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Agroforestry – First Shade for the Pumpkins, Then an Agroforestry

About Agroforestry

This case study presents a 25+ farmer from Potsdam-Mittelmark who introduced agroforestry to protect pumpkins from sunburn while adapting to the challenges of climate change. Agroforestry also helps improve soils with low water storage capacity, offering multiple long-term ecological and economic benefits. The farmer first established 2.5 hectares of forest under a DBU project (not intended for harvesting) and later added another 2.5 hectares under a Vivo Carbon project, where 6,000 poplars were planted for future harvest.

The Challenge

The farmer faced several challenges:
-Crop protection: Preventing pumpkin sunburn while reducing evaporation and plant stress on soils with low water storage.
-Planning: Aligning tree strips north–south to ensure optimal shading.
-Financing: Limited subsidies and strict conditions made funding difficult.
Maintenance: Labor-intensive weeding, irrigation, and the need for special machinery (finger hoes, cultivators, planting machines).

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These challenges were significant as they combined both climate adaptation needs and economic constraints, requiring innovative approaches to sustain farming in a changing environment.

THE SOLUTION

The farmer addressed these issues by introducing a strip agroforestry system with poplar and chestnut trees, which:
-Shade crops such as pumpkins, cereals, winter peas, and field beans.
-Provide wind protection and habitat for biodiversity.
-Bind CO_2 and contribute to climate adaptation.
-Implementation steps included:
-Establishing 2.5 ha of pure forest through DBU, followed by 2.5 ha with Vivo Carbon (financing ~€25,000 for 6,000 poplars).
-Planning strips in a north–south direction for optimal light and shade.
-Using special equipment alongside high manual labor for planting, weeding, and watering.
-Planning for an eight-year harvest cycle with immediate replanting afterwards.

IMPACT AND RESULTS

Although the system is still young, it has already shown clear benefits:
-Improved harvest quality: Pumpkins are less prone to sunburn, making them easier to market.
-Positive microclimate effects: Benefits for cereals, winter peas, and field beans.
-Ecological outcomes: Reduced evaporation, wind protection, biodiversity refuges, CO_2 sequestration.
Economic potential: Diversification of farm products through agroforestry, supporting direct sales near Berlin.
-Financial feasibility: Vivo Carbon's funding made large-scale planting possible, balancing out the high maintenance costs.
Despite higher labor demands for pruning, irrigation, and soil cultivation, the ecological and marketing advantages outweigh the challenges. The system strengthens resilience to climate change, improves crop quality, and creates a unique selling point compared to conventional farms. Going forward, agroforestry will continue to play a key role in the farm's climate adaptation strategy and market positioning.

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