

Climate change mitigation targeted management practices on organic soils – summary of Life OrgBalt project sites

Implementation of climate change mitigation measures in selected demo sites – demo sites in forest land

2nd Steering group meeting

Date: July 15th, 2020

EU LIFE Programme project

"Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland"

LIFE OrgBalt, LIFE18 CCM/LV/001158







Latvia University of Life Sciences and Technologies









GREIFSWALD MIRE CENTRE



The scope of establishment of demo & reference sites

Elaboration of activity data for accounting of GHG emissions and CO₂ removals in organic soils in the National GHG inventories and methodologies for modelling of activity data for the projections of GHG emissions

Elaboration emission factors for nutrientrich organic soils in forest land, cropland, grassland and wetlands under conventional management conditions

Evaluation of **impact of the proposed climate change mitigation measures** on GHG emissions from nutrient-rich organic soils Data support for **development and verification of GHG modelling solutions** for organic soils

Demonstration of **reduction of GHG** emissions from nutrient-rich organic soils by implementation of mitigative measures Establishment of demo site for further training, education and monitoring purposes



Two step verification procedure of impact of the measures implemented in demo sites

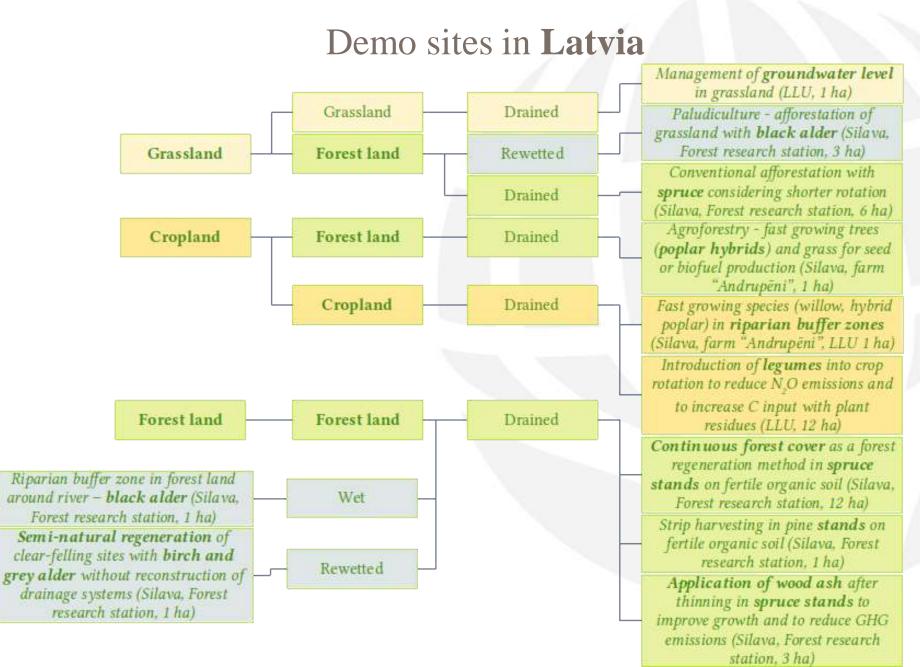
> **Reference site** at steady stage before implementation of the measure, e.g. conventionally managed cropland with nutrient-rich organic soil

Demo site representing GHG fluxes directly before and after implementation of the measure, e.g. afforestation of cropland with nutrient-rich organic soil

Reference site at steady stage after implementation of the measure, e.g. forest stand with nutrient-rich organic soil

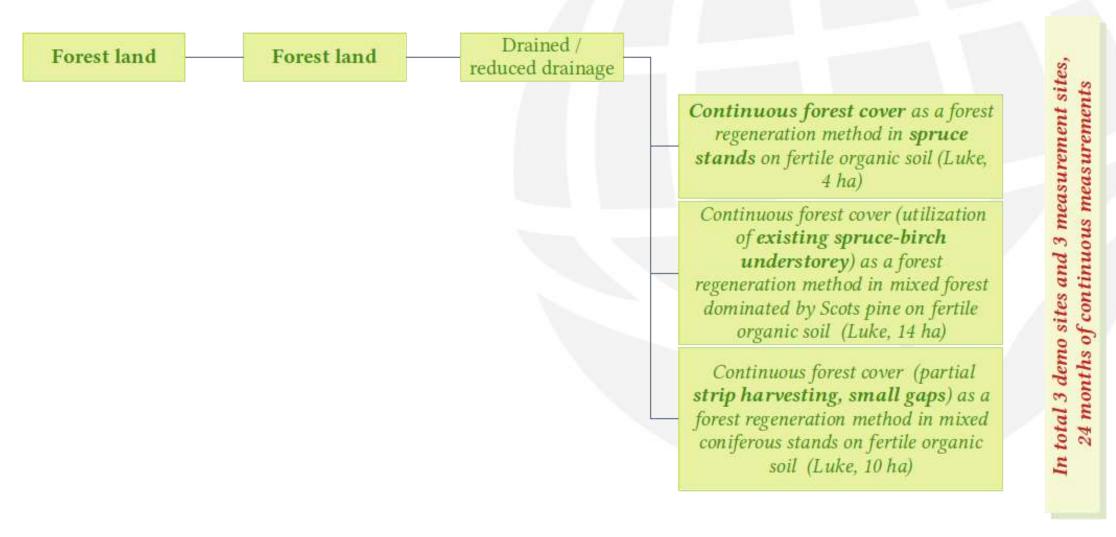
Long term **monitoring of GHG fluxes** to evaluate GHG emissions during the transitional stage





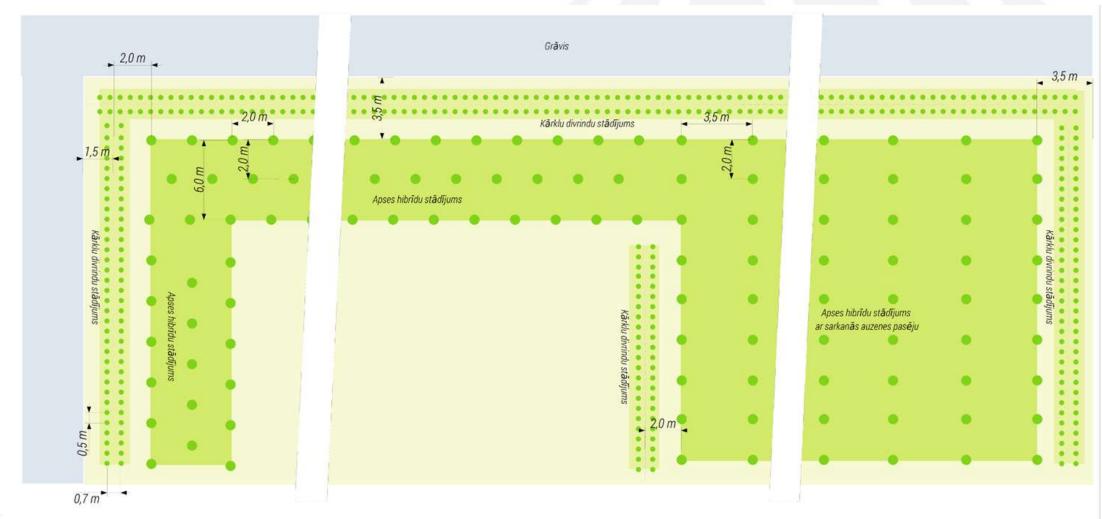


Demo sites in Finland





Example of demo field design in cropland – agroforestry, conversion to grassland, buffer zones



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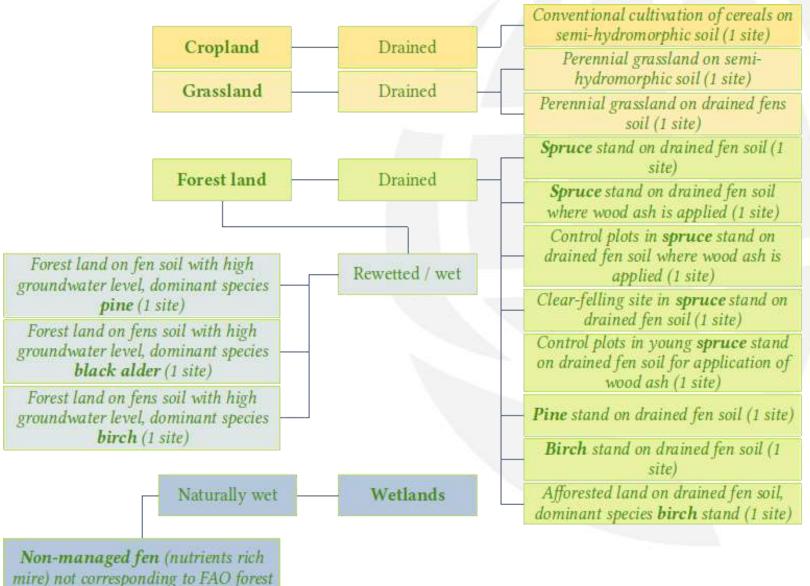
definition thresholds (1 site)

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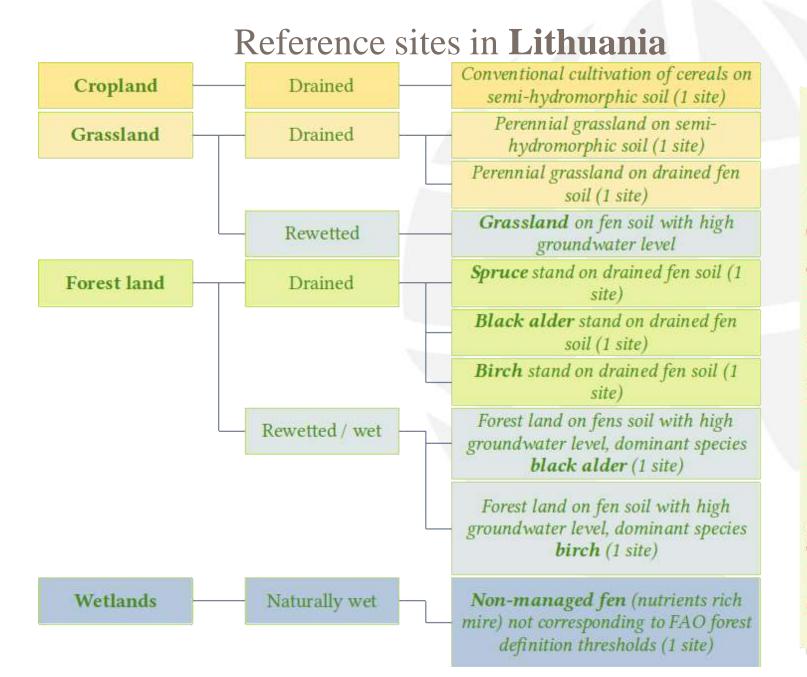
In total 15 measurement sites, 24 months of continuous

measurements

Reference sites in Latvia









Conventional cultivation of cereals on Cropland Drained semi-hydromorphic soil (1 site) Perennial grassland on drained semi-Grassland Drained hydromorphic soil (1 site) Perennial grassland on drained fen soil (1 site) Rewetted Grassland on fen soil with high groundwater level (1 site) Spruce stand on drained fen soil (1 Forest land Drained site) Pine stand on drained fen soil (1 site) Birch stand on drained fen soil (1 site) Forest land on drained fens soil with Rewetted high groundwater level, dominant species pine (1 site) Forest land on drained fens soil with high groundwater level, dominant species birch (1 site) Wetlands Non-managed fen (nutrients rich Naturally wet mire) not corresponding to FAO forest definition thresholds (1 site)

Reference sites in Estonia

In total 10 measurement sites, 24 months of continuous measurements



Measurement procedures in reference and demo sites

C02 Continuous water level measurement

C01 Continuous soil temperature measurement

M06 Periodic soil moisture measurement

M05 Water temp., pH, conductivity, oxygen content

M04 Transparent chambers – photosynthesis

M03 Measurement of $N_2O \& CH_4$ + CO_2 emissions

M02 Heterotrophic respiration, small chambers

M01 Periodic litter sampling & analysis

Reference and demo sites P01 Soil sampling & analyses

P02 Carbon stock in herbaceous vegetation

P03 Carbon stock in shrubs

P04 Carbon stock in tree biomass

P05 Carbon stock in fine roots

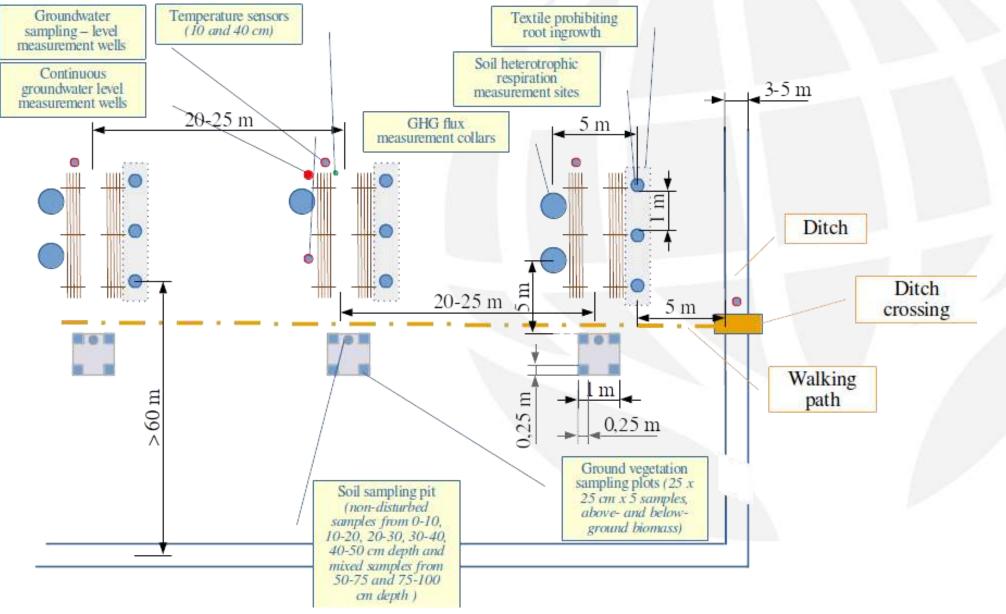
P06 Soil infrared spectroscopy tests

Y01 Litter decomposition trials

Y02 Root ingrowth trials



Example of the measurement site design – cropland & grassland









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