

REPORT

ON IMPLEMENTATION OF THE PROJECT

DEMONSTRATION OF CLIMATE CHANGE MITIGATION MEASURES IN NUTRIENTS RICH DRAINED ORGANIC SOILS IN BALTIC STATES AND FINLAND

WORK PACKAGE

PROJECT MANAGEMENT

(F.1)

ACTIONS

Deliverable title **List of demo sites in the partner countries including
location and driving distances (included in the Progress
Report)**

Deliverable No F.1.1

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"LIFE OrgBalt compiled the first regional Baltic/ Finnish GHG emission factors for managed nutrient-rich organic soils (current and former peatlands), which have been made available for the customary scientific review and further verification for national GHG inventories in the hemiboreal region in Finland and the Baltic countries. While the project analysed selected CCM measures for drained organic soils in agriculture and forestry and developed spatial models and tools, it also identified remaining knowledge gaps. To bridge the remaining limitations and fill the gaps, it is essential to continue GHG measurements and model development, as well to broaden and complete the scope of the evaluated CCM measures in the after-LIFE-project period, notably by including rewetting and restoration of peatlands that are currently considered to be among the most recommended CCM measures on drained peatlands in the EU. In addition, the developed Simulation and PPC models still include limited macroeconomic considerations and lack assessment of all environmental impacts. For all these reasons, these models should be used carefully in CCM strategy development for identification of gaps in climate neutrality transition policy and funding frameworks and need further optimization for broader applicability as decision-making tools."

SUMMARY

With the aim to demonstrate climate change mitigation potential of the selected measures within the project, in total 16 climate change mitigation demonstration sites are selected to be established in agriculture and forest land – 13 sites in Latvia and 3 sites in Finland. Total directly impacted territory except buffer zones that are not considered here is 74.2 ha that by 9.2 ha exceeds the area (65 ha - 45 ha in Latvia and ~ 20 ha in Finland) planned to be impacted (in the project application).

Demo sites in Latvia are established in private land (agriculture land) and in land (forest and agriculture land) devoted to the research purposes and owned by the project partners Latvian State Forest Research Institute “Silava” (LSFRI “Silava”) and Latvia University of Life Sciences and Technologies (LLU) - agency “Forest Research Station” and the training and research farm of LLU “Vecauce”. Individual agreements are assigned with private land owners. Project activities in scientific research land are organized in the framework of the long term general collaboration setting among institutions.

All 3 sites in Finland are established in forest land and by implementing forestry related CCM measures. In Latvia 8 sites are established in forest land or afforested agricultural land and 5 sites in agricultural land.

Demo sites in Finland are already existing demo sites established before LIFE OrgBalt project run and will be used as reference sites for impact assessment of CCM measures as well as for demonstration of CCM measures. Demo sites in Finland are established in state and private forest land (owned by state forest company Metsähallitus Forestry Ltd and private company UPM Forest) and in all cases there are agreements signed with land owners concerning usage of the sites for research and demonstration.

In this report list of selected demonstration sites and brief summary of each site information is provided.

ABBREVIATIONS

LLU - Latvia University of Life Sciences and Technologies

LSFRI “Silava” - Latvian State Forest Research Institute

CCM = climate change mitigation

CH₄ = methane

CO₂ = carbon dioxide

GHG = greenhouse gas

N₂O = nitrous oxide

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1. DEMONSTRATION SITES IN LATVIA

1.1 Paludiculture - afforestation of grassland with black alder and birch (LVC303)

Identification (number)	LVC303 (forest land)
<ul style="list-style-type: none"> Location (municipality (novads), parish (pagasts), coordinates) 	Municipality: Smiltenes novads Parish: Variņi X: 26.07054 Y: 57.32282
<ul style="list-style-type: none"> Area, ha 	1.8
<ul style="list-style-type: none"> Owner 	State owned scientific research forest managed by public agency "Forest Research Station" (owned by LSFRI "Silava" and LLU).
<ul style="list-style-type: none"> Demonstrated CCM measure 	Establishment of black alder (<i>Alnus glutinosa</i>) stand in organic soil previously used as grassland. Comparison of soil emissions in demonstration plot with emissions from grassland on organic soil. CCM is based on reduced GHG emissions from soil due to improvement of water regime by mounding and shallow furrows as well as by accumulation of CO ₂ in living and dead biomass, soil and litter and replacement effect of forest biofuel and harvested wood products.
<ul style="list-style-type: none"> Short description of the site 	Old drainage system out of functionality, increased water table.
<ul style="list-style-type: none"> Establishment activity 	Cleaning of drainage system, soil preparation by using mounding and shallow furrows method, planting of seedlings, grass cleaning and help planting if needed.
<ul style="list-style-type: none"> Driving distance, km 	Driving distance from Salaspils 142km

1.2 Conventional afforestation considering shorter rotation (LVC302)

Identification (number)	LVC302 (forest land)
<ul style="list-style-type: none"> Location (municipality (novads), parish (pagasts), coordinates) 	Municipality: Nīcas Parish: Nīcas X: 21.119713 Y: 56.228792
<ul style="list-style-type: none"> Area, ha 	4.2
<ul style="list-style-type: none"> Owner 	State owned scientific research forest managed by public agency "Forest Research Station" (owned by LSFRI "Silava" and LLU)
<ul style="list-style-type: none"> Demonstrated CCM measure 	Afforestation of grassland with spruce and pine stand considering up to 40 years rotation period. Comparison of soil emissions in demo site with emissions from grassland on organic soil. CCM is based on reduced GHG emissions from soil as well as accumulation of CO ₂ in living and dead biomass, soil and litter and replacement effect of forest biofuel and harvested wood products. Shorter rotation and

	more intensified management ensures higher yield and replacement effect, as well as reduces carbon losses due to root rot and other disturbances.
• Short description of the site	Grassland area with outdated open ditch based drainage system.
• Establishment activity	Cleaning of drainage system, establishment of footbridge to cross the drainage ditch, soil preparation by using mounding method, planting of spruce and pine, grass cleaning and help planting if needed.
• Driving distance, km	Driving distance from Salaspils 280km

1.3 Continuous forest cover as a forest regeneration method in spruce stands (LVC308)

Identification (number)	LVC308 (forest land)
• Location (municipality (novads), parish (pagasts), coordinates)	Municipality: Smiltenes Parish: Launkalnes X: 25.92520 Y: 57.34726
• Area, ha	2.9
• Owner	State owned scientific research forest managed by public agency "Forest Research Station" (owned by LSFRI "Silava" and LLU)
• Demonstrated CCM measure	Evaluation of impact of selective felling in spruce stands on tree growth and GHG emissions from soil. Comparison of soil emissions in demo plots with emissions in clear-felling sites. CCM is based on reduced soil emissions due to avoiding of increase of the groundwater level after harvesting.
• Short description of the site	Spruce stand at regenerative felling age.
• Establishment activity	Cleaning of drainage system, selective felling with strip felling method.
• Driving distance, km	Driving distance from Salaspils 140-150km

1.4 Application of wood ash after commercial thinning in spruce stands (LVC307)

Identification (number)	LVC307 (forest land)
• Location (municipality (novads), parish (pagasts), coordinates)	Municipality: Raunas Parish: Drustu X: 26.03135 Y: 57.27127
• Area, ha	2.6
• Owner	State owned scientific research forest managed by public agency "Forest Research Station" (owned by LSFRI "Silava" and LLU)

<ul style="list-style-type: none"> Demonstrated CCM measure 	Evaluation of impact of wood ash application after commercial thinning in spruce stands on tree growth and GHG emissions from soil. Comparison of soil emissions in demo site with emissions from forest stands without ash application. CCM is based on increased CO ₂ removals in living biomass, dead wood, soil, litter and harvested wood products due to improved growth conditions and additional increment in living biomass.
<ul style="list-style-type: none"> Short description of the site 	Spruce stand on drained nutrient-rich organic soil with dimensions allowing tending.
<ul style="list-style-type: none"> Establishment activity 	Commercial thinning, wood ash application – 3-6 tonnes ha ⁻¹ after commercial thinning.
<ul style="list-style-type: none"> Driving distance, km 	Driving distance from Salaspils 150km

1.5 Riparian buffer zone in forest land planted with black alder (LVC311)

Identification (number)	LVC311 (forest land)
<ul style="list-style-type: none"> Location (municipality (novads), parish (pagasts), coordinates) 	Municipality: Raunas Parish: Drustu X: 25.85403 Y: 57.27952
<ul style="list-style-type: none"> Area, ha 	1.4
<ul style="list-style-type: none"> Owner 	State owned scientific research forest managed by public agency “Forest Research Station” (owned by LSFRI “Silava” and LLU)
<ul style="list-style-type: none"> Demonstrated CCM measure 	CCM is based on reduced GHG emissions from soil due to improvement of water regime by mounding and establishment of network of shallow furrows to drain exceeding surface water, by reduction of risks associated with natural disturbances, as well as by accumulation of CO ₂ in living and dead biomass, soil and litter and replacement effect of forest biofuel and harvested wood products.
<ul style="list-style-type: none"> Short description of the site 	Spruce stand at riparian buffer zone.
<ul style="list-style-type: none"> Establishment activity 	Regeneration felling, soil preparation by using mounding and shallow furrows method, planting of black alder, grass cleaning and help planting if needed.
<ul style="list-style-type: none"> Driving distance, km 	Driving distance from Salaspils 120km

1.6 Semi-natural regeneration of clear-felling sites with birch and black alder without reconstruction of drainage systems (LVC309)

Identification (number)	LVC309 (forest land)
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<ul style="list-style-type: none"> • Location (municipality (novads), parish (pagasts), coordinates) 	Municipality: Raunas Parish: Drustu X: 25.85370 Y: 57.27944
<ul style="list-style-type: none"> • Area, ha 	2.4
<ul style="list-style-type: none"> • Owner 	State owned scientific research forest managed by public agency “Forest Research Station” (owned by LSFRI “Silava” and LLU)
<ul style="list-style-type: none"> • Demonstrated CCM measure 	Evaluation of impact of semi-natural regeneration of clear-felling sites with birch on GHG emissions from soil. CCM is based on reduced soil emissions due to improvement of water regime by mounding and establishment of network of shallow furrows to drain exceeding surface water, by reduction of risks associated with natural disturbances, as well as by accumulation of CO ₂ in living and dead biomass, soil and litter and replacement effect of forest biofuel and harvested wood products.
<ul style="list-style-type: none"> • Short description of the site 	Black alder stand on drained nutrient rich organic soil with high water table.
<ul style="list-style-type: none"> • Establishment activity 	Regeneration felling, scarification of soil using mounding method, planting of black alder, grass cleaning and help planting if needed. Certain area left for natural regeneration with birch.
<ul style="list-style-type: none"> • Driving distance, km 	Driving distance from Salaspils 145km

1.7 Agroforestry - fast growing trees and grass (LVC306)

Identification (number)	LVC306 (agriculture land)
<ul style="list-style-type: none"> • Location (municipality (novads), parish (pagasts), coordinates) 	Municipality: Rucava Parish: Rucava X: 21.18971 Y: 56.21192
<ul style="list-style-type: none"> • Area, ha 	2.7 ha
<ul style="list-style-type: none"> • Owner 	Private agricultural land. The project partners LSFRI “Silava” and LLU have tripartite agreement with private land owner concerning establishment, management and demonstration of CCM measure in the holding, including after the project ending - until December 31, 2027.
<ul style="list-style-type: none"> • Demonstrated CCM measure 	CCM is based on increased CO ₂ removals in living biomass and soil, reduced GHG emissions from soil and replacement effect of woody and herbaceous biofuel and harvested wood products.
<ul style="list-style-type: none"> • Short description of the site 	Cropland on drained organic soil.
<ul style="list-style-type: none"> • Establishment activity 	Soil preparation, planting of fast growing hybrids of poplars (poplar hybrid cuttings suitable for Latvian climatic

	conditions and peat soils (clones Vesten, OP42 or equivalent, with scientifically proven suitability for growing in peat soils in Latvia). Early tending during the 1st growing season and restocking of the plantation (if necessary, by replacing dead and damaged cuttings) at the beginning of the 2nd growing season to ensure at least 99% survival at the beginning of the 2nd growing season. Sowing of red Fescue (<i>Festuca rubra</i>) prior to the planting of a poplar hybrids. Soil improvement measures in accordance with good practice in integrated farms using an appropriate amount of seeds (at least 20 kg ha ⁻¹) and dose of mineral fertilizer (in establishment year at least N:P2O5:K2O 66:43:85). Establishment of reed canary grass prior or simultaneously to the establishment of a poplar hybrid plantation. Soil improvement measures implemented in accordance with good practice in integrated farms using an appropriate amount of seeds (at least 25 kg ha ⁻¹) and dose of mineral fertilizer (in establishment year at least N:P2O5:K2O 66:43:85).
• Driving distance, km	Driving distance from Salaspils 280km

1.8 Fast growing species in riparian buffer zones (LVC310)

Identification (number)	LVC310 (agriculture land)
• Location (municipality (novads), parish (pagasts), coordinates)	Municipality: Rucava Parish: Rucava X: 21.18971 Y: 56.21192
• Area, ha	2.7 ha
• Owner	Private agricultural land. The project partners LSFRI “Silava” and LLU have tripartite agreement with private land owner concerning establishment, management and demonstration of CCM measure in the holding, including after the project ending - until December 31, 2027.
• Demonstrated CCM measure	Evaluation of impact of poplar hybrid and willow plantation in riparian buffer zones on GHG emissions from soil. CCM is based on reduced soil emissions due to increased CO ₂ removals in living biomass and soil, replacement effect of woody and herbaceous biofuel and harvested wood products and avoided nutrients leakage from farmlands.
• Short description of the site	Cropland on drained organic soil.
• Establishment activity	Establishment and maintenance (during the 1st year after establishment) of a poplar hybrid and willow plantation. Hybrid poplar cuttings (suitable for Latvian climatic

	conditions and peat soils (clones Vesten, OP42 or equivalent, with scientifically proven suitability for growing in peat soils in Latvia)) are planted at a distance of 3.5 m from the edge of the ditch. Willows (willow hybrid cuttings suitable for Latvian climatic conditions and peat soils (male clones of <i>Salix viminalis</i> var. with scientifically proven suitability for cultivation in peat soils in Latvia)) are planted along perimeter of the field. Maintenance - removal of woody vegetation from sides of ditches, early tending during the 1st growing season and restocking of the plantation (if necessary, by replacing dead and damaged cuttings) at the beginning of the 2nd growing season to ensure at least 99% survival of poplars and 95% survival of willows at the beginning of the 2nd growing season.
• Driving distance, km	Driving distance from Salaspils 280km

1.9 Conversion of cropland to grassland considering periodic ploughing (LVC301)

Identification (number)	LVC301 (agriculture land)
• Location (municipality (novads), parish (pagasts), coordinates)	Municipality: Auce Parish: Vecauce X: 22.93224 Y: 56.46767
• Area, ha	5.4 ha
• Owner	The training and research farm of the LLU "Vecauce"
• Demonstrated CCM measure	Evaluation of impact of conversion of cropland to grassland on GHG emissions from soil. Comparison of soil emissions in demo site with emissions from organic soil managed as cropland for cereal production. CCM is based on reduced soil emissions due to land use/management conversion.
• Short description of the site	Grassland has been implemented in the demo site in the spring season of 2020. Prior to grassland maize has been grown on this field in 2019.
• Establishment activity	Conversion from cropland to grassland is already done before the project, no additional establishment activity is needed. If during the project periodic ploughing and reseedling will be performed additional costs of 1050 EUR will be applied.
• Driving distance, km	Jelgava – Auce (62 km) Salaspils – Auce (120 km)

1.10 Controlled drainage of grassland considering even groundwater level during the whole vegetation period (LVC305)

Identification (number)	LVC305 (agriculture land)
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<ul style="list-style-type: none"> • Location (municipality (novads), parish (pagasts), coordinates) 	Municipality: Auce Parish: Vecauce X: 22.92800 Y: 56.46664
<ul style="list-style-type: none"> • Area, ha 	2.3 ha
<ul style="list-style-type: none"> • Owner 	The training and research farm of the LLU “Vecauce”
<ul style="list-style-type: none"> • Demonstrated CCM measure 	Controlled drainage of grassland considering even groundwater level during the whole vegetation period Comparison of emissions measured at grasslands under conditions of controlled drainage system and conventional drainage system.
<ul style="list-style-type: none"> • Short description of the site 	The existing conventional subsurface drainage system, also known as free drainage, will be upgraded to controlled drainage system using a water control structure and adjustable boards to raise the depth of the drainage outlet, holding water in the field during periods when drainage is not needed. Unlike conventional drainage systems that remove excess soil water to the drain depth, controlled drainage increases water retention and storage within the soil profile. Free drainage mode will be used only if excess moisture will cause crop damage, otherwise controlled drainage mode will be used.
<ul style="list-style-type: none"> • Establishment activity 	Establishment of controlled drainage system using a water control structure and adjustable boards at the outlet of the existing subsurface drainage system.
<ul style="list-style-type: none"> • Driving distance, km 	Jelgava – Auce (62 km) Salaspils – Auce (120 km)

1.11 Introduction of legumes in conventional farm crop rotation (LVC304)

Identification (number)	LVC304 (agriculture land)
<ul style="list-style-type: none"> • Location (municipality (novads), parishe (pagasts), coordinates) 	1) Municipality: Tukums Parish: Slampe 2) Municipality: Dobeles Parish: Zebrene X: 22.84474 Y: 56.55828
<ul style="list-style-type: none"> • Area, ha 	1) 18.6 2) 2.5
<ul style="list-style-type: none"> • Owner 	Private land owners. The project partners LSFRI “Silava” and LLU have agreements with private land owners concerning establishment, management and demonstration of CCM measure in the holding, including after the project ending - until December 31, 2027.
<ul style="list-style-type: none"> • Demonstrated CCM measure 	Introduction of legumes in conventional farm crop rotation

	Evaluation of GHG emission reduction related to introduction of legumes into conventional cereals crop rotation. Comparison of soil emissions in demo site with emissions from cropland with cereal crop without legumes in rotation. CCM is related to reduced nitrous oxide emissions from soil accounted in agriculture sector because of avoided mineral fertiliser application and gradual nitrogen input by symbiotic organisms; increased input of carbon with plants ensuring smaller CO ₂ emissions from soil.
• Short description of the site	Cropland on nutrient-rich drained organic soil.
• Establishment activity	Legumes to be sown at least once during 24 months – in part of site in 2021, in part during 2022.
• Driving distance, km	Salaspils – Slampe (95 km) Salaspils – Zebrene (121 km)

1.12 Forest regeneration (coniferous trees) without reconstruction of drainage systems (LVC312)

Identification (number)	LVC312 (forest land)
• Location (municipality (novads), parish (pagasts), coordinates)	Municipality: Smiltenes Parish: Launkalnes X: 25.93636 Y: 57.31167
• Area, ha	4.1
• Owner	State owned scientific research forest managed by public agency “Forest Research Station” (owned by Latvian State Forest Research Institute “Silava” and LLU)
• Demonstrated CCM measure	Forest regeneration (coniferous trees) without reconstruction of drainage systems. CCM potential lies on reduced GHG emissions from soil due to improvement of water regime by mounding and establishment of network of shallow furrows to drain exceeding surface water, by reduction of risks associated with natural disturbances, as well as by accumulation of CO ₂ in living and dead biomass, soil and litter and replacement effect of forest biofuel and harvested wood products.
• Short description of the site	Deciduous tree stand on nutrient-rich organic soil, stand reached regeneration felling thresholds.
• Establishment activity	Regeneration felling, soil preparation (mounding method), spruce planting, grass cleaning and help planting if needed.
• Driving distance, km	Driving distance from Salaspils 140 – 150 km

1.13 Strip harvesting in pine stands (LVC313)

Identification (number)	LVC313 (forest land)
<ul style="list-style-type: none"> Location (municipality (novads), parish (pagasts), coordinates) 	Municipality: Rauna Parish: Drustu X: 25.99240 Y: 57.26903
<ul style="list-style-type: none"> Area, ha 	2.1
<ul style="list-style-type: none"> Owner 	State owned scientific research forest managed by public agency "Forest Research Station" (owned by LSFRI "Silava" and LLU)
<ul style="list-style-type: none"> Demonstrated CCM measure 	Strip harevesting in pine stands CCM potential lies on reduced CH ₄ and N ₂ O emissions from soil due to avoiding of increase of the groundwater level after harvesting in comparison to clear-felling sites.
<ul style="list-style-type: none"> Short description of the site 	Pine stand on nutrient-rich organic soil, stand reached regeneration felling thresholds.
<ul style="list-style-type: none"> Establishment activity 	Strip felling, soil preparation (mouding method), pine planting, grass cleaning and help planting if needed.
<ul style="list-style-type: none"> Driving distance, km 	Driving distance from Salaspils 145km

2. DEMONSTRATION SITES IN FINLAND

2.1 Continuous forest cover in spruce stands on nutrient-rich organic soil using selective felling (FIC301)

Identification (number)	FIC301 (forest land)
<ul style="list-style-type: none"> Location (municipality (novads), parish (pagasts), coordinates) 	Site Paroninkorpi Janakkala municipality (61° 0' N, 24° 45' E) X: 61.011907 Y: 24.744357
<ul style="list-style-type: none"> Area, ha 	Site including partial cut (CCM) and control plots: 3.5 ha; clear-cut reference 0.6 ha. The site involves treatment plots following randomized blocks design, so not one uniform treatment area as in other sites.
<ul style="list-style-type: none"> Owner 	Private company UPM Forest. Luke has an agreement with UPM Forest on using the site for research and demonstration until 2026/12/31, with an option to prolongation. The company has been very supportive and interested in getting information on the application of CCM measures. https://www.upm.com/businesses/upm-wood-sourcing-forestry/
<ul style="list-style-type: none"> Demonstrated CCM measure 	Continuous forest cover without full ditch network maintenance in spruce stands on nutrient-rich organic soil using selective felling. Comparison of soil emissions in

	demo plots with emissions in conventional forestry practice plots. CCM is based on reduced soil emissions due to controlled rise in soil water-table level, which is controlled through retained tree stand evapotranspiration.
<ul style="list-style-type: none"> • Short description of the site 	<p>Partial harvesting (2017) of mature spruce stand to a target basal area. Uncut plots as reference, clearcut area as reference. The partial harvest treatments and unharvested controls were established on experimental plots based on a randomized block design.</p> <p>The site was established in a project New options for forestry on peat soils funded by Luke. Soil emission measurements were done in 2018-2019 in a project Uneven-structured management as an alternative to intensive forestry on peatlands funded by Kone Foundation.</p>
<ul style="list-style-type: none"> • Establishment activity 	Implementation of the CCM measure, setting up soil greenhouse gas emission measurement subplots, installation of duckboards, piezometers, continuous soil temperature measurements, continuous soil water-table level measurements, litter traps, locations for ground vegetation cover and biomass measurements.
<ul style="list-style-type: none"> • Driving distance, km 	<p>Departure point 1, Helsinki (Viikki): driving distance 115 km.</p> <p>Departure point 2, Lammi (Biological Station): driving distance 25 km</p>

2.2 Continuous forest cover as a forest regeneration method in originally mixed forest dominated by Scots pine on fertile organic soil (FIC302)

Identification (number)	FIC302 (forest land)
<ul style="list-style-type: none"> • Location (municipality (novads), parish (pagasts), coordinates) 	<p>Site Lettosuo Tammela municipality (60°38' N, 23°57' E) X: 60.642423 Y:23.958931</p>
<ul style="list-style-type: none"> • Area, ha 	13 ha under CCM plus reference area (2.3 ha and 3.1 ha)
<ul style="list-style-type: none"> • Owner 	State forest managed by the state forest company Metsähallitus Forestry Ltd. Luke has an agreement with Metsähallitus Forestry Ltd concerning management of research forests.
<ul style="list-style-type: none"> • Demonstrated CCM measure 	Continuous forest cover (utilization of existing spruce understorey) as a forest regeneration method in originally mixed forest dominated by Scots pine on fertile organic soil to reduce CO ₂ emissions from soil. Comparison of emissions in demo plot with emissions in conventional forestry practice plots.

<ul style="list-style-type: none"> • Short description of the site 	<p>Partial harvesting (2016) of mature mixed pine-dominated stand, demo site.</p> <p>Uncut plot as reference, clearcut plot as reference.</p> <p>Finnish Meteorological Institute has run micrometeorological measurements (Eddy Covariance) on the site since 1997 (CO₂) and 2010 (CH₄). This is an ICOS network site (https://www.icos-finland.fi/stations), providing valuable background information to support the measurements done in Life OrgBalt project.</p>
<ul style="list-style-type: none"> • Establishment activity 	<p>Implementation of the CCM measure, setting up soil greenhouse gas emission measurement subplots, installation of duckboards, piezometers, continuous soil temperature measurements, continuous soil water-table level measurements, litter traps, locations for ground vegetation cover and biomass measurements.</p>
<ul style="list-style-type: none"> • Driving distance, km 	<p>Departure point 1, Helsinki (Viikki): driving distance 100 km.</p> <p>Departure point 2, Lammi (Biological Station): driving distance 100 km.</p>

2.3 Continuous forest cover (small gaps) as a forest regeneration method in mixed stands on fertile organic soil to reduce CO₂ emissions from soil (FIC303)

Identification (number)	FIC303 (forest land)
<ul style="list-style-type: none"> • Location (municipality (novads), parish (pagasts), coordinates) 	<p>Kivalo Rovaniemi (66°20'N 26°37'E) X:66.343791 Y:26.624550</p>
<ul style="list-style-type: none"> • Area, ha 	<p>2.0 ha under CCM plus reference area (3.1 ha)</p>
<ul style="list-style-type: none"> • Owner 	<p>State forest managed by the state forest company Metsähallitus Forestry Ltd. Luke has an agreement with Metsähallitus Forestry Ltd concerning management of research forests.</p>
<ul style="list-style-type: none"> • Demonstrated CCM measure 	<p>Continuous forest cover (small gaps) as a forest regeneration method in mixed stands on fertile organic soil to reduce CO₂ emissions from soil. Comparison of emissions in demo plot with emissions in conventional forestry practice plots.</p>
<ul style="list-style-type: none"> • Short description of the site 	<p>Small gaps harvesting (2018) of mixed spruce & birch stand.</p> <p>Uncut areas as reference.</p> <p>This site was established based on the agreement between Luke and Metsähallitus Forestry Ltd in anticipation of the Life OrgBalt project.</p>
<ul style="list-style-type: none"> • Establishment activity 	<p>Implementation of the CCM measure, setting up soil greenhouse gas emission measurement subplots, installation of duckboards, piezometers, continuous soil temperature</p>

	measurements, continuous soil water-table level measurements, litter traps, locations for ground vegetation cover and biomass measurements.
• Driving distance, km	Departure point 1, Rovaniemi: driving distance 65 km. Departure point 2, Helsinki (Viikki): driving distance 835 km.