Interreg Euro-MED

Co-funded by the European Union

CARBON 4 SOIL QUALITY

Establishing the basis for implementing Carbon farming in the Mediterranean

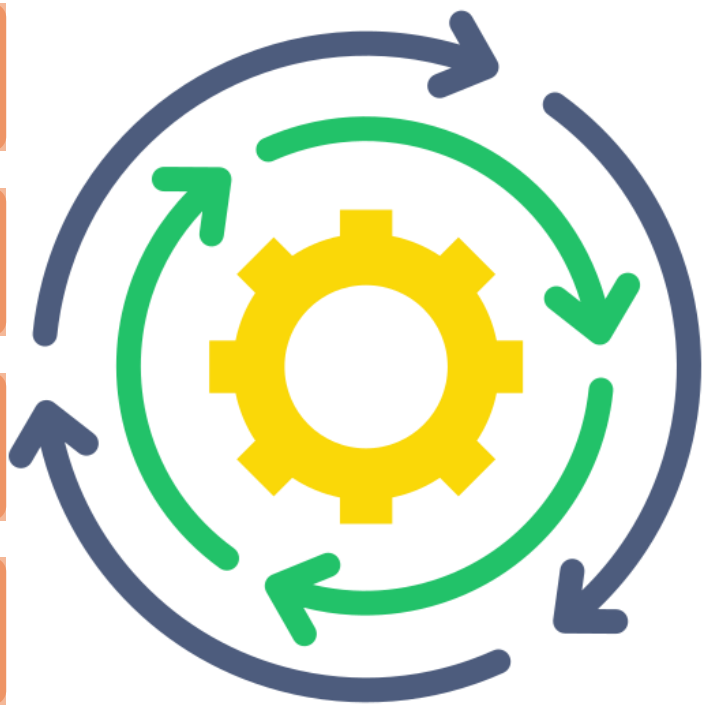
Focus on A 2.1 - Strategic systemic approach to improve soil quality

C4SQ final conference
Thessaloniki | 10 Dec 2025

Agricultural institute of Slovenia
Crop Science Department
Simon Ograjšek

WP 2 - Building solid foundation for testing carbon farming in Euro-MED area

1. **WP 2 in general –** identifying the factors that shape acceptance of carbon farming and awareness of climate-change mitigation**.**
2. A 2.1 – “A realistic future begins with an honest assessment of the present.”
3. A 2.2 – “It’s important to have audience-tailored training materials for mainstreaming carbon farming.”
4. A 2.3-2.5 – “Define the future direction and engage the key audiences. ”



CARBON 4 SOIL QUALITY | Interreg Euro-MED | Co-funded by the European Union

Mediterranean context

- The Mediterranean is one **of Europe's climate change hotspots**. We have more frequent droughts, more extreme heat, and more unstable rainfall patterns.
- Soils are often shallow or degraded, with **low organic matter** and **high erosion risks**.
- Structurally, we are dealing with **fragmented farms**, **land abandonment**, and **an aging farming population**.

- Carbon farming therefore has a dual value here:
  - improve soil resilience and contribute to climate mitigation;
  - broader socio-economic impact

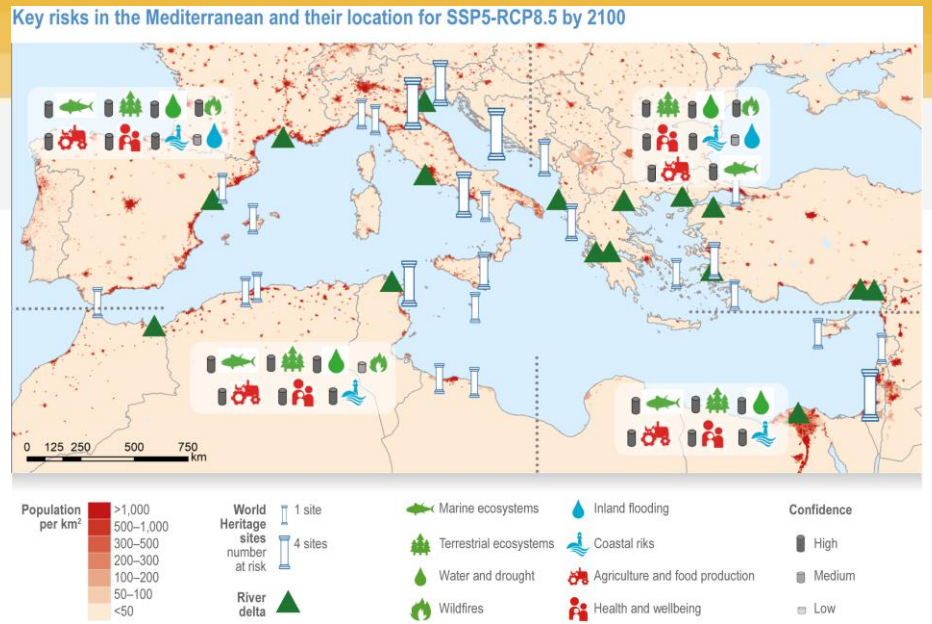


Figure CCP4.7 Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2233–2272, doi:10.1017/9781009325844.021.

Crop fields in the mediterranean area with soil suffering from erosion. https://www.uv.es/uvweb/uv-news/en/news/mediterranean-loses-half-a-ton-fertile-

CARBON 4 SOIL QUALITY | Interreg Euro-MED | Co-funded by the European Union

PEST analysis

- Identify external factors affecting carbon farming and soil quality improvements
- Formulate policy and strategy recommendations based on regional analyses

- Four dimensions: Political, Economic, Social, Technological
- Standardized questionnaire used across 6 partner countries
- Partner institutions gathered input from national stakeholders
- Topics: policy alignment, incentives, awareness, tech & MRV barriers

CARBON 4 SOIL QUALITY
Interreg Euro-MED
Co-funded by the European Union

PEST: Political & Economic findings

- **Good alignment with EU strategies** (Green Deal, the CAP Strategic Plans … CRCF Regulation)
- Alignment is mostly strategic — the **real implementation is still missing**
- **None** of the countries have a **legal definition of carbon farming**
- **None** have a fully **functional MRV system** for soil carbon
- Some **frameworks exist - early or pilot stages** (and private/public projects initiatives)
- On the economic side, CAP is the main financial driver, but it **rewards practices** and not actual carbon outcomes.
- **Carbon markets are not yet accessible for farmers** (costs of equipment, soil testing and certification are (still) too high)
- **Challenging for smallholder farmers**, who dominate large parts of the region.

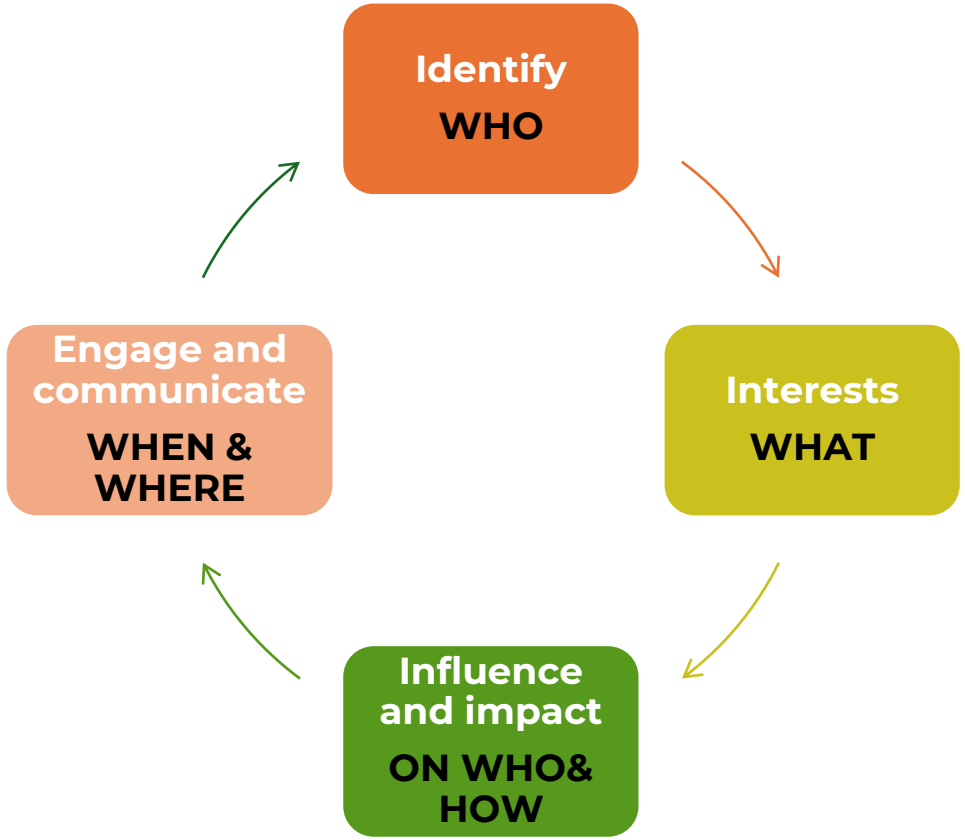
PEST: Social & Technological findings

- In general, **awareness of carbon farming is still quite low**.
- Most farmers **understand soil conservation**, but they do not always connect this with the idea of providing a climate service
- **Traditional practices** such as deep tillage or burning residues remain strong in many areas, and this slows down the transition
- **Clear interest among younger farmers, NGOs, and research communities**
- **Demonstration farms or pilot projects rises acceptance significantly**
- **Advisory systems** are still fragmented, and carbon farming is **not yet a standard topic** in extension services
- **Technologically,** the region has **excellent research capacity** — from soil labs to remote sensing, modelling and digital tools
- **Tools rarely reach everyday farm use** (often too expensive, too complex or not adapted to local conditions)
- **No** country has a national **MRV standard**

Euro-MED regional stakeholder analysis

- Stakeholder mapping supports better policy and communication design
- Stakeholders shape carbon farming uptake through roles and decisions

Trust, coordination and motivation drive engagement

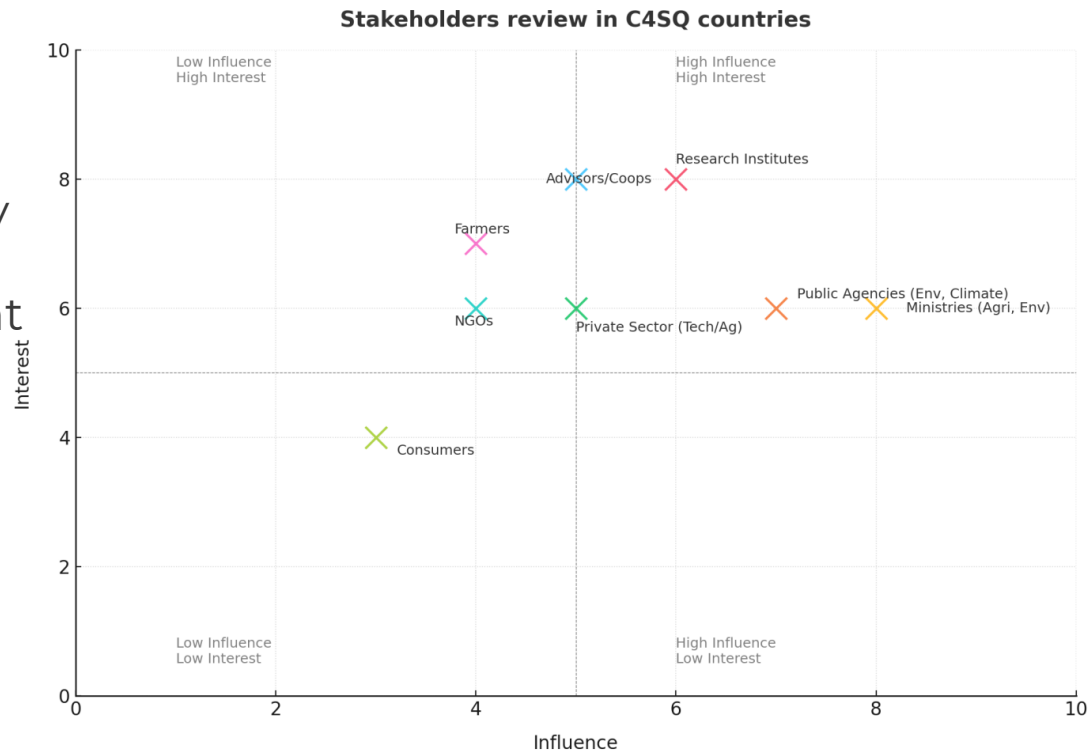


CARBON 4 SOIL QUALITY | Interreg Euro-MED
Co-funded by the European Union

Stakeholder Landscape

- Stakeholder landscape across all six countries - the pattern was (surprisingly) similar.
- Government ministries have the highest influence, but their specific interest in carbon farming is still developing.
- Research institutions very high interest but less decision-making power
- Farmers are of course central to implementation, but they lack financial and technical support.
- NGOs have high interest but are often focused on different aspects
- Advisors and cooperatives are extremely important intermediaries, but they need updated knowledge and training.
- Consumers currently have low visibility in the carbon farming discussion — although this might change in the future with more sustainability labelling.

The main message here is that we have motivated actors in the system, but coordination and communication between them is still weak



CARBON 4 SOIL QUALITY | Interreg Euro-MED | Co-funded by the European Union

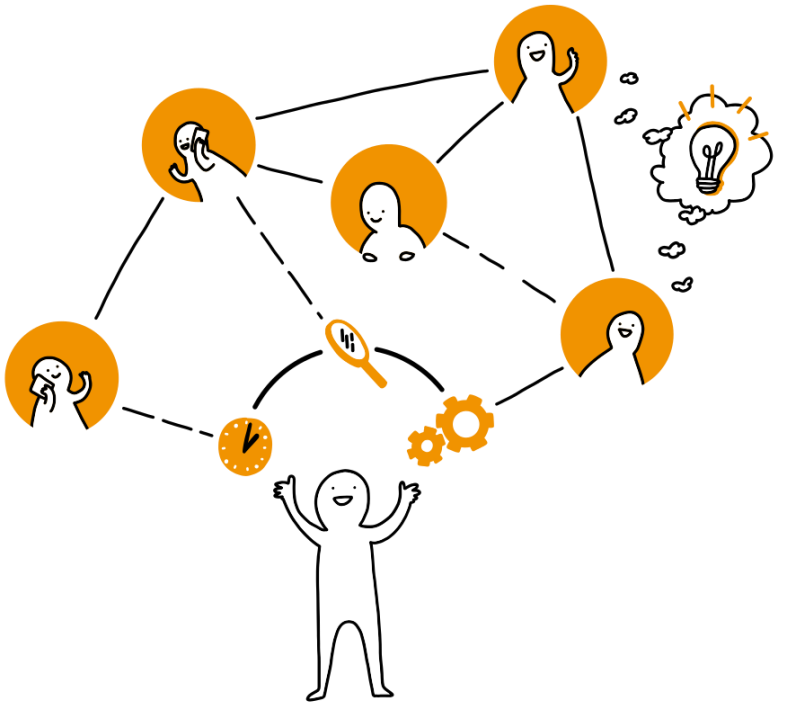
Impact assessment

- Mixed but generally positive picture.
- **Environmentally carbon farming brings very clear co-benefits**: better soil structure, higher organic matter, improved water retention, and reduced erosion.
- Even where soils cannot store a lot of carbon, these **soil health benefits are extremely valuable** — especially under climate stress.
- **Economically** the situation is more **complex:**
  The financial risks are still high, carbon prices unclear and farmers often cannot access the technologies or markets they would need.
- Socially, we see that interest grows quickly when farmers see real examples —**pilot sites and demonstration activities are essential.**
- On the technological side, the main challenge is the **gap** between **advanced research and practical tools:**
  We need technologies that are simple, affordable, and integrated with advisory services.

Key takeouts

- First, develop **localised MRV systems** aligned with the CRCF and make them simple enough for farmers and advisors to use.
- Second, **support early adopters** through targeted incentives and reduced financial risk.
- Third, **strengthen advisory systems** and integrate carbon farming into practical training and extension services.
- Fourth, **bridge the gap between research and practice** by developing farmer-friendly digital tools, calculators and guidelines.
- And fifth, apply site-specific strategies.

The Mediterranean is too diverse for a single approach — solutions must be adapted to local soil, climate and socio-economic conditions.



Thank you for your attention

Check out outputs of C4SQ on our website

Interreg Euro-MED - CARBON 4 SOIL QUALITY