Alternative cultures on wet organic soils

Chances for climate, agriculture and biodiversity

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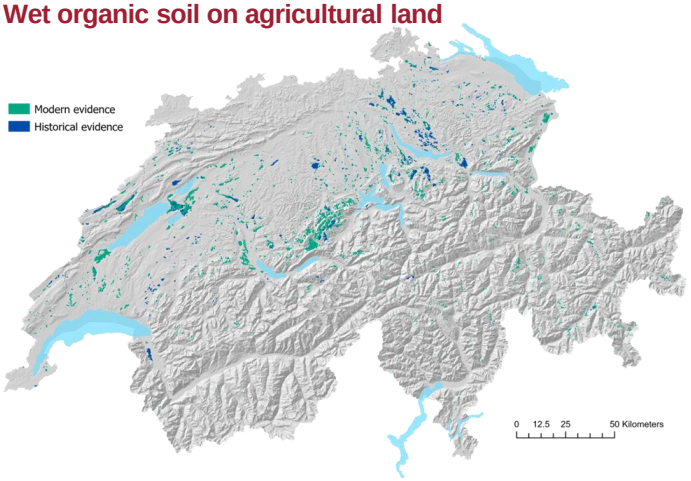
Context

Wet and waterlogged croplands are becoming increasingly relevant in Swiss agriculture as climate change raises groundwater levels and limits conventional farming. These areas, often seen as problematic, offer significant opportunities for biodiversity, climate mitigation, and sustainable raw material production.

Alternative land uses

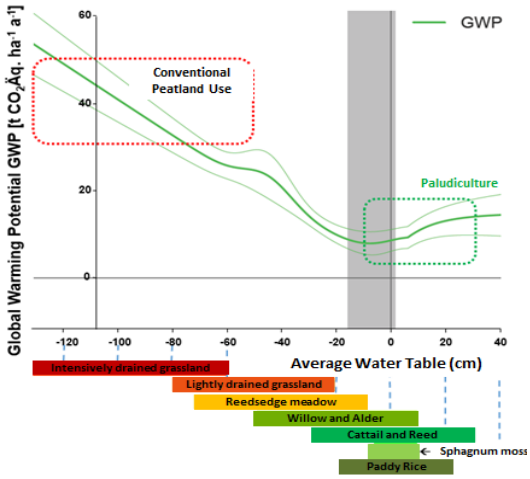
Wet meadows and pastures, and paludiculture provide promising solutions, halt peat degradation and cut CO_2 emissions. Meadows enhance habitats for rare species, while grazing with robust livestock reduces mechanical effort and supports regional markets. Paludiculture cultivation of plants like reed, cattail, and peat moss supplies renewable resources for construction, substrates, and fibers.

Wet organic soil on agricultural land



Graphic 1: Only 1-2% of the Swiss agricultural land is located on organic soils (Wüst et al. 2025), which are often affected by wet conditions due to outdated drainage systems.

Graphic 2: Images from left to right: paddy rice cultivation; reed harvesting; Scottish Highland cattle; wet meadow and pasture management; sphagnum moss cultivation; willow wood harvesting from short-rotation plantations.



Graphic 3: Idealized relationship between GHG - emissions expressed as global warming potential (GWP) and average water level in peat soils in Central Europe. The average water level ranges for different land uses in peat soils are shown below the figure. The gray area indicates the optimal average annual water level for the lowest possible GHG emissions from peat soils (Birr et al. 2021).

Supporting products on Feuchtacker.ch

- Wet acre GIS based decision aid for cantonal stakeholders
- 9 Leaflets with detailed information for alternative cultures on wet organic soil for practical stakeholders with the tabular decision aid
- 1 leaflet (FIBL, WWF & Agroscope) for farmers
- Stay tuned for further projects on the Agroscope Website…

Graphic 4: Wetland biodiversity from top left to bottom right: Flowering rush; Natterjack toad; Tree frog; Lapwing; Hyssop-leaved loosestrife; Yellow-bellied toad; Marshland darter; Blue-tailed damselfly; Snipe, that can be promoted through rewetting projects.

Outlook

Successful implementation of alternative cultures depends on adapted technologies, infrastructure investment, and new value chains, developed through pilot projects and cross-sector collaboration. This can position wetlands as key landscapes for climate-resilient, biodiversity-friendly agriculture. We are assessing farmers' interest in alternative crops on organic soils and building partnerships for pilot projects.

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