

Project *brief*

Thünen Institute of Forestry

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Is there robust evidence on the impacts of agroforestry?

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- Using a systematic literature review, 64 systematic review articles and meta-analyses were identified that examine the impacts of agroforestry compared to other land uses.
- An *Evidence Gap Map* is established on studies of economic, ecological, and social impacts.
- The majority of review studies focuses on ecological impacts, less on economic impacts and rarely on social impacts.

Background

Agroforestry is often seen by society and politicians as a panacea that offers multiple ecological, economic, and social benefits. There is a wide diversity of agroforestry practices, outcome indicators, and geographical locations in the field. Accordingly, research provides a variety of individual findings and case studies. The overall result is an unclear picture of the available scientific evidence on the impacts of agroforestry.

Systematic literature search

For this study, we created an *Evidence Gap Map* for clarifying whether and in which areas the research landscape allows conclusions to draw on potential benefits or drawbacks of agroforestry compared to segregated land uses. Based on a systematic literature search and screening from 2,164 articles, we identified 64 articles which provide a systematic review or meta-analysis on the topic. We critically appraised the identified articles and mapped their thematic and geographical coverage to identify density and research gaps in the evidence base.

Fig. 1: Number of review studies assessing the social, economic and environmental outcomes of different agroforestry systems.

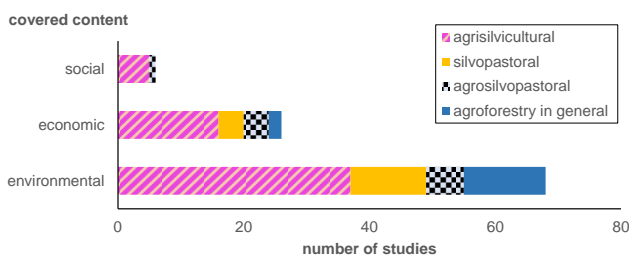
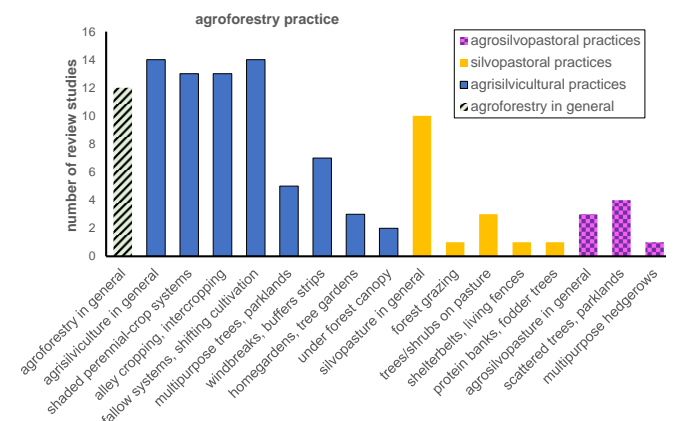


Fig. 2: Number of review studies assessing different agroforestry practices.



Source for both figures: Köthke et. al (2022)

Results and implications

The results disclose topics which were researched intensively, such as ecological effects related to climate change, water, biodiversity, soil and pest/disease control, as well as productivity aspects of individual agrosilvicultural practices or agroforestry systems when considering an aggregate level (Fig. 1). Research gaps were identified, e.g. for individual silvopastoral and agrosilvopastoral practices (Fig. 2), and for social outcomes of all agroforestry practices.

The *Evidence Gap Map* highlights further research needs, but also urges for caution in making generalized statements about the benefits of agroforestry for policy design or land use planning. In a next step the specific results of the studies will be analyzed to quantify the benefits of different agroforestry practices in different settings.

Further Information

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