

# Agroforstsysteme im eigenen Betrieb

## Neue Möglichkeiten durch intelligente Dürreprävention

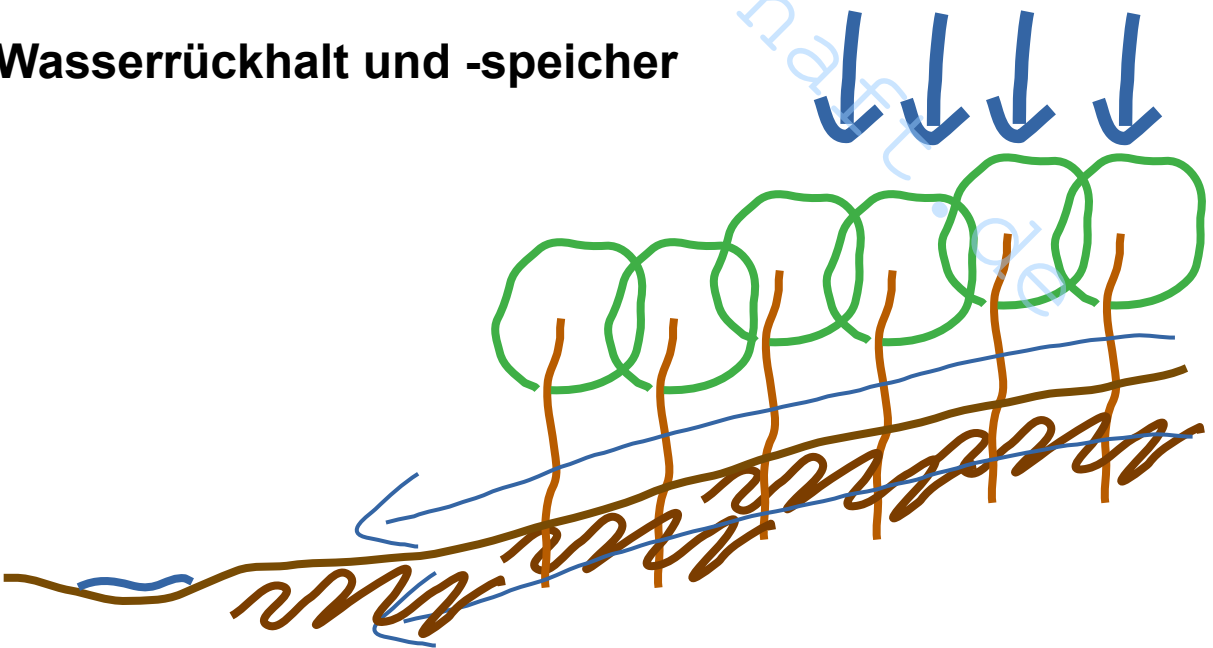
Fachtagung Ökolandbau, Nossen 2022

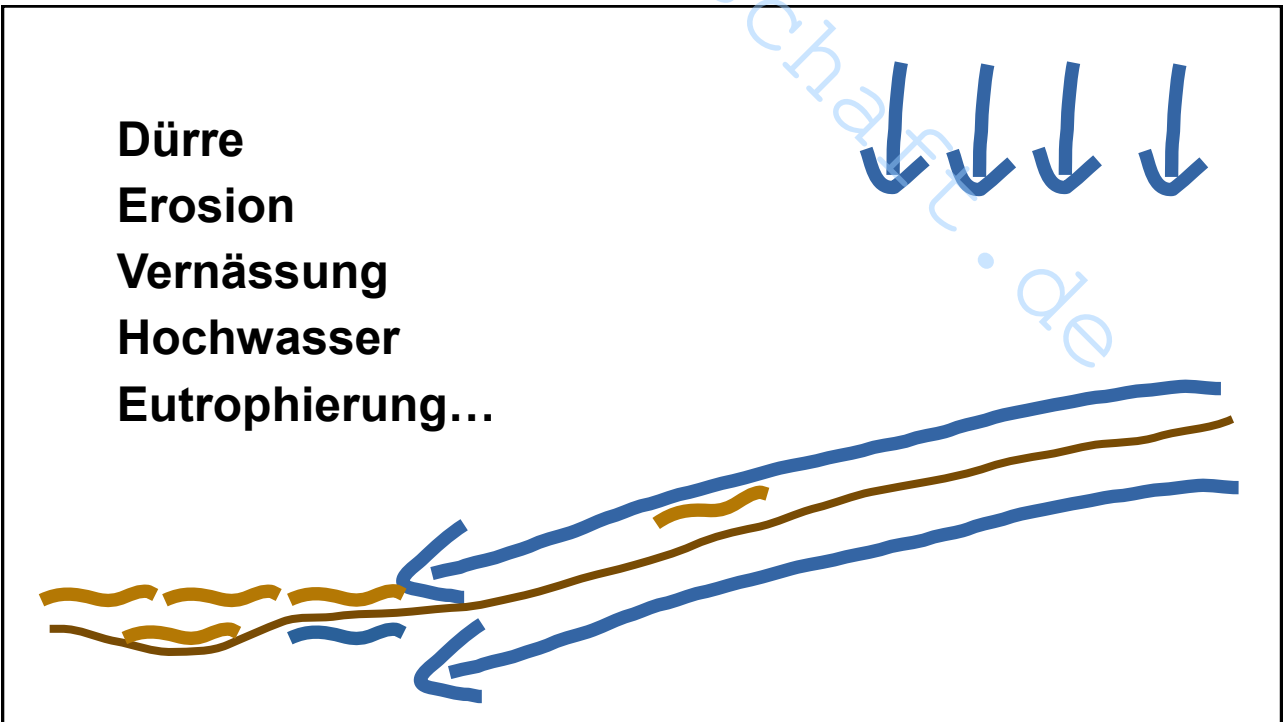
Dipl.-Forstw. Dr.nat.techn. Philipp Gerhardt  
baumfeldwirtschaft.de





## Wasserrückhalt und -speicher











## Was fehlt:

Wasserkreislauf

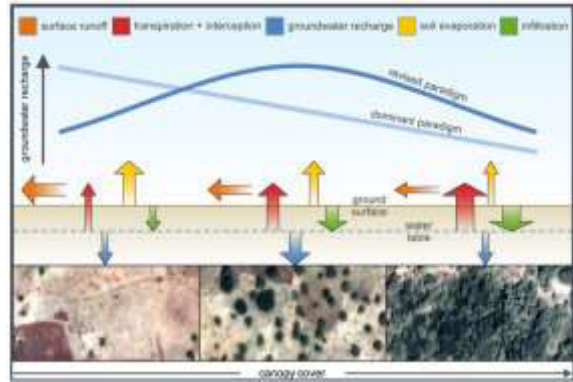
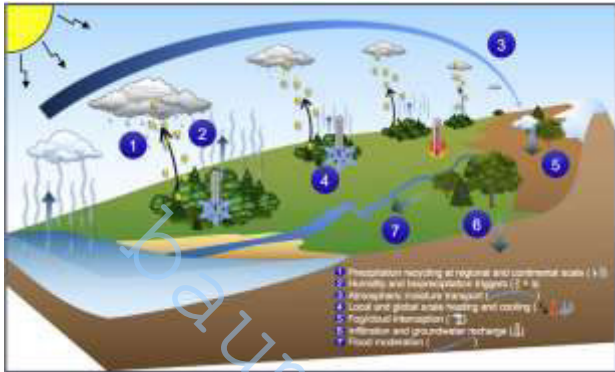
Wasserspeicher /-rückhalt

Nährstoffversorgung und -kreislauf

Kühlung

C-Bindung

# Wolken, Regen und Kühlung...



Gehölzlandschaften tragen regional und kontinental zur Wolkenbildung bei.  
 Lichte Gehölzstrukturen maximieren die Grundwasserneubildung<sup>(19)</sup>.





### Bäume in der Landwirtschaft



speichern 130 Gt CO<sub>2</sub>

x3 = +260 Gt

x10 = +1.200 Gt

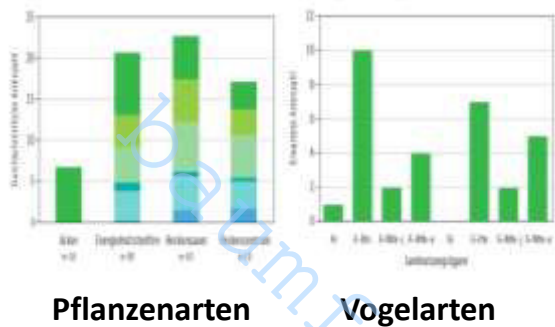
x100 = +12.000 Gt

**C-Speicherung im Boden x4**

(7;8)



## Biodiversität in Agroforstsystemen

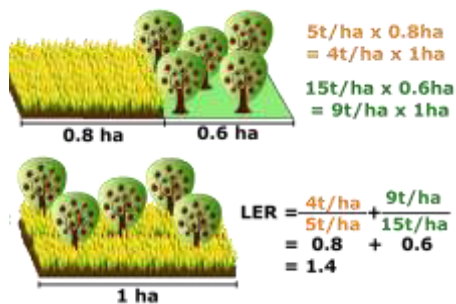


Quelle: (17)

## Produktivität – Beispiele aus Brandenburg:

$$\text{LER} = 2,0 \text{ bis } 2,9 \quad (13)$$

Steigerung Getreideertrag 16%<sup>(18)</sup>











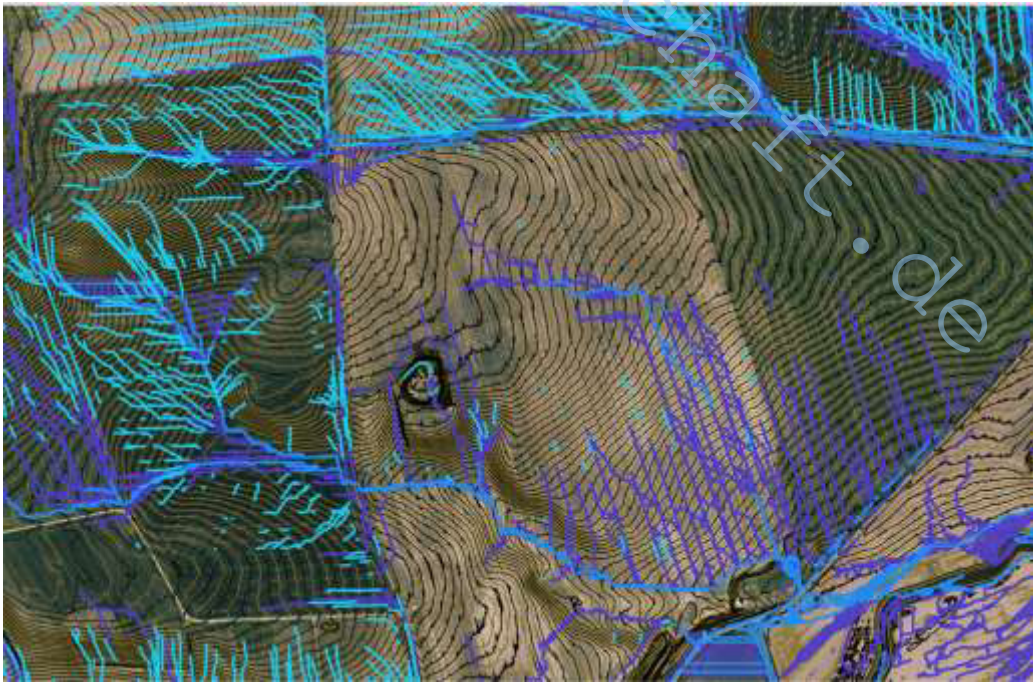








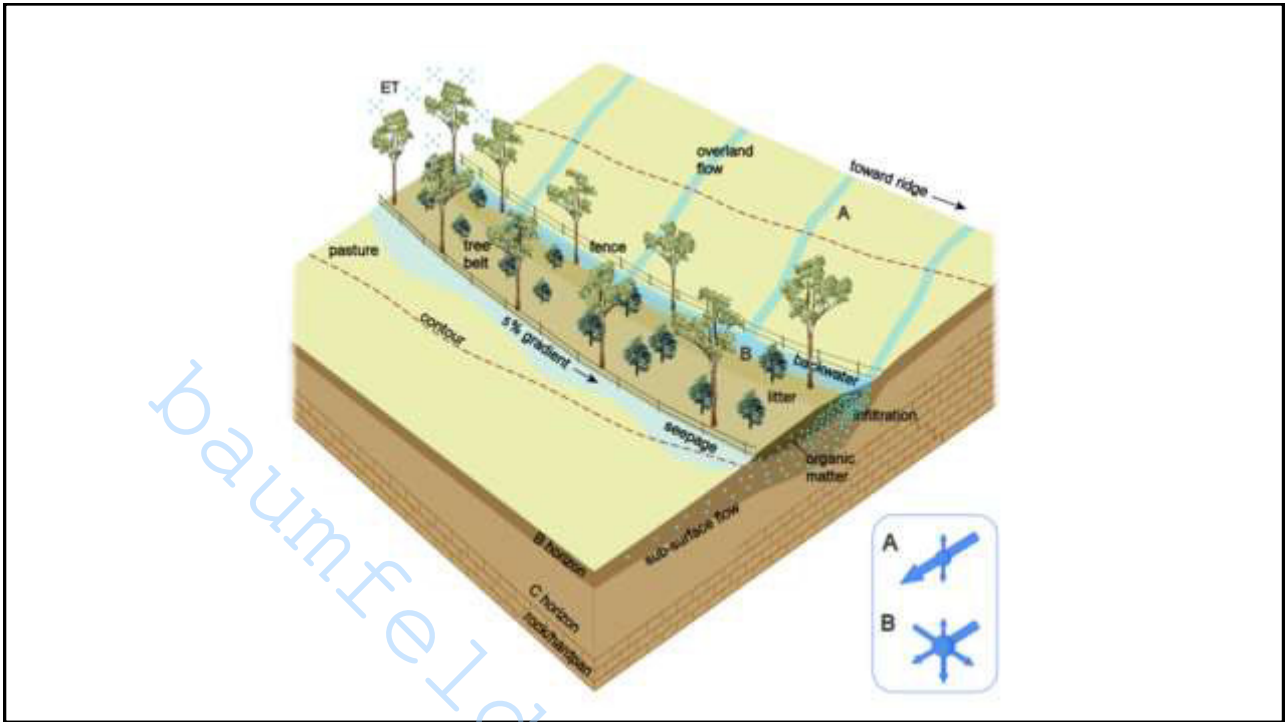








**Keyline-Strukturen:**  
**Mehrwert für Hochwasser- und  
Dürreschutz**











## Erosionsschutz mit Keyline-Strukturen

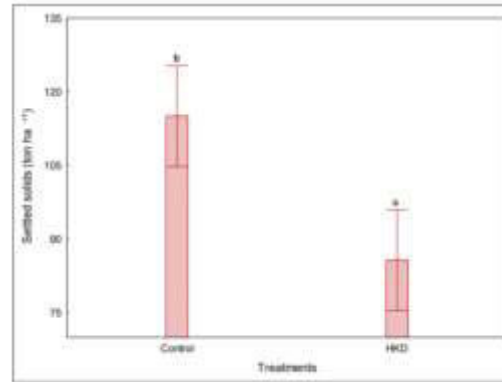
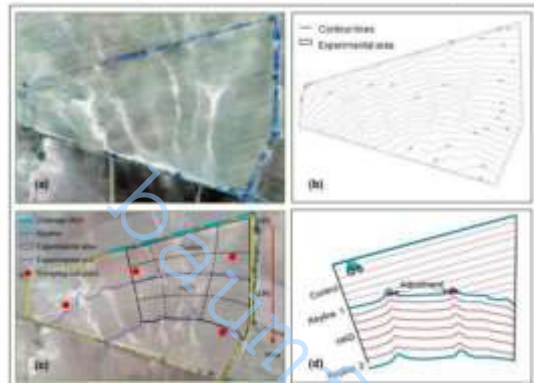
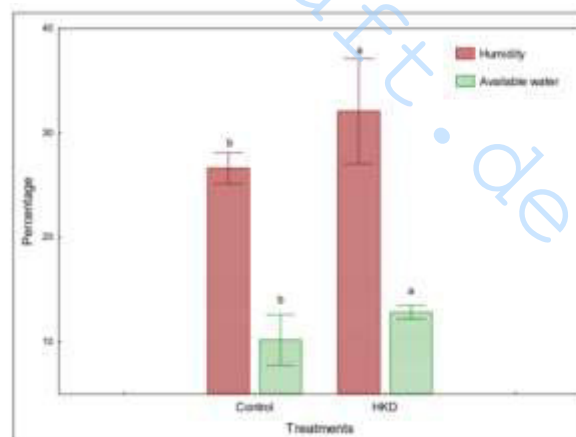


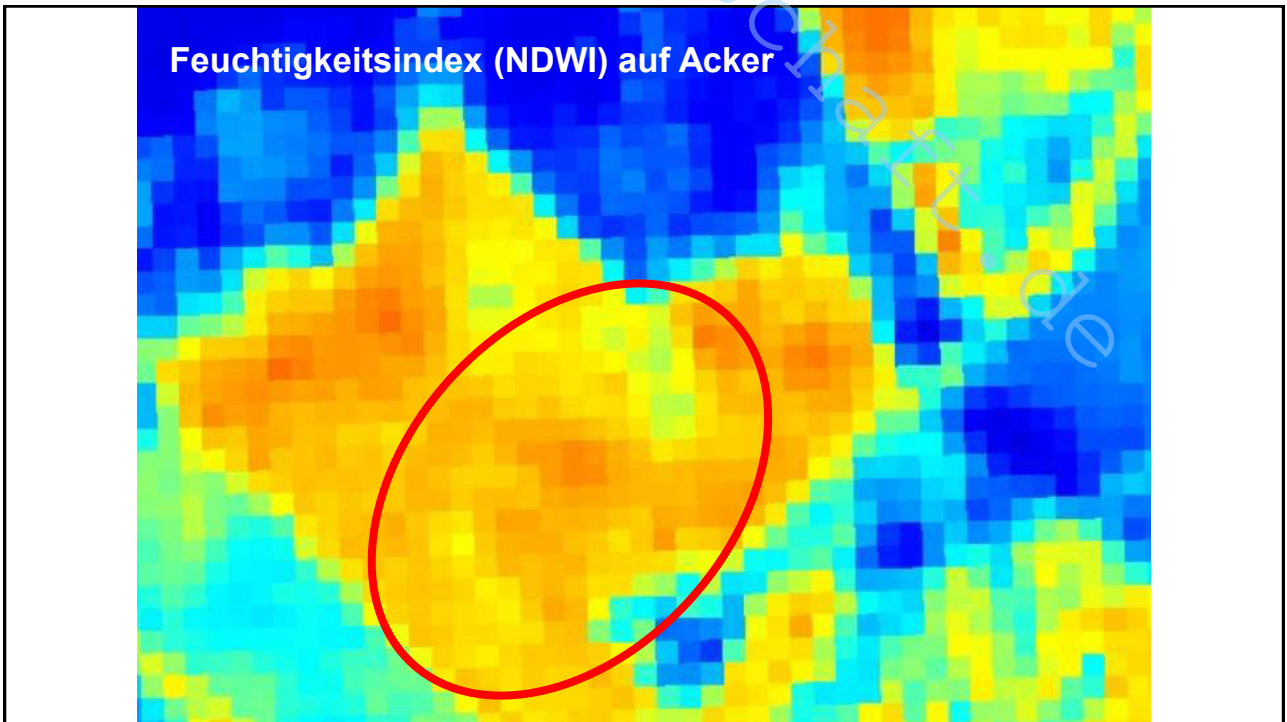
Figure 6. Average of soil eroded in each treatment (n = 18).

Quelle: Ponce-Rodríguez et al.

## Dürrevorbeugung mit Keyline-Strukturen

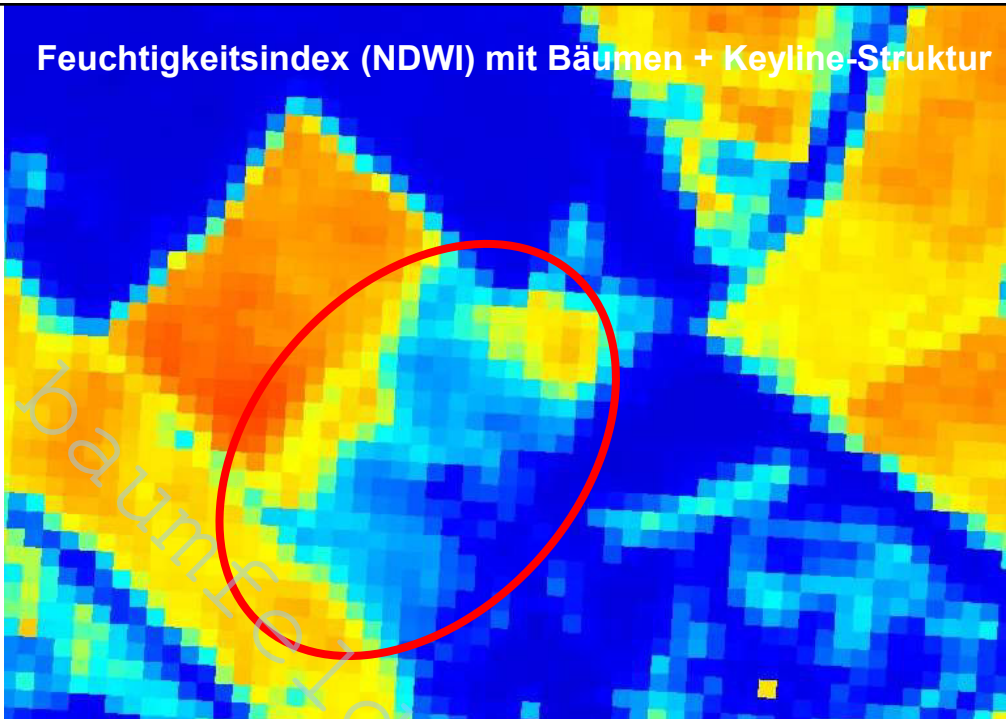


Quelle: Ponce-Rodríguez et al.





Feuchtigkeitsindex (NDWI) mit Bäumen + Keyline-Struktur





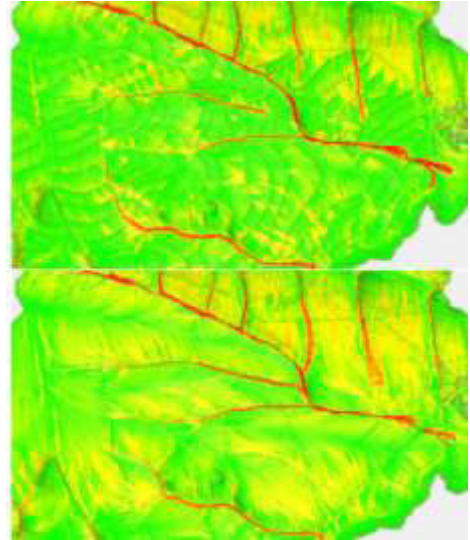


Erste Ergebnisse aus Thüringen:

**Wasserrückhalt +13%**

**Hochwasserspitze -20%**

**Erosion -60%**













# Aufbäumen statt aufforsten!

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instagram.com/baumfeldwirtschaft

- 1: Intergovernmental Panel on Climate Change, 2018. Global warming of 1.5°C. (SR 1.5)
- 2: Deutsches Klimarechenzentrum: Globale Mitteltemperatur, geändert Lizenz: CC BY-NC-ND 4.0
- 3: DWD (2017): Nationaler Klimareport. Dritte korrigierte Auflage.
- 4: EASAC (2018): Policy Report 35. Negative emission technologies: What role in meeting Paris Agreement targets?
- 5: Rogelj, J., Popp, A., Calvin, K. V., Luderer, G., Emmerling, J., Gernaat, D., ... Tavoni, M. (2018). Scenarios towards limiting global mean temperature increase below 1.5 °C. *Nature Climate Change*, 8(4), 325–332. doi:10.1038/s41558-018-0091-3
- 6: Bastin, J.-F., Fet al. 2019. The global tree restoration potential. *Science* 365, 76–79. <https://doi.org/10.1126/science.aax0848>
- 7: Zomer 2016: Global Tree Cover and Biomass Carbon on Agricultural Land: The contribution of agroforestry to global and national carbon budgets.
- 8: Schwarzer, S., 2019. The potential of carbon sequestration in the soil (No. 013), Foresight Brief - Early Warning, Emerging Issues and Futures. UN Environment Science Division, Geneva, Switzerland.
- 9: Ryan, J., McAlpine, C., Ludwig, J., 2010. Integrated vegetation designs for enhancing water retention and recycling in agroecosystems. *Landscape Ecol.* 25. <https://doi.org/10.1007/s10980-010-9509-7>
- 10: Ryan, J., McAlpine, C., Ludwig, J., Callow, J., 2015. Modelling the Potential of Integrated Vegetation Bands (IVB) to Retain Stormwater Runoff on Steep Hillslopes of Southeast Queensland, Australia. *Land* 4, 711–736. <https://doi.org/10.3390/land4030711>
- 11: Fischer, H.S., Michler, B., Fischer, A., n.d. Die zukünftige pN Bayerns. *LWF Aktuell* 2018, 46–49.
- 12: Kumar 2009: Agroforestry and grass buffers for improving soil hydraulic properties and reducing runoff and sediment losses from grazed pastures.
- 13: Seserman et al. 2018. Benefits of Agroforestry Systems for Land Equivalent Ratio – Case Studies in Brandenburg and Lower Saxony, Germany.
- 14: Rogelj et al. 2018. Scenarios towards limiting global mean temperature increase below 1.5 °C.
- 15: Udawatta et al. 2002: Agroforestry Practices, Runoff, and Nutrient Loss: A Paired Watershed Comparison.
- 16: Anderson et al. 2008: Soil water content and infiltration in agroforestry buffer strips.
- 17: BfN 2011: Leitfaden Agroforstsysteme.
- 18: Kanzler et al. 2019: Microclimate Effects on Evaporation and Winter Wheat (*Triticum Aestivum* L.) Yield within a Temperate Agroforestry System.
- 19: Ellison et al. 2017: Trees, forests and water: Cool insights for a hot world.

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