield estimation and other grassland traits (e.g. crude protein content, digestibility, plant species diversity) to guide grassland management.	 Remote sensing
Grazing management	GPS collars	Use of GPS collars to improve grassland utilization, livestock performance and/or biodiversity.	 GPS collars
	Rotational grazing	Introducing a grazing plan with rotational grazing to improve pasture utilisation and yield/quality, soil quality and/or biodiversity.	 Rotational grazing

Fernández-Habas, J., Fernández-Rebollo, P., Gallardo-Cobos, R., Vanwalleghem, T., & Sánchez-Zamora, P. (2022). A Farmer's Perspective on the Relevance of Grassland-Related Innovations in Mediterranean Dehesa Systems. *Forests*, 13(8). <https://doi.org/10.3390/f13081182>

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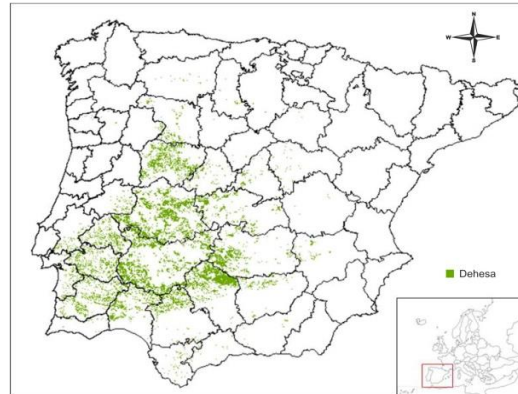
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Conclusions

- Better **understanding** of importance and functioning of PG
- Increased availability and uptake of **PG management options** and technologies
- Improved **competitiveness** of farming systems based on PG
- **Agricultural policies** that support optimal management of PG

Further research ➡ Focus on the **Mediterranean PG systems**



(Horrillo et al., 2016)





THANK YOU!

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