SHOWCASE
Synergies between agriculture, biodiversity and ecosystem services to help farmers capitalising on native biodiversity

BENDING THE CURVE OF BIODIVERSITY LOSS REQUIRES REWARDING FARMERS ECONOMICALLY FOR CONSERVATION MANAGEMENT

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KEY MESSAGES

- Effective biodiversity conservation requires action on farmland.
- Agricultural management affects a wide range of biodiversity-based ecosystem services that sustain human life.
- Currently, the costs of managing for more biodiversity on farms are generally higher than the ecosystem service benefits this provides to farmers.
- Policy interventions are needed that make biodiversity-enhancing management on farms economically rewarding.

INTRODUCTION

Agricultural expansion and intensification are key drivers of biodiversity decline. There is mounting evidence that modern farming impacts the effectiveness of protected areas as one of the key instruments of biodiversity conservation through, for example, eutrophication, pesticide emissions or increasing access to remote areas [1]. This is increasingly acknowledged and in many countries conservation efforts now include farmed lands and engage farmers to enhance biodiversity on their lands. This benefits farmland biodiversity which, especially in Eurasia, supports some highly threatened species groups [2]. However, farmland biodiversity is also functionally important as it provides a wide range of ecosystem services. Examples are natural pest regulation, pollination, carbon sequestration, human well-being, water purification and cultural services.

Agricultural management influences the provision of a wide range of ecosystem services and therefore, contributes to food security and mankind's ability to sustain itself in the mid to long term. There is clear evidence that enhancing farmland biodiversity promotes the delivery of specific ecosystem services [3]. For example, enhancing wild pollinators and natural enemies through the provision of semi-natural habitat enhances productivity of many crops [4, 5]. However, only a few ecosystem services, such as pollination, pest control and nutrient cycling, may provide private benefits to farmers. Other services, such as carbon sequestration, biodiversity conservation, health benefits and water purification, are public goods which are poorly captured by markets [6].

EVIDENCE AND ANALYSIS

Recent studies done by participants of the international EU funded SHOWCASE project indicate that, under the current economic paradigm, managing biodiversity on farms generally does not pay for itself [7, 8]. **For farmers, the costs of maintaining or enhancing biodiversity are equal or larger than the benefits they obtain from ecosystem services.** In our current global economy, farmers that integrate biodiversity-enhancing management in their businesses risk being outcompeted by the global farming community that does not consider biodiversity in their day to day activities. Premium-priced biodiversity-friendly products are increasing but they still comprise a very low market share [9] making it unlikely to represent a viable earning model for most farmers.

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 862480.

POLICY RELEVANCE

Across the globe, human societies have acknowledged the multiple values of biodiversity and committed themselves to protect biodiversity through international treaties such as the Convention of Biological Diversity. An increasing number of policy instruments target farm management. For example, in the EU, biodiversity on farmland is now not only targeted by the Common Agricultural Policy, but also by the 'Farm to Fork' strategy [10] and the proposed new Nature Restoration Law [11]. Although promising, such policy instruments have been unsuccessful in the past in halting biodiversity decline mostly because of lack of interest from mainstream farming. This is largely caused by current trade regulations requiring that biodiversity-friendly farmers can only be compensated for income foregone, transaction costs and any direct costs incurred. This, in turn, results in commitment to biodiversity management varying wildly with fluctuations in crop prices, such as that due to the recent war in Ukraine, and usually only the most intrinsically motivated farmers participate consistently.

Global trade rules reward the farms that produce at the lowest economic costs despite the negative impacts on biodiversity, the environment and even the wellbeing of the producers [12]. This race to the bottom drives the continued expansion of unsustainable farming systems, both in area and intensity. **Bending the curve of biodiversity loss is only possible when biodiversity-enhancing management on farms becomes economically rewarding**. Since global markets are unlikely to provide these rewards at a sufficiently large scale, governments have to step in with policy tools that make nature-positive farming systems financially attractive to farmers.

POLICY RECOMMENDATIONS

Counteracting the negative side-effects of farming on biodiversity conservation requires:

- Policy regulations that provide financial incentives for farming systems that contribute to the ongoing biodiversity loss should be phased out.
- Agricultural products issued from biodiversity-enhancing farming systems should be supported with subsidies going beyond compensating loss of income.
- Food processors and retailers should be obliged to raise the proportion of products sourced from nature-positive producers.
- Funds for the promotion of agricultural products should be redirected to support farming systems that enhance biodiversity.
- Policy interventions should have a food systems approach targeting all the actors across the food supply chain, in order to trigger the necessary changes at the farm level.

SUSTAINABILITY AND LEGACY

SHOWCASE's Deliverable D2.1 gives an overview of regulatory and incentive instruments for biodiversity management on farms. It provides a common knowledge basis on regulation and incentive schemes for other projects tackling the integration of biodiversity-friendly practices into farm management.

FURTHER READING

Albrecht, M., et al., *The effectiveness of flower strips and hedgerows on pest control, pollination services and crop yield: a quantitative synthesis*. Ecology Letters, 2020. **23**(10): p. 1488-1498.

Kleijn, D., et al., *Ecological Intensification: Bridging the Gap between Science and Practice*. Trends in Ecology & Evolution, 2019. **34**(2): p. 154-166.

Schaller, L., et al., *Overview of regulatory and incentive instruments for biodiversity management on farms*. Deliverable D8 (D2.1) EU Horizon 2020 SHOWCASE Project, Grant agreement No 862480. 2021.

REFERENCES AND SUPPORTING EVIDENCE

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9. Eurostat, Organic farming statistics. *https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Organic_farming_statistics*. 2022.

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11. EC, *Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on nature restoration. COM(2022) 304 final, 2022/0195 (COD). European Commission, Brussels. https://environment.ec.europa.eu/publications/nature-restoration-law_en*. 2022.

12. Polasky, S., et al., *The Impact of Land-Use Change on Ecosystem Services, Biodiversity and Returns to Landowners: A Case Study in the State of Minnesota*. Environmental & Resource Economics, 2011. **48**(2): p. 219-242.

PROJECT OBJECTIVES AND METHODOLOGY

SHOWCASE aims to deliver new insight and innovative tools facilitating the agricultural sector's transition towards more sustainable farming, and thus help meet wider societal needs. It will review and test the effectiveness of a range of economic and societal incentives to implement biodiversity management in farming operations and examine farmer and public acceptance. SHOWCASE will develop a multi-actor network of 10 Experimental Biodiversity Areas in contrasting European farming systems that will be used for in-situ research on biodiversity incentives and evidence for benefits as well as knowledge exchange. This network will be used to identify and test biodiversity indicators and targets relevant to all stakeholders and use them in a learning-by-doing approach to improve benefits of biodiversity management on farms both within the network and beyond.

PROJECT IDENTITY

PROJECT NAME

SHOWCASing synergies between agriculture, biodiversity and Ecosystem services to help farmers capitalising on native biodiversity (SHOWCASE)

CONSORTIUM

- Agroscope, Federal Department of Economic Affairs, Education and Research – WBF – Bern, Switzerland
- Babeș-Bolyai University – UBB – Cluj-Napoca, Romania
- Centre for Ecological Research – OK – Tihany, Hungary
- Dutch Butterfly Conservation – DVS – Wageningen, Netherlands
- Estonian University of Life Sciences – EMU – Tartu, Estonia
- Leibniz Centre for Agricultural Landscape Research – ZALF – Müncheberg, Germany
- Linking Environment And Farming – LEAF – Kenilworth, United Kingdom
- National centre for scientific research – CNRS – Paris, France
- National Research Council – CNR – Rome, Italy
- Pensoft Publishers – PENSOFT – Sofia, Bulgaria
- Peterson Projects B.V. – PETERSON – Rotterdam, The Netherlands
- Scienseed SL – SCIENSEED – Madrid, Spain
- Spanish National Research Council – CSIC – Madrid, Spain
- Swedish University of Agricultural Sciences – SLU – Uppsala, Sweden
- The University of Reading – UREAD – Reading, United Kingdom
- University of Bern – UBERN –Bern, Switzerland
- University of Bologna – UNIBO –Bologna, Italy
- University of Evora – UEvora – Evora, Portugal
- University of Natural Resources and Life Sciences Vienna – BOKU – Vienna, Austria
- Wageningen University – WU – Wageningen, The Netherlands
- WWF European Policy Office – WWF EPO – Brussels, Belgium

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FUNDING SCHEME

Call: Sustainable Food Security (H2020-SFS-2018-2020)

Topic title and ID: Biodiversity in action: across farmland and the value chain (SFS-01-2018-2019-2020)

DURATION

1 November 2020 – 31 October 2025 (60 months)

BUDGET

EU contribution: € 7 999 837,50

WEBSITE

https://showcase-project.eu