



Agroforestry

Fostering biodiversity & resilient
agroecosystems

Hands on: Biodiversity, 27.03.2025

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DeFAF e.V.

Content

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2. What is an Agroforestry system?
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DeFAF e.V. Deutscher Fachverband für Agroforstwirtschaft



German Association for Agroforestry

Objective: Promotion of agroforestry in Germany

Non-profit and independent association, founded in 2019

Education, (initial) advice for land managers and other target groups

Networking & Lobbying

Work structure

8 thematic departments (for example international department) – voluntary & regional groups under development

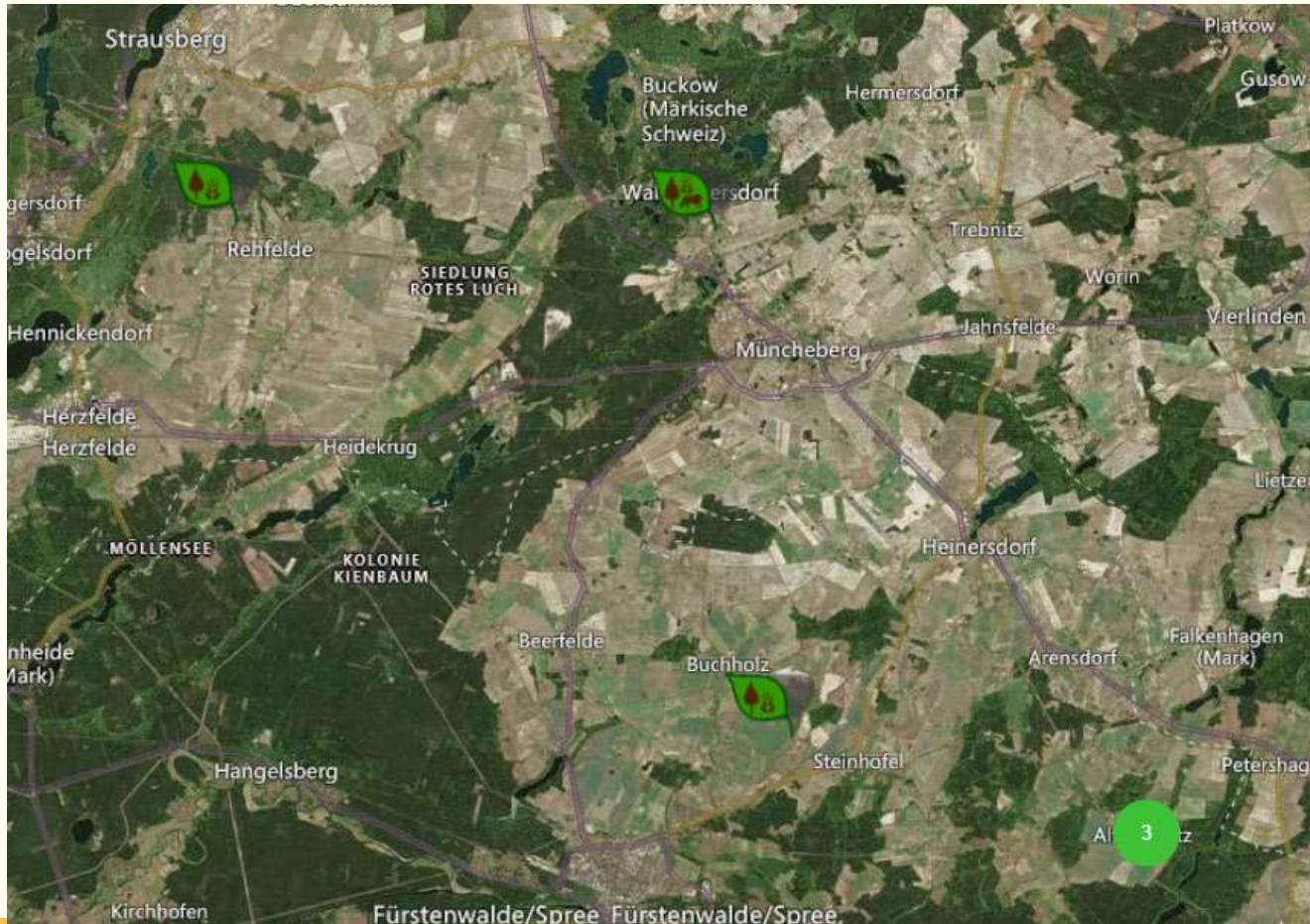
Office in Cottbus with currently 12 employees



www.defaf.de



Agroforestry map



<https://agroforst-info.de/agroforst-landkarte/>

Agroforestry academy

Agroforestry consultancy Course

- Educating consultants to become experts in agroforestry
- 6 months training with planning of an actual agroforestry system

Various other formats

- On-field training for farmers
- Online-seminars



Forum Agroforestry systems

Largest event in Germany on
agroforestry organized by
DeFAF e.V.

2023 with around 300 guests in
Freiburg

**17th & 18th of September 2025
in Giessen**



Agroforestry systems - Overview

EU Definition: Land use system in which trees are grown in **combination** with **agriculture** on the same land



















Why agroforestry?

Benefits of Agroforestry Systems (AFS)

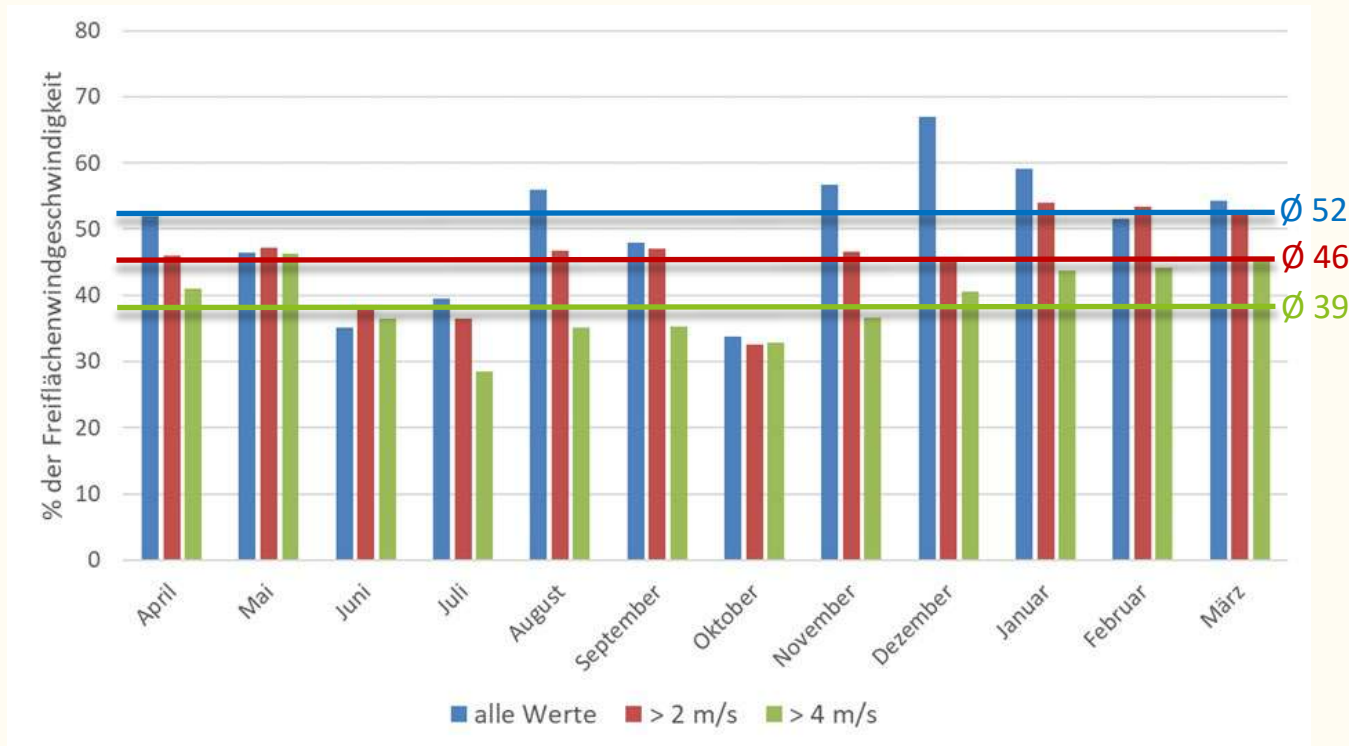
Advantages of AFS protection against wind erosion



Woody strips reduce wind speed and protect against wind erosion!

→ Foster dew formation

Advantages of AFS: protection against wind erosion

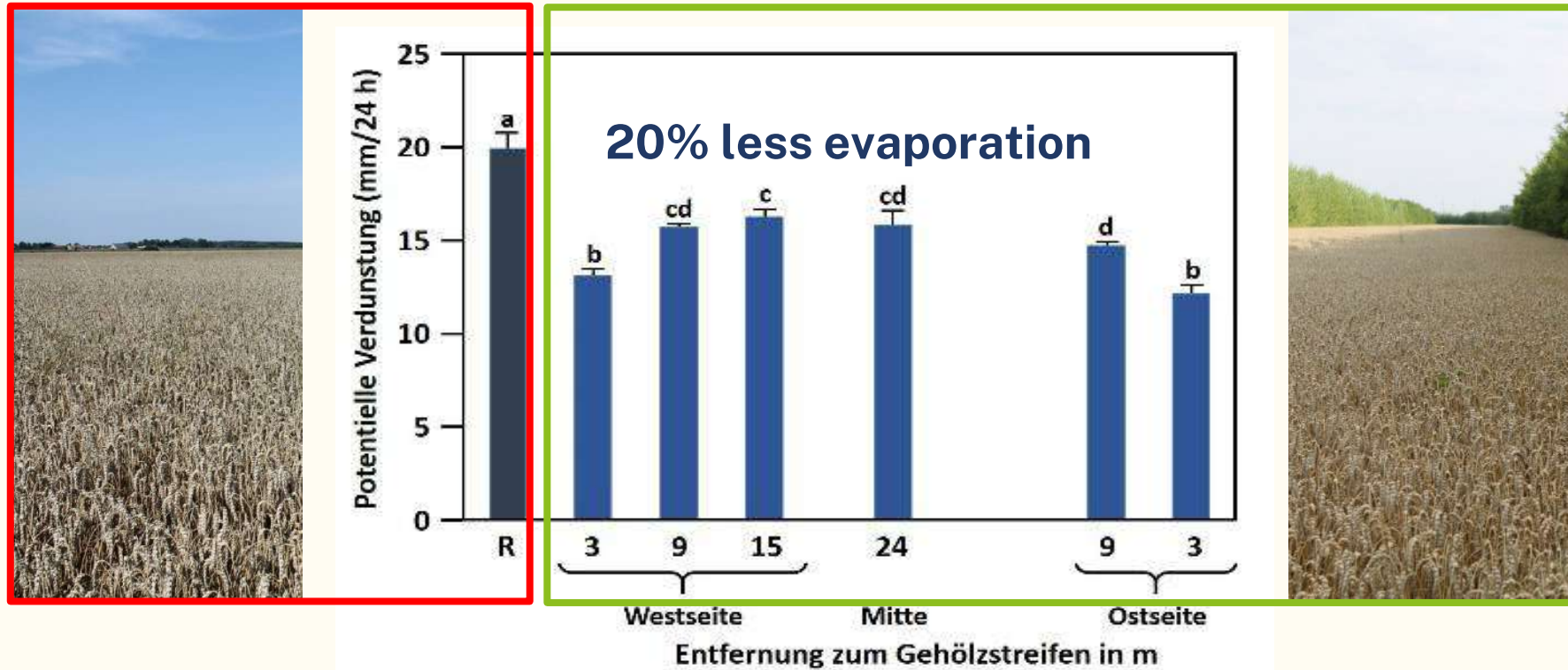


Mean reduction of wind speed on a 48 m wide crop strip in relation to the open space (reference) as a function of the month

Measurement period = April 20, 2017 to March 20, 2018

Quelle: Böhm C., Kanzler M., Domin T. (2020): Auswirkungen von Agrarholzstrukturen auf die Windgeschwindigkeit in Agrarräumen. Innovationsgruppe AUFWERTEN, Loseblattsammlung, Loseblatt # 3

Agroforestry & Climate Adaptation

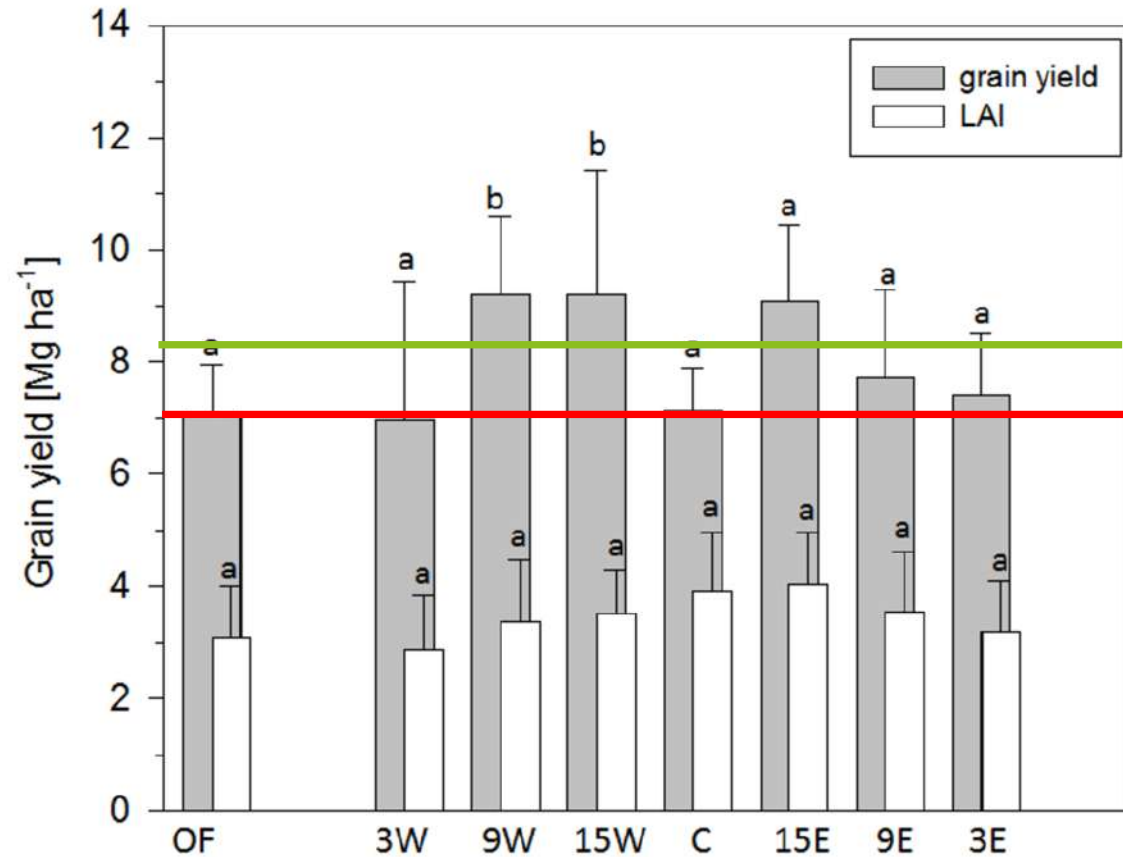


Potentielle Verdunstung (Evaporation nach Piche) innerhalb von 24 Stunden (exemplarischer Sommertag) Messungen in einem Agroforstsystem in Südbrandenburg und auf einem benachbarten Ackerschlag ohne Gehölzstreifen (R = Referenz)

Quelle: Kanzler M., Böhm C., Mirck J., Schmitt D., Veste, M. (2019): Microclimate effects on evaporation and winter wheat (*Triticum aestivum* L.) yield within a temperate agroforestry system. *Agrof. Sys.* 93, 1821-1841, verändert

Agroforestry & arable crop yield

Grain yield winter wheat (dried at 60 °C) on 48 m wide arable land



Agroforestry additional
yield in the
direct comparison of
arable land = 16 %

8,2 t/ha (AFS)

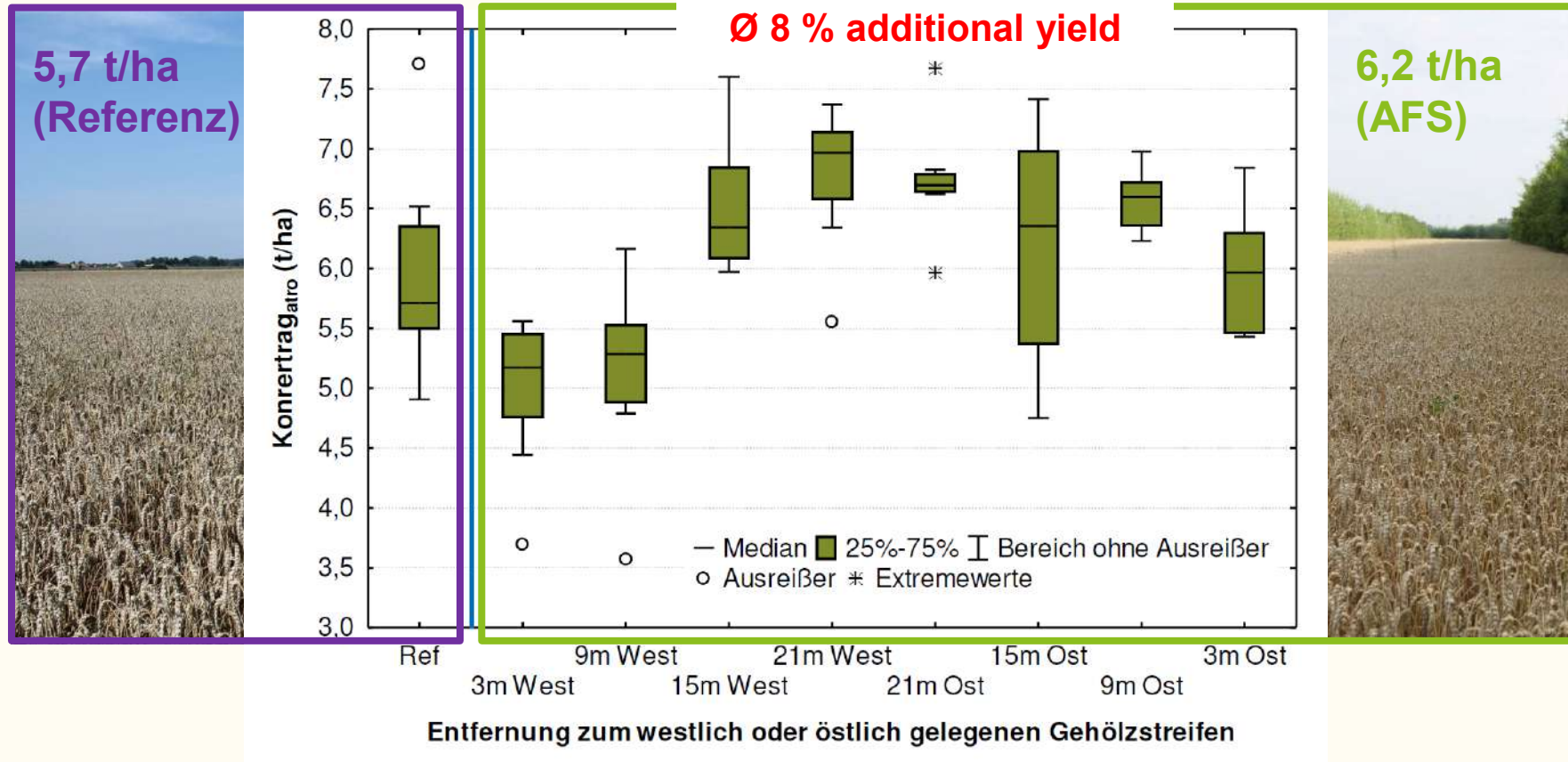
7,1 t/ha (Referenz)

**When comparing the felling
areas (subtracting the woody
cultivation area of 17 %) = 4 %
reduced yield in AFS**

Quelle: Kanzler et al. 2018

Agroforestry & arable crop yield

Grain yield of winter barley on a 48 m wide strip of arable land



Quelle: Böhm et al. (2020): Untersuchungen zur Ertragsleistung (Land Equivalent Ratio) von Agroforstsystemen. Loseblattsammlung Innovationsgruppe AUFWERTEN, Loseblatt # 35

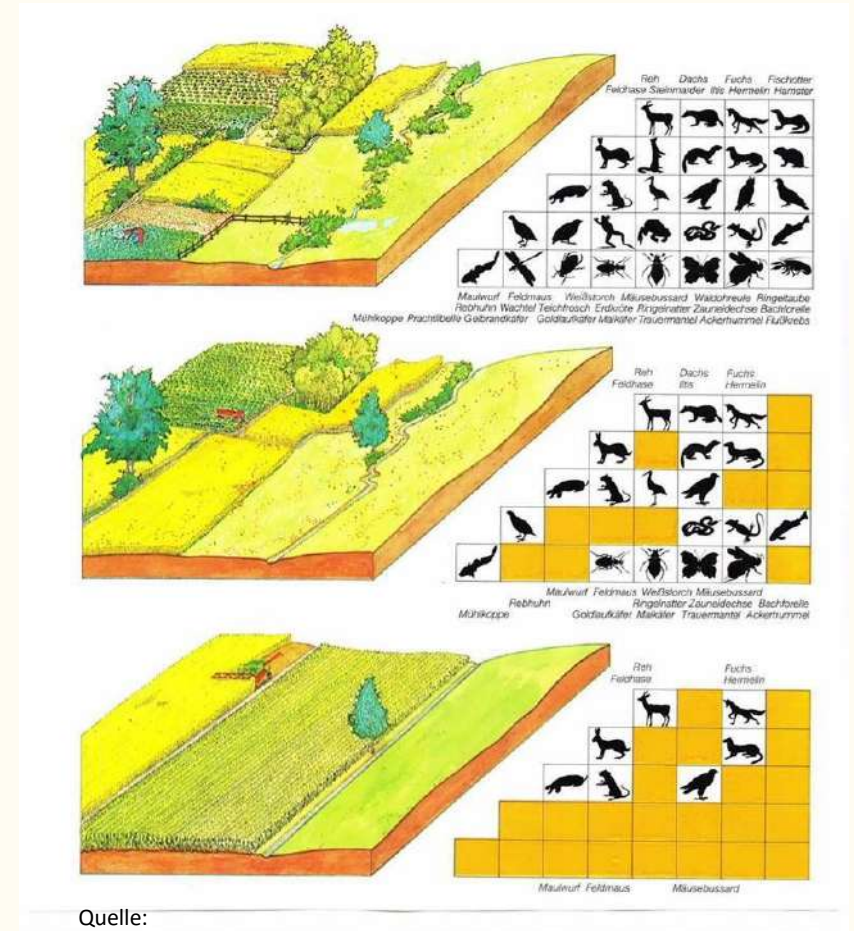
Promoting biodiversity

- Positive effect on animal biodiversity due to reduced disturbance in woody areas
- Woody strips provide temporary habitats and network habitats (Zitzmann et al., 2022; Ehritt, 2020)
- Woody strips act as buffer strips between agricultural land and sensitive nature reserves (Strohm, 2012)
- Conflict with some species (open land species)
→ More research required!



Promoting biodiversity

- Increased landscape complexity promotes insect diversity (Marja et al., 2022)
- Effects depend on the respective AFS!
- Long-term approach: short-rotation rotation or long-term timber or fruit and nut production
- Creation of ecotones (transition areas between different habitats)
- Diversity of woody species



Quelle:
<https://www.pulsdererde.org/wp-content/uploads/2019/02/19-09-Agrarlandschaft-mit-Artenvielfalt.jpg>

Promoting biodiversity

About 1/3 of all insect species in Germany use woody plants (Schuch et al., 2024)



Promoting biodiversity

Current study shows:

Alley-cropping agroforestry systems promote the number of both the taxonomic diversity of spiders!

(Matevski et al., 2024)



© Julia Günzel

Promoting biodiversity

- Generalists and forest species in particular benefit, open land species are not negatively affected or have a higher biodiversity in the arable strip compared to open arable land
- Strongest effect in the woody strips, but also measurable on arable strips (48 meters wide)!
- Contribution to pest control to be expected!

(Matevski et al., 2024)

Enhancing agroforestry systems ecologically

Supplement woody strips with intermediate plantings (e.g. elderberry, willow, rock pear, etc.)



© Christian Böhm



Other benefits

- Protection against water erosion
- Humus enrichment via leaf litter
- C-Storage
- Filter function (e.g. reduction of nitrate input into water bodies)
- additional products and added value to agroforestry products
- Improved animal welfare (shade effect, natural habitat)

Challenges

- Depending on the system, long planning process necessary
- Long-term investment, depending on the system, value creation only after a few years
- Bureaucratic hurdles (new territory for authorities)
- On leased land, many parties may have to be involved

Legal framework and funding opportunities in the CAP

Agricultural trees for resilient landscapes: a vision for European agroforestry

Contribution to the forthcoming 'Vision for Agriculture and Food' from the European Agroforestry Federation (EURAF), Montpellier, Brussels, Toledo.



Version 2 - 25.2.2025 - see final section. 10.5281/zenodo.14923317

The European Agroforestry Federation (EURAF) aims to promote the use of trees on farms throughout Europe. We welcome publication of the Strategic Dialogue for the Future of Agriculture, and the fact that agroforestry is identified as a key tool for sustainable food systems (EURAF Post 4.9.24). Europe needs an emergency, but sustainable, programme of tree planting and renewal on agricultural land. To achieve this we look forward to a continuing dialogue with the wider agricultural and forestry sector. Further information on the role of agroforestry in EU agriculture and forestry is available from the DigitAF and Reforest projects and other projects listed on the DigitAF website. The European office of "World Agroforestry" (CIFOR/ICRAF), provides a link between global and European agroforestry knowledge. This vision document is structured around three key pillars: knowledge, support, and impact measurement. We also outline 17 concrete policy recommendations for EU Member States and the EU Commission.

<https://doi.org/10.5281/zenodo.14337003>

Subsidy on agroforestry systems in Germany

Woody plants remain part of the agricultural area: Status (arable land/grassland) is retained!

Prerequisites

Cultivation of woody plants with the primary goal of extracting raw materials or food production

Further requirements regarding the proportion of woody plants and non-authorized tree species

Non-authorized species

Anlage 1
(zu § 4 Absatz 2)

Arten von Gehölzpflanzen, deren Anbau bei Agroforstsystemen ausgeschlossen ist

Botanische Bezeichnung	Deutsche Bezeichnung
<i>Acer negundo</i>	Eschen-Ahorn
<i>Buddleja davidii</i>	Schmetterlingsstrauch
<i>Fraxinus pennsylvanica</i>	Rot-Esche
<i>Prunus serotina</i>	Späte Traubenkirsche
<i>Rhus typhina</i>	Essigbaum
<i>Robinia pseudoacacia</i>	Robinie
<i>Rosa rugosa</i>	Kartoffel-Rose
<i>Symphoricarpos albus</i>	Gewöhnliche Schneebeere
<i>Quercus rubra</i>	Roteiche
<i>Paulownia tomentosa</i>	Blauglockenbaum

Die Negativliste gilt für Agroforstsysteme, die ab dem 1. Januar 2022 neu angelegt werden.

Further subsidies

- Eco-scheme for managing agroforestry systems
 - 200€/Hectar wooded area
 - Further requirements
- CAP Pillar 2 investment fundings on state level
 - www.agroforst.jetzt
 - Other EU-countries: [All Policy Briefings - EURAF](#)

Thank you very much!



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