

How do innovative PG management options affect grass production and the delivery of non-provisioning ecosystem services?

Objective: To advance our understanding of the trade-offs and synergies inherent in managing permanent grasslands (PG) for Ecosystem Service (ES) delivery, with a particular focus on the interactions between production and other ecosystem services.

Methodology: Drawing from a diverse array of commercial and experimental farms, data from field experimentation and demonstrations, including integrated assessments, were analysed to understand the relationships between productivity, biodiversity and other ecosystem services.

Key Findings:

- Experiments with 'mixed species swards' indicated that there were benefits for various ecosystem services, including greater abundance and diversity of earthworms, invertebrates and pollinators. Importantly, these benefits did not compromise, and in some cases increased, production metrics such as dry matter yield and livestock live weight gain.
- Well-implemented virtual fencing emerged as a facilitator of flexible and tailored conservation management in high nature value grasslands. Trials demonstrated no significant negative impacts on animal welfare or performance compared to traditional fencing, while offering advantages in flexible management and targeted conservation efforts.

Policy Implications:

- Practices with clear synergies and low trade-offs, such as multi-species swards, incorporation of flowering grassland patches, and virtual fencing (where appropriate) should be encouraged in policy.
- Agri-environment payments for these techniques should align with potential environmental benefits, considering both costs and risks involved.
- Farmer training and outreach is needed, with support from initiatives like European Innovation Partnerships to facilitate peer-to-peer learning, enhance land manager confidence, and develop skills for continued management.
- Policy should address barriers to ES delivery, such as capital costs and improved communication about welfare assurance to facilitate wider adoption of these beneficial techniques.
- There is a need for long-term studies on ES delivery of these techniques to monitor synergies and trade-offs comprehensively, as well as how they might be incorporated into Agri-Environment Schemes.
- There is potential for enhancing ecosystem service delivery in permanent grasslands through the implementation of management practices. Policy makers should develop strategies to communicate clearly about expected results, synergies, and trade-offs associated with new management techniques, as well as the implications for Agri-Environment payments.

Key Reference: Rankin J., Brown S. and Newell Price P. (eds) (2023). SUPER-G Deliverable report 3.6 on Synergies & Trade-offs. EC Project Number 774124-2, 321 pages.