# EJP Soil - CarboSeq -

CarboSeq
ASD Riga

EJP SOIL has received
funding from the European
Union's Horizon 2020
research and innovation
programme: Grant
agreement No 862695

EJP Soil - CarboSeq -

Estimate the potential for carbon sequestration in European agricultural soils

- ✓ A economically practicable, feasible potential

- ✓ Based on tested and validated measures for

  C sequestration in soils in agriculture

- ✓ Account for non-CO_2 greenhouse gas emissions
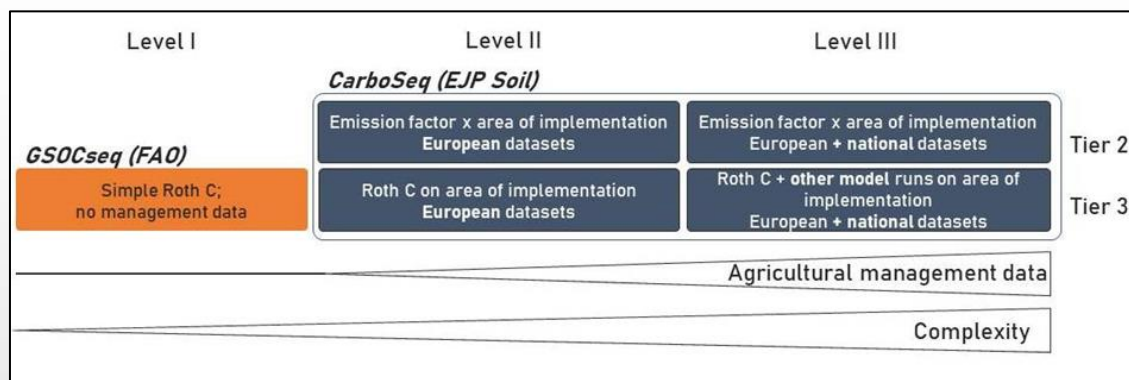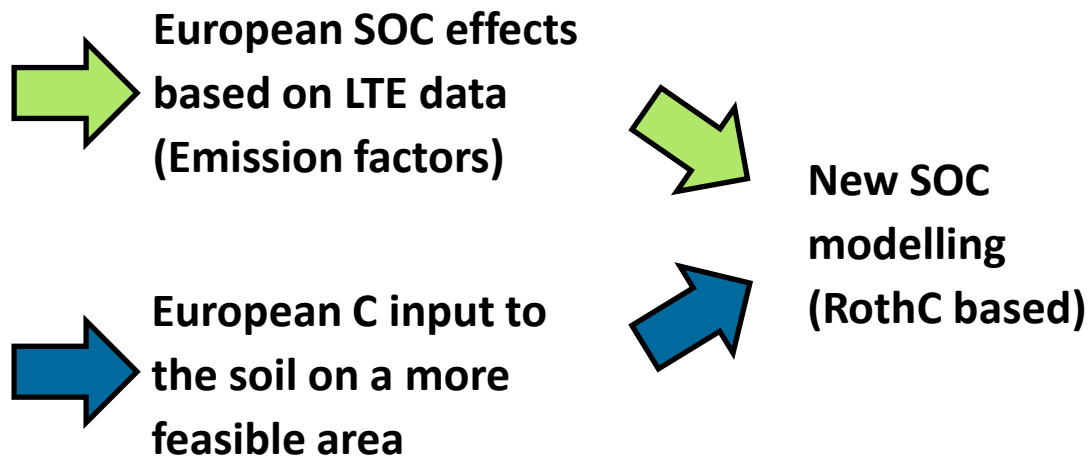
- ✓ Considering also subsoils

Legend:
- EJPSoil member
- EU state
- Not included
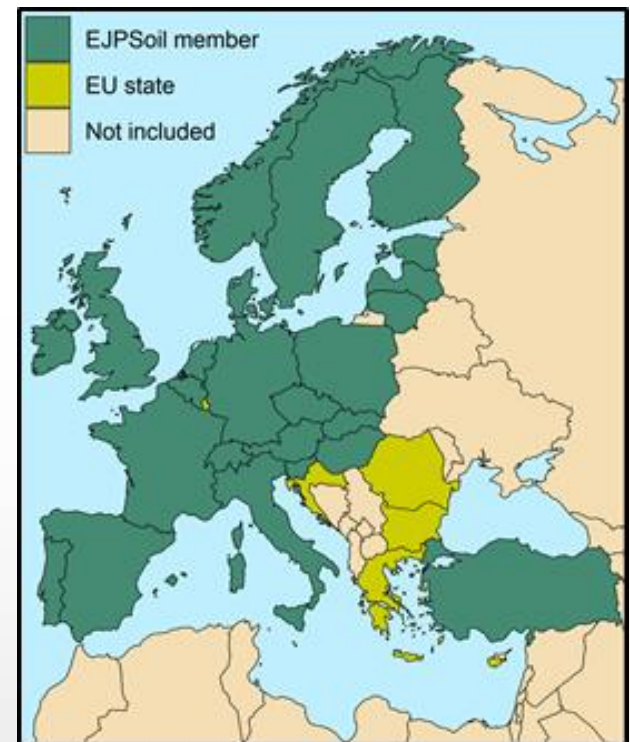
Joint project of 23 countries and 27 partners

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CarboSeq work packages and components

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We are here!
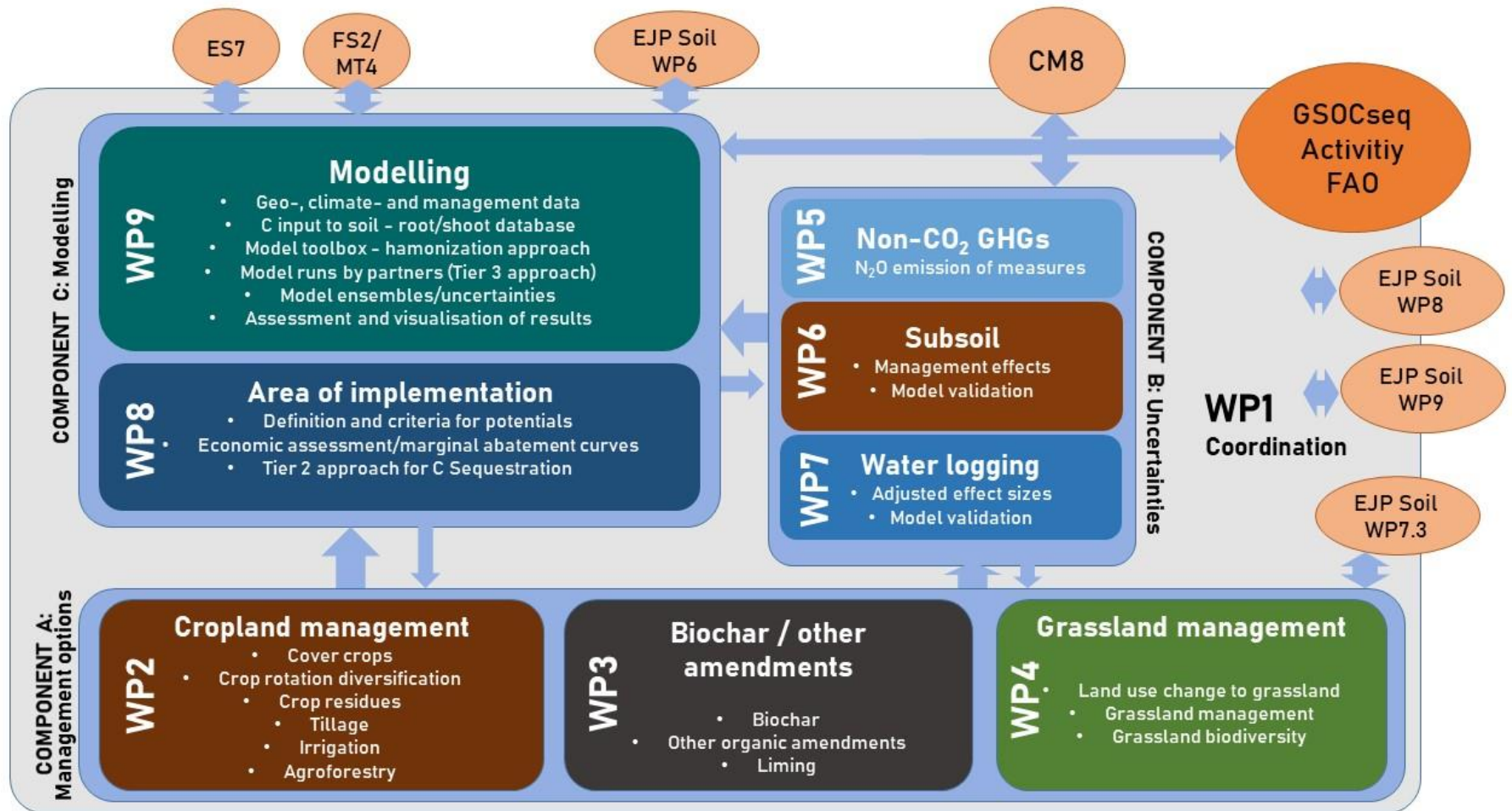
The CarboSeq measures and products

Cover crops
high carbon crops in the rotations
Intercropping
Crop residues
No tillage
Reduced tillage
Irrigation
Agroforestry with hedgerows
Agroforestry with single trees (Alley cropping)
Biochar application
Land-use change to grassland

European SOC effects based on LTE data (Emission factors)

European C input to the soil on a more feasible area

New SOC modelling (RothC based)

	Level I	Level II	Level III	
CarboSeq (EJP Soil)				
		Emission factor x area of implementation **European** datasets	Emission factor x area of implementation European + **national** datasets	Tier 2
GSOCseq (FAO)	Simple Roth C; no management data	Roth C on area of implementation **European** datasets	Roth C + **other model** runs on area of implementation European + **national** datasets	Tier 3
			Agricultural management data	
			Complexity	

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The C-Sequestration potential

Venn diagram illustrating the criteria used for identifying the potential area of implementation for implementation of the SOC-sequestration measures.

The area of implementation is limited by the theoretical, biophysical/environmental, technical and economic C sequestration potential.

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The biophysical and technical potential

Example: Irrigation

Area of implementation & implementation intensity:
Within the theoretical area of implementation, we consider only land that is:

- Rain-fed
- Land that already has irrigation is excluded
- irrigable
  Meaning that a positive net water balance exists in the considered area.

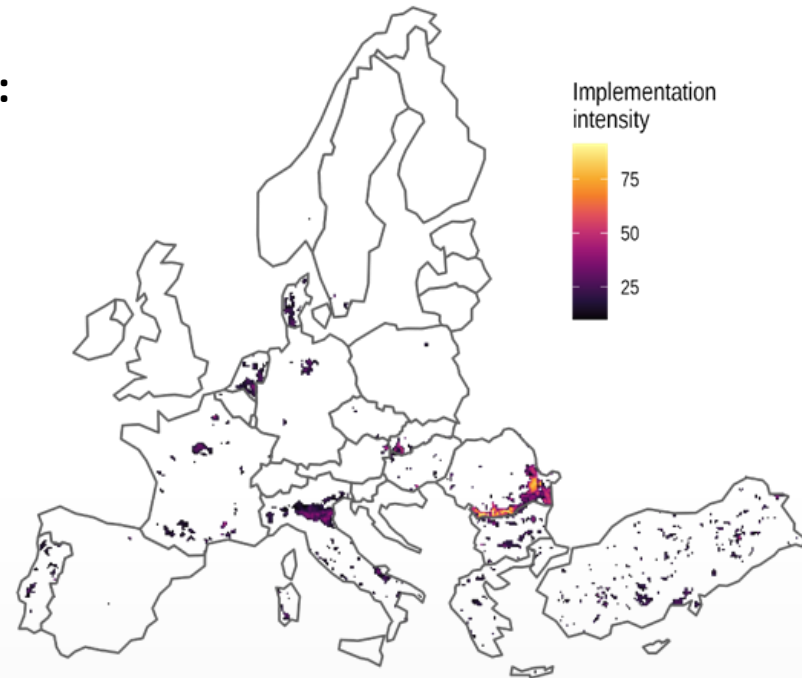➢ Implementation of this measure will avoid water-deficits during the growth of any crop.

Fig.: Possible area of implementation with the implementation intensity for irrigation calculated as share of irrigable land (FAOSTAT) minus irrigated land (FAOSTAT). Colours indicate the land proportion suitable for implementing the measure. Grey pixels indicate rainfed cropland with missing data on tillage practices.

The economic potential

Cost-Benefit analysis of the Carboseq measures: EU27

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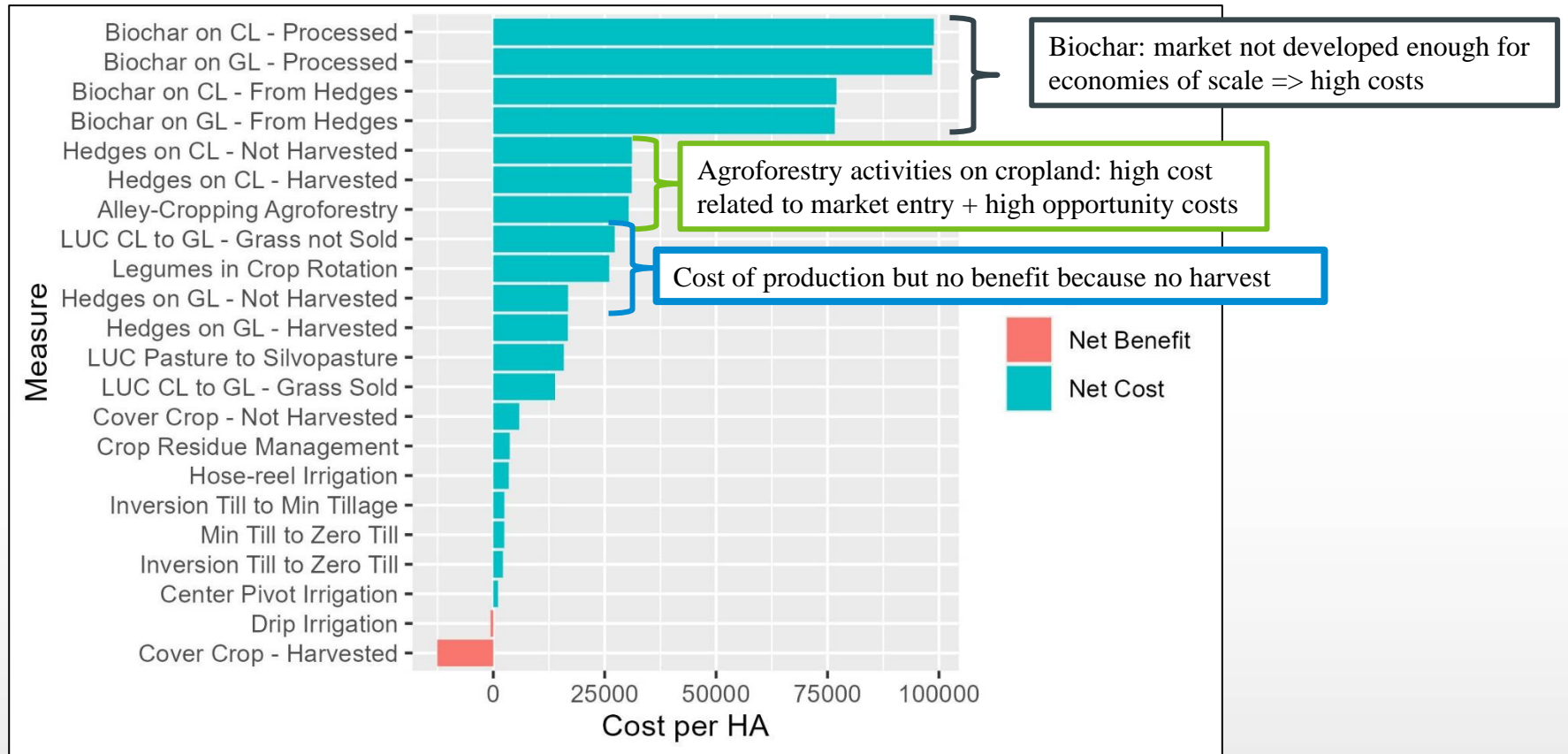
The economic potential
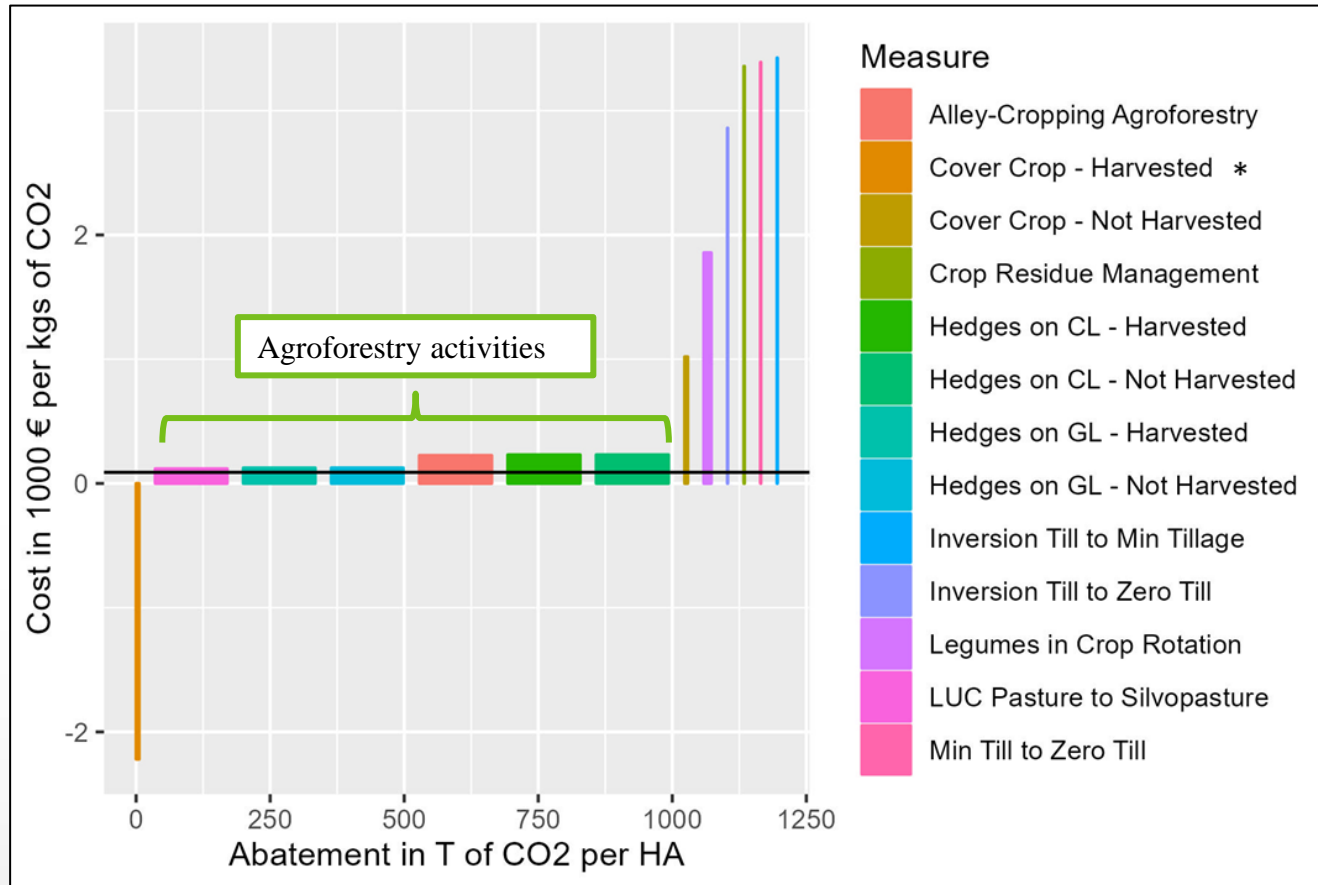
*Marginal Abatement Cost Curve for selected measures for the EU27*

* Costs < carbon tax

Outlook

This year we will deliver

- Clear definitions of the 11 measures

- Emission factors for each measure

- The size of the area of implementation of each measure considering biophysical and technical constraints on European scale of all measures

- Cost benefit analysis and marginal abatement cost curves for each measure on European scale and begin data collection for national scale from the partners

Further, we continue the work on the Roth C modelling and model tool box
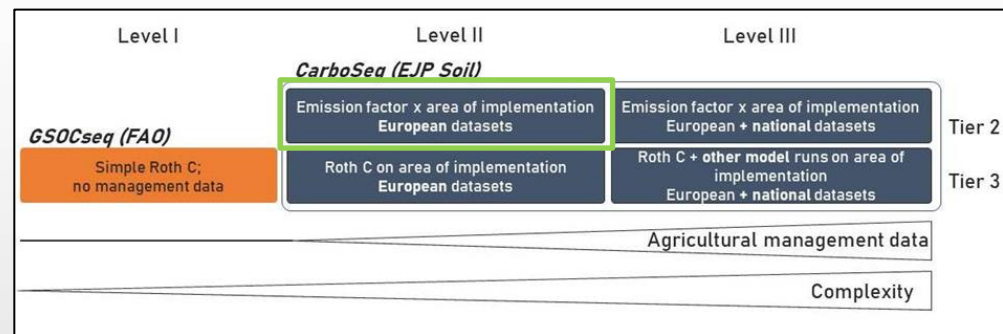
Outlook

Next year we will deliver

- The results of the tier 3 and level III approach