

Project *brief*

Thünen Institute of Biodiversity

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Tailored pathways can inspire agroecological action and policy to revive farmland biodiversity

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- Future pathways tailored to characteristics of agricultural land systems
- Targeted farming approaches using agroecological principles underpin tailored pathways
- Pathways depict transformative vision to effectively re-establish farmland biodiversity

Background

Specialisation and intensification of food production have transformed agriculture triggering a farmland biodiversity crisis. As the loss of farmland biodiversity undermines the basis of agroecosystems' productivity and, hence, the sustainability of food systems, another transformation is urgently needed.

Research question

Which targeted agroecological actions can we swiftly implement to enhance farmland biodiversity while ensuring adequate agricultural production?

Methods

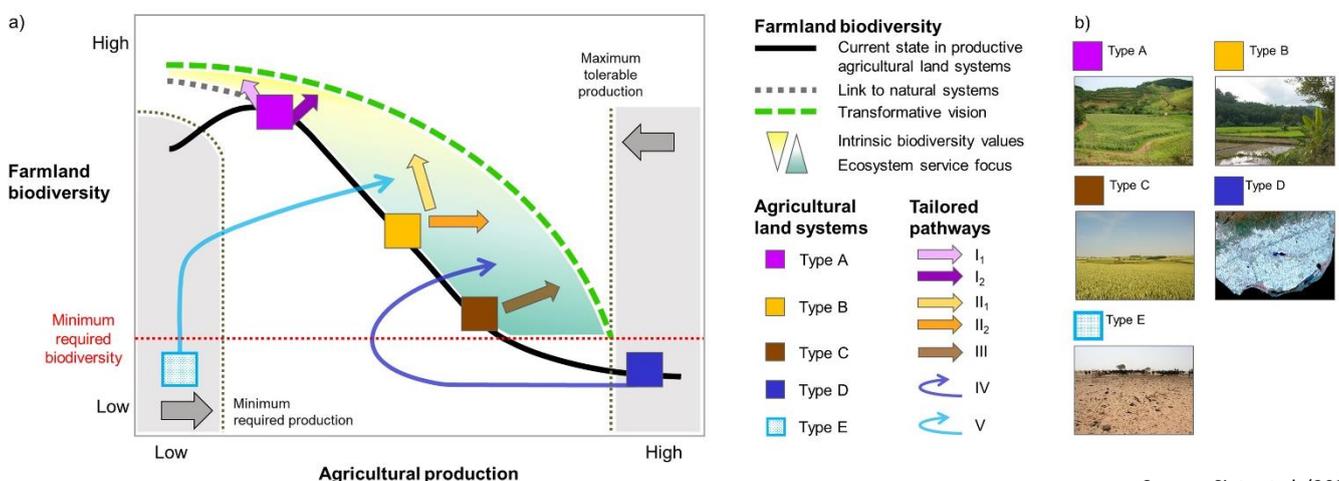
- Conceptualisation of future pathways tailored to characteristics of agricultural land systems
- Fitting of farming approaches based on agroecological principles to current interplay between agricultural production and farmland biodiversity

Key findings

Pathways I to III, summarised as straight coloured arrows (Fig. 1a), involve e.g. high-nature value farming and agroecological intensification. In contrast, pathways IV and V involve sequential changes relying on de-intensification and ecological restoration. A 'minimum required biodiversity' threshold (see red dotted line in Fig. 1a) indicates the risk of (irreversible) farmland biodiversity depletion.

Advice for policy makers

The concept helps to evaluate if and under which conditions existing biodiversity and agricultural policies provide effective incentives to sustainably transform agricultural land systems. Promising solutions can best be developed and tested in stakeholder-centred initiatives such as on-farm experimentation or living laboratories at landscape scale experimenting on real farms with farmers and other food system actors.



Source: Sietz et al. (2022)

Fig. 1: a) Conceptualisation of the general relationship between agricultural production and farmland biodiversity together with tailored pathways toward enhanced farmland biodiversity and b) example photographs of agricultural land system types (Provided by authors under a CC-Attribution 4.0 International license).

Further Information

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