



Demo sites in Latvia – where we stand

LIFE OrgBalt: «Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland»

LIFE18 CCM/LV/001158

4rd Steering group meeting

Date: June 29, 2021, 11:30 – 13:00 (EET time)

Venue: Remote meeting (Teams platform)

LIFE OrgBalt, LIFE18 CCM/LV/001158

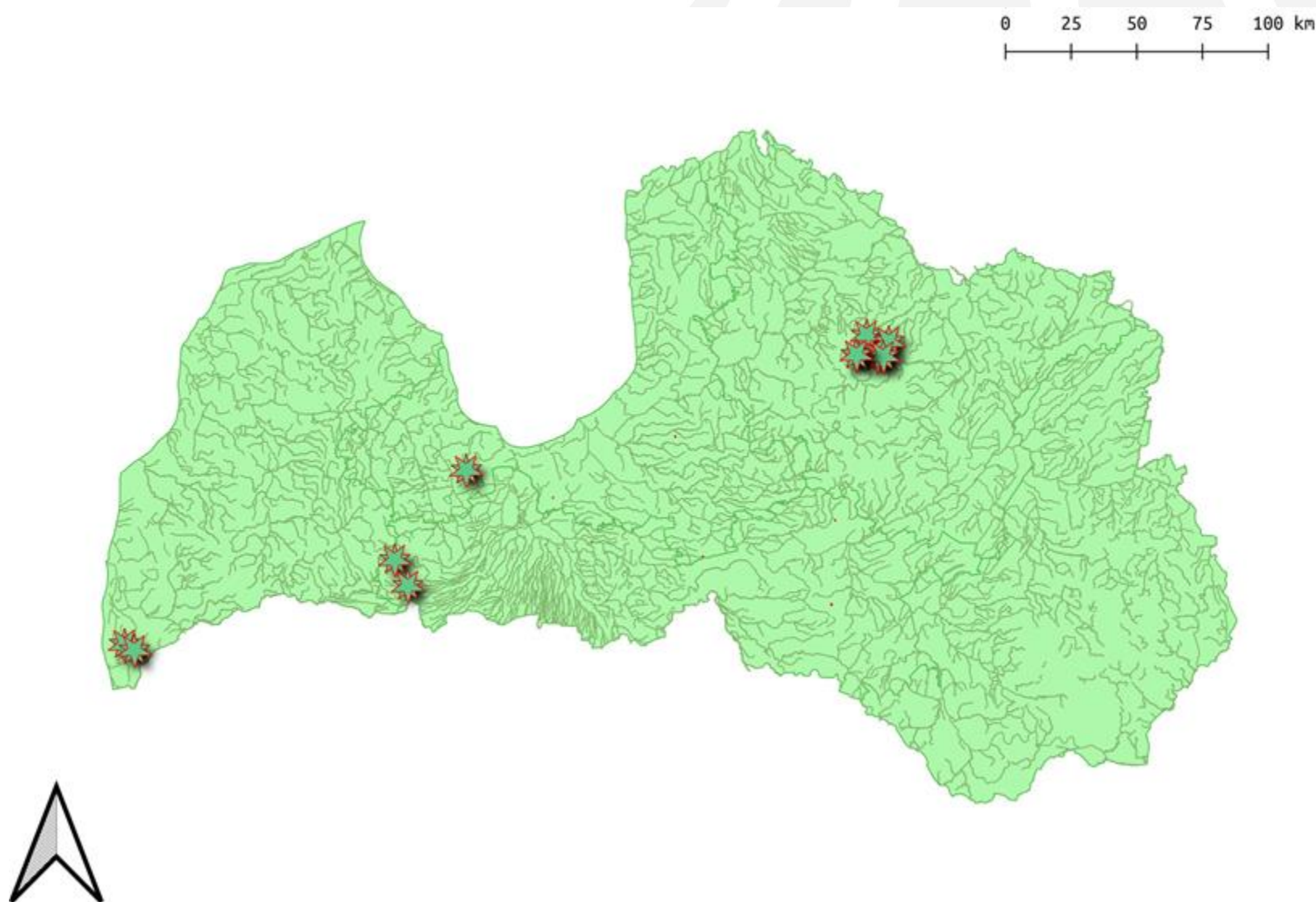
EU LIFE Programme project
“Demonstration of climate change mitigation potential
of nutrients rich organic soils in Baltic States and Finland”



Latvia University
of Life Sciences
and Technologies



Location of demo sites in Latvia



Conversion of cropland with organic soil to grassland (LVC301 & LVC306, LVC310)

.Land owner: ZS "Andrupēni" & LLU.

.Site description: cropland managed for cereals production, peat depth > 30 cm; groundwater depth during vegetation season < 30 cm.

.Implemented activities: ploughing and sowing of mixture of grasses, fertilization dosages as recommended for integrated systems.

.Measurements: started in June, 2021.

.Thinks to be done: regular management, including extraction of grass for fodder production.

.Reference sites in Latvia:

–before implementation – LVC101;

–after implementation – LVC102 and LVC103.



Afforestation grassland with organic soils (LVC302)

.Land owner: Forest Research Station (FRS).

.Site description: grassland managed for fodder production, peat depth > 30 cm; groundwater depth during vegetation season < 30 cm.

.Implemented activities: soil scarification, planting of spruce.

.Things to be done: cleaning of drainage ditches (*issues with land ownership*), weed control during 2 seasons; plant protection from animals, if necessary.

.Measurements: started in May, 2021.

.Reference sites in Latvia:

–before implementation – LVC102 and LVC103.

–after implementation – LVC104, LVC106 and LVC105 (*to evaluate additional impact of wood ash*).



Soil scarification before afforestation (LVC302)



Black alder forest paludiculture (LVC303)

.Land owner: FRS.

.Site description: forest meadow, peat depth > 80 cm; groundwater depth during vegetation season > 30 cm; non-functioning drainage system.

.Implemented activities: cleaning of area from bushes.

.Things to be done: mounding (*large mounds*), cleaning of drainage ditches and shallow ditching inside stand, planting of black alder, weed control during 2 seasons.

.Measurements: started in January, 2021.

.Reference sites in Latvia:

–before implementation – LVC102 and LVC103.



Growing of legumes in the integrated cropping system to increase carbon input and reduce N₂O emissions (LVC304 & LVC103)

Land owner: SIA “Latvijas grauds” & SIA “Jaunkaudzītes”.

Site description: cropland used in the integrated management system for cereal production, peat depth > 30 cm; groundwater depth during vegetation season < 30 cm.

Implemented activities: soil preparation, fertilization and sowing of legumes.

Things to be done: conventional management, collection of management data, sowing of cereals for next season.

Measurements: started in January, 2021.

Reference sites in Latvia:

–before implementation – LVC101.





Regulation of groundwater level in farmland (LVC305)

.Land owner: LLU & Ministry of Agriculture.

.Site description: grassland previously used for crop production, peat depth > 30 cm; groundwater depth during vegetation season < 30 cm.

.Implemented activities: technology chose and specifications elaborated.

.Things to be done: installation of water level regulation facilities, management of the area for fodder production.

.Measurements: started in January, 2021.

.Reference sites in Latvia:

–before implementation – LVC102 & LVC301.

–after implementation – LVC305, literature.



Short rotation woody crops in cropland with organic soil (LVC306 & LVC310, LVC301)

.Land owner: ZS “Andrupēni”.

.Site description: cropland used for cereal production, peat depth > 30 cm; groundwater depth during vegetation season > 30 cm.

.Implemented activities: soil preparation, mechanized planting of hybrid poplar, sowing of undergrowth grasses.

.Things to be done: weed control and restocking, if necessary; grass cutting for fodder production.

.Measurements: started in June, 2021.

.Reference sites in Latvia:

–before implementation – LVC101.

–after implementation – LVC115 (*birch plantation in cropland*).





Wood ash application in spruce forest after commercial thinning (LVC307 & LVC113)

.Land owner: FRS.

.Site description: peat depth > 30 cm;
groundwater depth during vegetation season
< 30 cm; dominant species – spruce (H 16 m, D 15 cm, G 30 m³ ha⁻¹, V 240 m³ ha⁻¹).

.Implemented activities: commercial thinning to permitted basal area.

.Things to be done: cleaning of drainage ditches,
spreading of wood ash (*takes place now*).

.Measurements: started in January, 2021.

.Reference sites in Latvia:

–before implementation – LVC104 & LVC113
(*area where wood ash is not applied*).

–after implementation – LVC307, LVC105 &



Selective harvest as alternative to clear-felling in spruce forest (LVC308)

.Land owner: FRS.

.Site description: peat depth > 30 cm;
groundwater depth during vegetation season
 < 30 cm; dominant species – spruce at maturity
age (H 26 m, D 30 cm, G 29 $m^3 ha^{-1}$, V 341 $m^3 ha^{-1}$).

.Implemented activities: stand technological map
elaborated.

.Things to be done: cleaning of drainage ditches,
selective felling (*autumn 2021*).

.Measurements: started in January, 2021.

.Reference sites in Latvia:

–before implementation – LVC308 (*before
harvest*), LVC104 & LVC106.



Regeneration of forest stand with wet organic soil by mounding and planting of black alder – forest paludiculture (LVC309)

.Land owner: FRS.

.Site description: peat depth > 80 cm; groundwater depth during vegetation season > 30 cm; dominant species – spruce at maturity age ($H\ 21\ m$, $D\ 21\ cm$, $G\ 31\ m^3\ ha^{-1}$, $V\ 320\ m^3\ ha^{-1}$).

.Implemented activities: site selected.

.Things to be done: clear-felling, establishment of network of shallow furrows and mounding, planting of black alder, weed control during vegetation season, plant protection if necessary (*to be done till spring 2022*).

.Measurements: started in January, 2021.

.Reference sites in Latvia:



Short rotation woody crops in buffer zone of drainage systems of farmlands (LVC310 & LVC301, LVC306)

.Land owner: ZS “Andrupēni”.

.Site description: cropland used for cereal production, peat depth > 30 cm; groundwater depth during vegetation season > 30 cm.

.Implemented activities: soil preparation, mechanized planting of hybrid poplar and willows.

.Things to be done: weed control and restocking during wing season.

.Measurements: started in June, 2021.

.Reference sites in Latvia:

–before implementation – LVC101.

–after implementation – literature data & LVC115
(*birch plantation in cropland*).





Planting of black alder on mounds nearby buffer zones of natural streams – forest paludiculture (LVC311)

.Land owner: FRS.

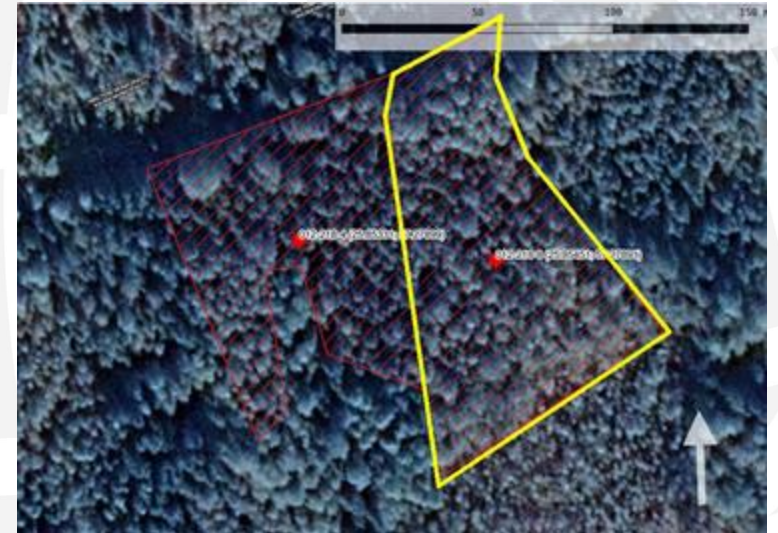
.Site description: peat depth > 80 cm; groundwater depth during vegetation season < 30 cm; dominant species – spruce at maturity age (H 24 m, D 26 cm, G 40 $m^3 ha^{-1}$, V 475 $m^3 ha^{-1}$).

.Implemented activities: site selected.

.Things to be done: clear-felling, establishment of network of shallow furrows and mounding, planting of black alder, weed control during vegetation season, plant protection if necessary (*to be done before spring 2022*).

.Measurements: started in January, 2021.

.Reference sites in Latvia:



Regeneration of forest stand with wet organic soil by mounding and planting of spruce – forest paludiculture (LVC312)

.Land owner: FRS.

.Site description: peat depth > 80 cm; groundwater depth during vegetation season > 30 cm; dominant species – spruce at maturity age (H 20 m, D 28 cm, G 21 $m^3 ha^{-1}$, V 212 $m^3 ha^{-1}$).

.Implemented activities: site selected.

.Things to be done: clear-felling, establishment of network of shallow furrows and mounding, planting of spruce, weed control during vegetation season (*to be done till spring 2022*).

.Measurements: started in January, 2021.

.Reference sites in Latvia:

–before implementation – LVC312, LVC309 &



Strip harvesting as alternative to clear-felling in pine forest (LVC313 & LVC116)

.Land owner: FRS.

.Site description: peat depth > 30 cm;
groundwater depth during vegetation season < 30 cm; dominant species – pine at maturity age ($H\ 22\ m$, $D\ 33\ cm$, $G\ 26\ m^3\ ha^{-1}$, $V\ 350\ m^3\ ha^{-1}$).

.Implemented activities: site selected, technological map elaborated.

.Things to be done: strip harvesting (*50% of basal area*), cleaning of drainage ditches, soil scarification by mounding, planting of pine, weed control for 2 seasons (*to be done till spring, 2022*).

.Measurements: started in January, 2021.

.Reference sites in Latvia:

–before implementation – LVC116 (*clear-felling*),



Time for questions!



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The project "Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland" (LIFE OrgBalt, LIFE18 CCM/LV/001158) has received funding from the LIFE Programme of the European Union and the State Regional Development Agency of Latvia. www.orgbalt.eu

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