Farm “Pferdehof Rehren”
– direct sowing and agroforestry



Photo: Maren Fuhst

Name	Pferdehof Rehren
Country	Germany
Biogeographical Region	Continental
Region	Lower Saxony, Hannover region
Landscape/ Ecosystem type/protected area	Flat to slightly hilly landscape “Calenberger Bördelandschaft” with loess-loam soils, partly landscape and water protection area
Size / Scope	30 ha farm, of which 4 ha are agroforestry systems
Type of farm	Family business, conventional farm, horse boarding farm
Agricultural Use	24 ha arable land, 6 ha grassland, 45 boarding horses
Best practice / main idea	Regenerative farming and agroforestry as drought adaptation
Involved Stakeholders/Partners	Family Rehren (Stefanie & Henning Rehren, daughter Antonia), agroforestry planning office “Triebwerk”, project cooperations “MODEMA” and “ELAN”.
Duration	Direct seeding since 2019, agroforestry since 2022
Goals	Climate adoption: Reduce soil erosion and achieve better temperature and moisture distribution.
Activities	- Regenerative farming (direct sowing, crop rotation, legumes, soil cover).

	- Planting of tree agroforestry systems in Alley-Cropping-Design. - Promotion of agroforestry (Henning Rehren is recognized as an "agroforestry ambassador" by the German Federation for Agroforestry).
Measures addressing water and soil management	- Direct sowing improves soil structure and soil life. - Trees protect the soil from wind and water erosion. - Plant roots and organic material support humus formation. - Roots reach deeper soil layers and bring more water into the system. - Transpiration of trees improves the microclimate. - Trees provide shade and reduce water evaporation from the soil.
Measures addressing biodiversity, climate	- Trees store carbon dioxide in the biomass and soil. - Trees provide food and shelter for birds, insects, spiders, and mammals. - Protection of groundwater from nitrogen inputs through the tree roots' filter mechanism.
Funding / Financing	- National project funding and funding scheme of the Agricultural Ministry of Lower Saxony and own contribution. - CAP funding: Agroforestry systems are eligible for direct payments, and additionally the Eco-scheme 3 "maintenance of agroforestry systems" (since 2026: 600€/ha/year). - Tree sponsorship for walnut trees and Carbo Cert carbon credits.
Transferability	- Tree species must be selected according to climate and soil conditions. - Agroforestry production goals (e.g., fruit, nuts, energy wood, hardwood production, hedgerow for livestock) must fit the farm concept and value chains.
Tip/suggestion from the farmer	"Start with one agroforestry system at a time to gain experience."
Further information	https://www.pferdehof-rehren.de/agroforst/ [DE]
Contact information	Landcare Germany info@dvl.org Deutscher Verband für Landschaftspflege

“I feel committed to passing on my farm to the next generation in the way that is resilient towards the changing climate.”

Henning Rehren, Pferdehof Rehren

The Rehren horse-boarding farm

For generations, the Rehren family has farmed the lands around the small village of ‘Lemmie,’ near ‘Gehrden’ in ‘Lower Saxony’. Today, Stefanie and Henning Rehren, together with their daughter Antonia, run a mixed arable and horse-boarding farm that combines tradition with innovation. The farm comprises 24 hectares of owned land and a further 6 hectares under lease, with productive soils ranging from 50 to 85 soil points. They cultivate sugar beet, wheat, barley, oilseed rape, and arable grass form the core of the crop rotation, while the horse yard provides a home for around 45 boarding horses alongside the family's own horse.



Credit: Rehren

But erosion caused by wind and drought has increased. One reason for this is the intensive use of the precious soil. Protective trees and shrubs have disappeared. Therefore, the ‘Rehrens’ have been steadily transitioning to regenerative farming, trialling and adopting direct-drilling systems to improve soil health and resilience since 2019. In 2022, they took the next step by establishing agroforestry, integrating trees into their farming system to enhance drought resistance and create a more sustainable landscape in the ‘Calenberger Bördelandschaft’ for future generations.

Agroforestry systems against droughts

"I first heard about agroforestry systems from my brother, and in 2020 I thought about them again because of the severe drought," starts Henning Rehren.
However, planting trees and crops in the same field is an old principle that we revive here on our farm in Lemmie. Our goals are to achieve better temperature and moisture distribution by reducing wind speeds and providing shade. The trees are intended to protect against erosion

and prevent the soil from drying out during the increasingly arid summer months. The resulting microclimate enhances yield stability. In addition, the trees produce humus and sequester carbon.
With the support of the regional project "Establishment and performance of various agroforestry systems in Lower Saxony" (ELAN) (2022-2025), the national project "Model and Demonstration Network for Agroforestry" (MODEMA) (2024-2027), and a funding scheme of the Agricultural Ministry of Lower Saxony as well as their own contribution, the family established three agroforestry systems in four years.

System 1: 2022: 93 walnut trees & olive groves in 4 strips (0.4 ha E-W) covering 2.5 ha,
System 2: 2023: 3.300 poplar hybrids (2.5 ha) and 2024/2025: 90 walnuts (0.5 ha) on 18.95 ha
System 3: 2023-2024: 165 walnut trees (0.5 ha, N-S) and oil willows on 7.3ha

"We mainly planted the variety 'Fenor' walnuts," explains Henning. "10 percent of them are pollinator trees of the 'Franquette' variety, one of the oldest European walnut varieties. We will have to wait at least 5–10 years before walnut trees bear their first fruit. Once they do, however, they are a real all-rounder." There is hardly any other tree that can be used in very different ways and is so incredibly beneficial to health. While the nut trees will provide fruit, nuts, and valuable timber, the poplars will be used to fuel his own wood chip-fired heating system in the future.


Credit: Rehren

The management of the agroforestry systems includes weed control 1–2 times per year using a flail mower and brush cutter, pruning of the walnut trees once a year, and cutting back the roots with a subsoiler after approximately 2 years. He keeps a buffer zone of 1.5–2 m from the tree line; outside, the regular cultivation of the field remains possible.
A lot of extra work, and the harvest will only be possible after approx. 5–10 years. But the benefits for the soil and biodiversity already show now: A research team of the 'MODEMA' project has counted more earthworms, improving soil structure and biological activity, leading to humus building and better water storage capacity and humus building. Additionally, wind speeds have slowed down, and with them, wind erosion and the potential evaporation. In the middle of the field, wind speed was reduced by 4.48 meters per second, or 58.5%; on the lee

side of the poplars, the reduction was even minus 5.3 meters per second, or 72.2% less than compared to the reference plot.

Apart from the improved production conditions, the agroforestry system also enhanced biodiversity. The trees constitute stepping stones for animals, creating biodiversity corridors and linking biotopes. They provide shelter for birds, insects, spiders, and small mammals. "The wildlife cameras are also capturing more roe deer," says Henning Rehren. For their engagement, the Rehren farm gets positive recognition by the media and the public.

In 2026, Henning Rehren was recognized as an "agroforestry ambassador" by the German Federation for Agroforestry (DeFAF).



Credit: Maren Fuhst

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