

**Transformative Living Labs for Soil Health:
Advancing Regenerative and Conservation Agriculture Across Europe**

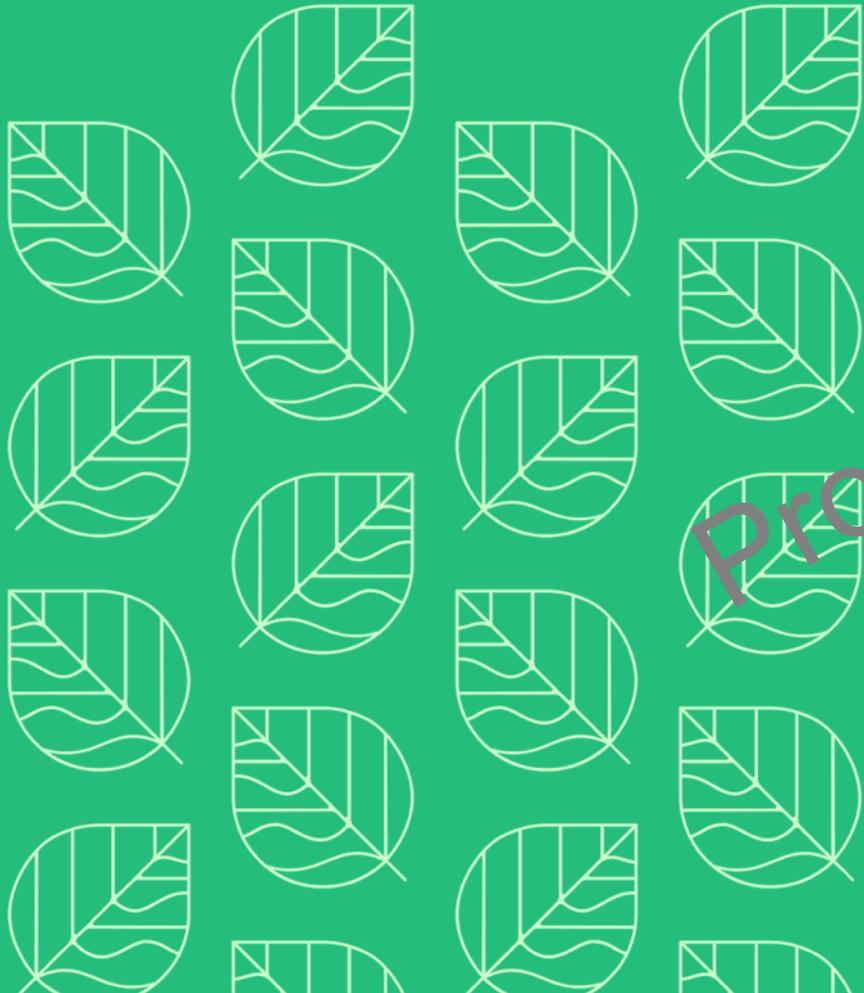


**Venerdì 6 FEBBRAIO • Ore 11:00-13:00
Fieragricola Arena**

CONVEGNO

**Agricoltura Rigenerativa
Conservativa,
Innovazione per la Salute
del Suolo attraverso
l'Europa**

**Transformative Living
Labs for Soil Health:**
Advancing Regenerative
and Conservation
Agriculture Across Europe



Fieraagricola Arena, Verona, 6 feb 2026



Agricoltura Rigenerativa Conservativa e Salute del Suolo: il Progetto Europeo TRAILS4SOIL

Prof Dr Emilio González
emilio.gonzalez@uco.es

www.trails4soil.eu



Funded by
the European Union

GA no. 101218949 — TRAILS4SOIL — HORIZON-MISS-2024-SOIL-01

Transformative Living Labs for Soil Health: Advancing Regenerative and Conservation Agriculture Across Europe

Project with 22 partners from 12 countries.

Total budget: 14,1 M € (EU contribution: 11,7 M €).

Duration: 60 months. Start: 1 July 2025.



TRAILS4SOIL



UNIVERSIDAD
DE CORDOBA



UNIVERSIDADE
DE ÉVORA



BODEN
LEBEN

UNIVERSITY OF
GLOUCESTERSHIRE



EARA



ECAF

European Conservation Agriculture Federation



GKB



Institute for
European
Environmental
Policy



CNCPS



Fachhochschule
Südwestfalen
University of Applied Sciences



AEAC.SV
Asociación Española
de Agricultura de Conservación
Suelos Vivos



1869
USAMV
UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ DIN MOLDOVA



UNIVERSITY OF
GREENWICH

Natural Resources
Institute



BF

UNIVERSITY OF LJUBLJANA
Biotechnical Faculty



BOKU
UNIVERSITY



UNIVERSITÀ
DEGLI STUDI
DI TERAMO



ASAJA
SEVILLA



Bern University
of Applied Sciences



FiBL

Switzerland



SAI
PLATFORM



Funded by
the European Union

GA no. 101218949 — TRAILS4SOIL — HORIZON-MISS-2024-SOIL-01

• Soil Health Challenges in Europe



Soil degradation agents

- Land use changes
- Increase in rainfall intensity due to climate change
- Unsustainable intensive agricultural management
- Excessive tillage
- Monocropping
- Heavy machinery use
- Over-use of agrochemicals
- Lack of vegetation cover

- Erosion
- Compaction
- Soil organic matter decline
- Reduction of biological activity
- Loss in soil biodiversity

Soil Threats



Impact on soil degradation

- 2.46 t/ha/year soil erosion (average rate)
- 13-22.5% erosion increase projected (2050)
- 2.5-50% yield reduction to soil compaction
- 970Mt soil loss
- Up to EUR 38 billion/year in costs by soil loss

60% of European soils are degraded

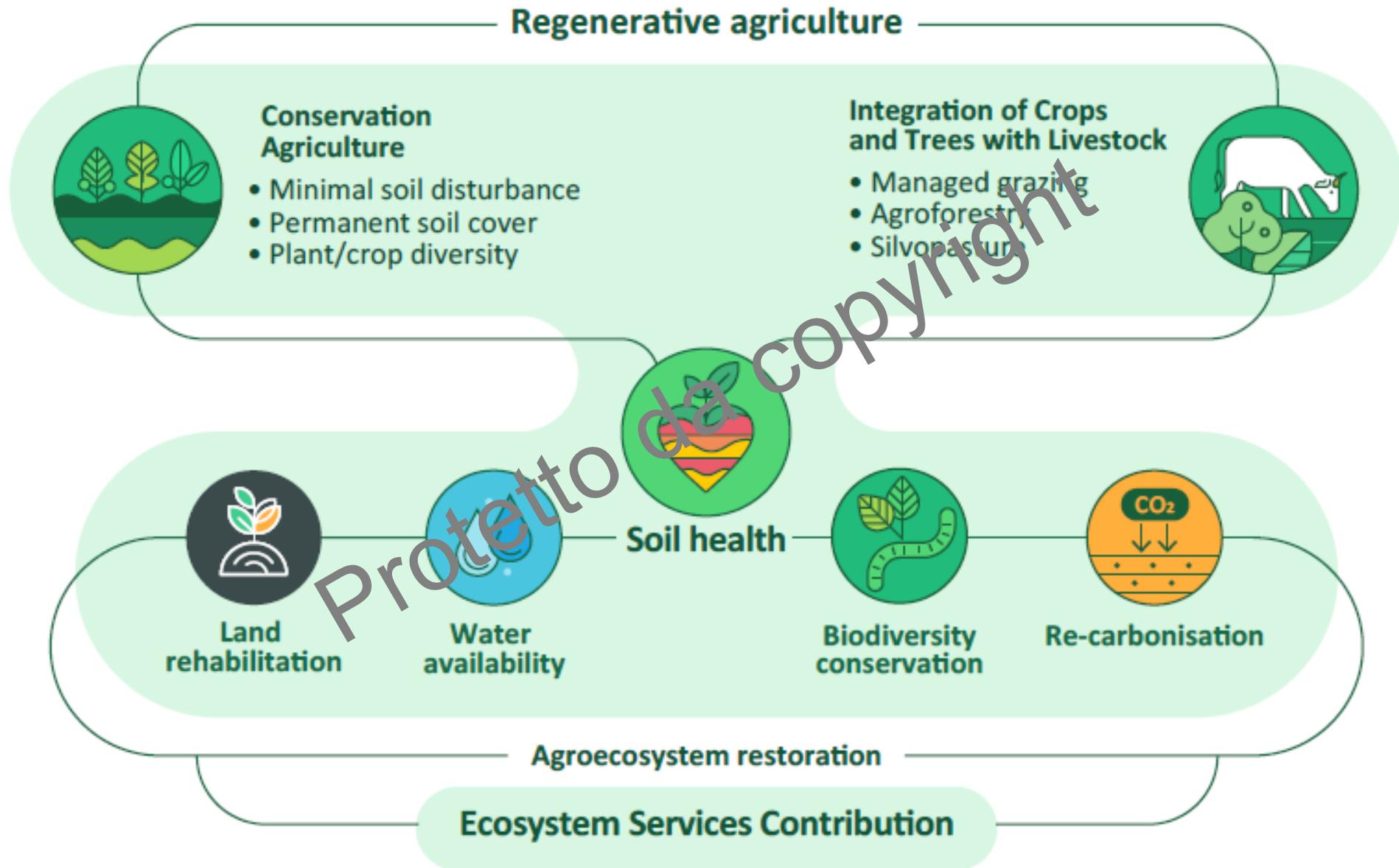
- > 25% of European soils at risk of desertification

- > 25% of soils affected by biodiversity loss

- Contributes to GHG emissions
- 0,5% annual carbon loss in agricultural soils

Protetto da copyright

• Regenerative and Conservation Agriculture Practices Contributions



Transformative Living Labs for Soil Health: Advancing Regenerative and Conservation Agriculture Across Europe

The Quintuple Helix of Innovation (QHI) in the project

Multi-actor approach

By adopting the Quintuple Helix of Innovation (QHI) TRAILS4SOIL ensures that innovations are socially, economically viable, and environmentally responsible, which is essential for the lasting success of soil health solutions.

Natural Environment:

Role: Emphasises the integration of sustainable practices and ecological considerations. Ensures ecological concerns and sustainability are at the forefront of all project solutions.

Civil Society:

Citizens, local communities, NGOs, media and consumer associations.

Role: Engages public, communities, NGOs, and media to reflect societal needs, ensuring people-centred innovations, gain public support and spread awareness.

Academia:

Universities, research institutions, technology centres and educational entities.

Role: Generates and shares scientific knowledge, provides scientific expertise, research, and technology development.

Industry:

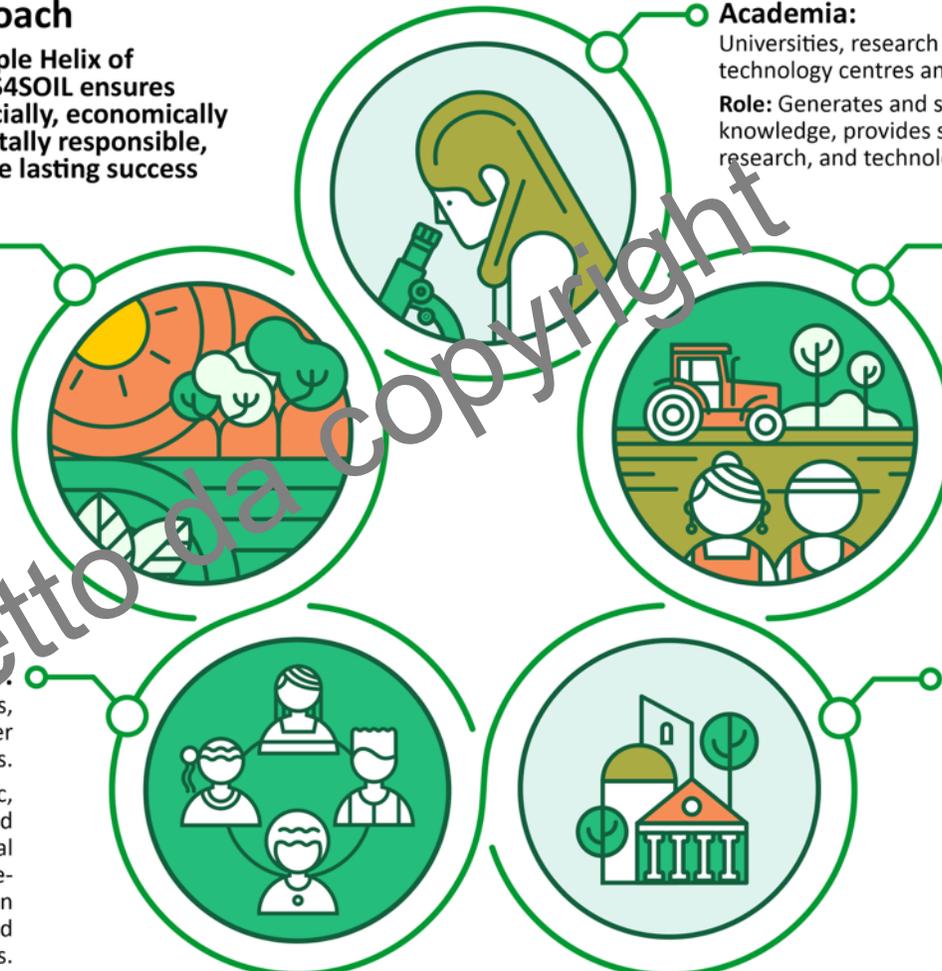
Farmers (practitioners), businesses in the agriculture sector (innovators and solution implementers).

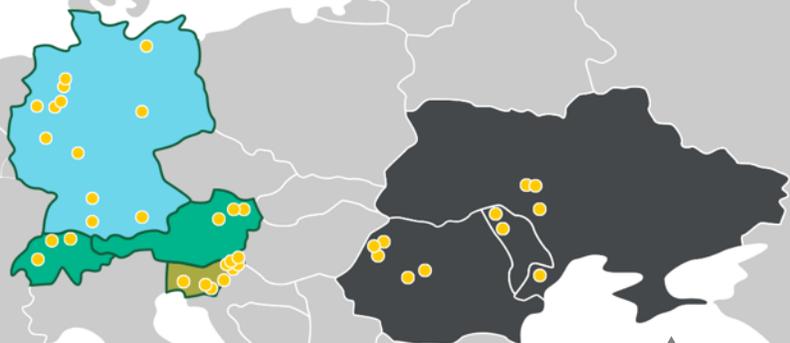
Role: Develop and implement innovative solutions, test practical applications. Applies innovations in real-world scenarios, particularly in agricultural practices, and scales successful solutions.

Government:

Public authorities, regulatory bodies and policymakers, and local, regional, national, and international governments.

Role: Offers policy support and regulatory frameworks, aligning project outcomes with national and EU policies.



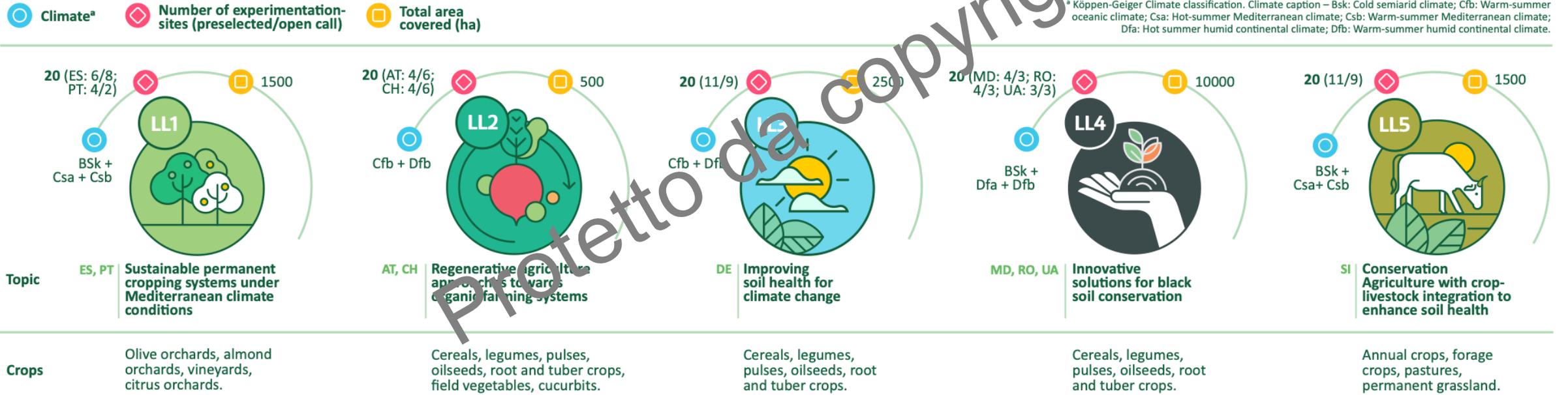


	LL1 Permanent Crops	LL2 Organic Farming	LL3 Adaptation to Climate Change	LL4 Black Soils	LL5 Crop-livestock Integration
Stakeholders	ES PT	AT CH	DE	MD RO UA	SI
Farmers + Industry	 	 			
Research and Academia	 	 			
Government					
Civil Society / NGOs	 				



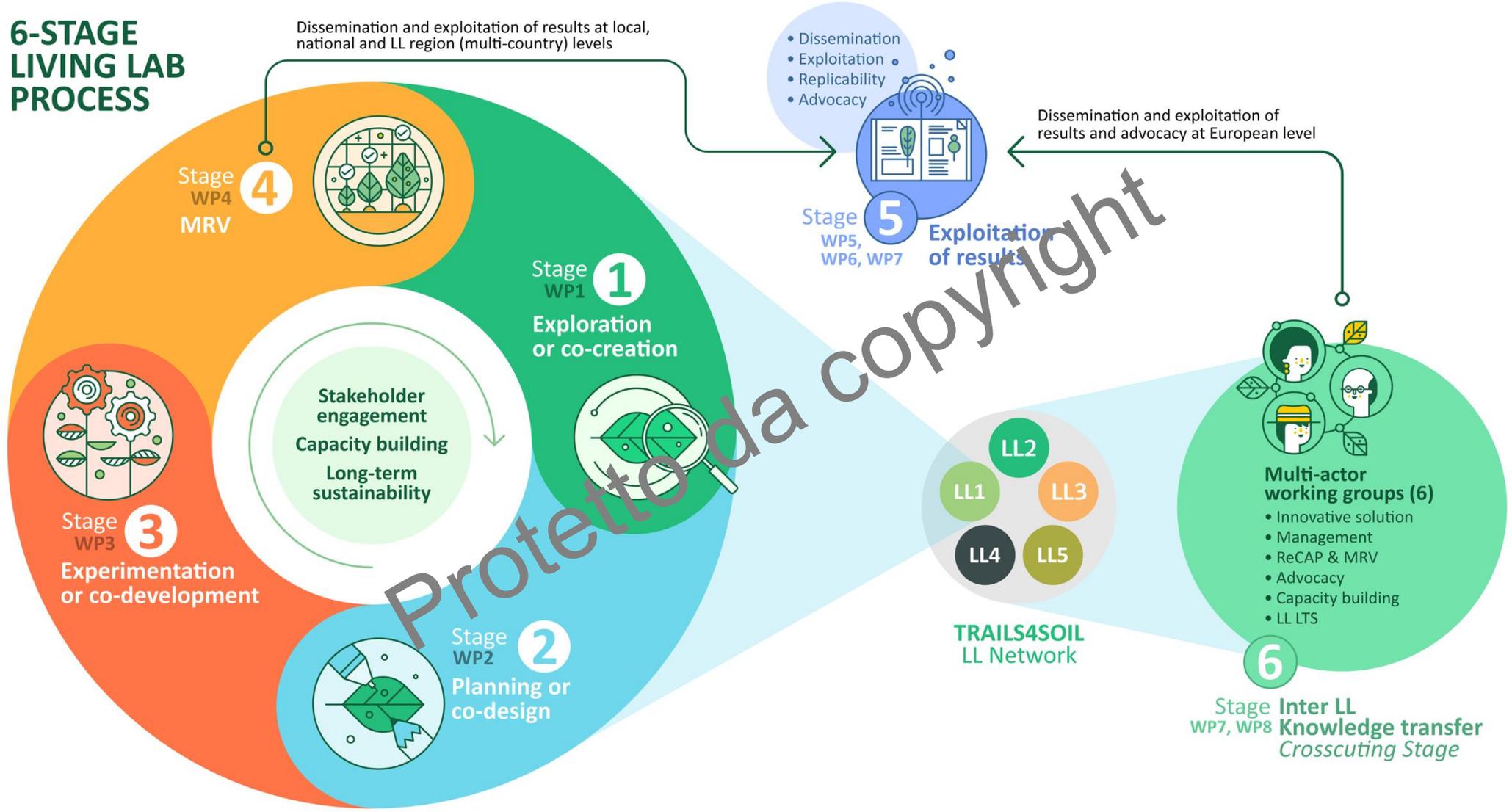
Proteito da copyright

Transformative Living Labs for Soil Health: Advancing Regenerative and Conservation Agriculture Across Europe



Protetto da copyright

6-STAGE LIVING LAB PROCESS



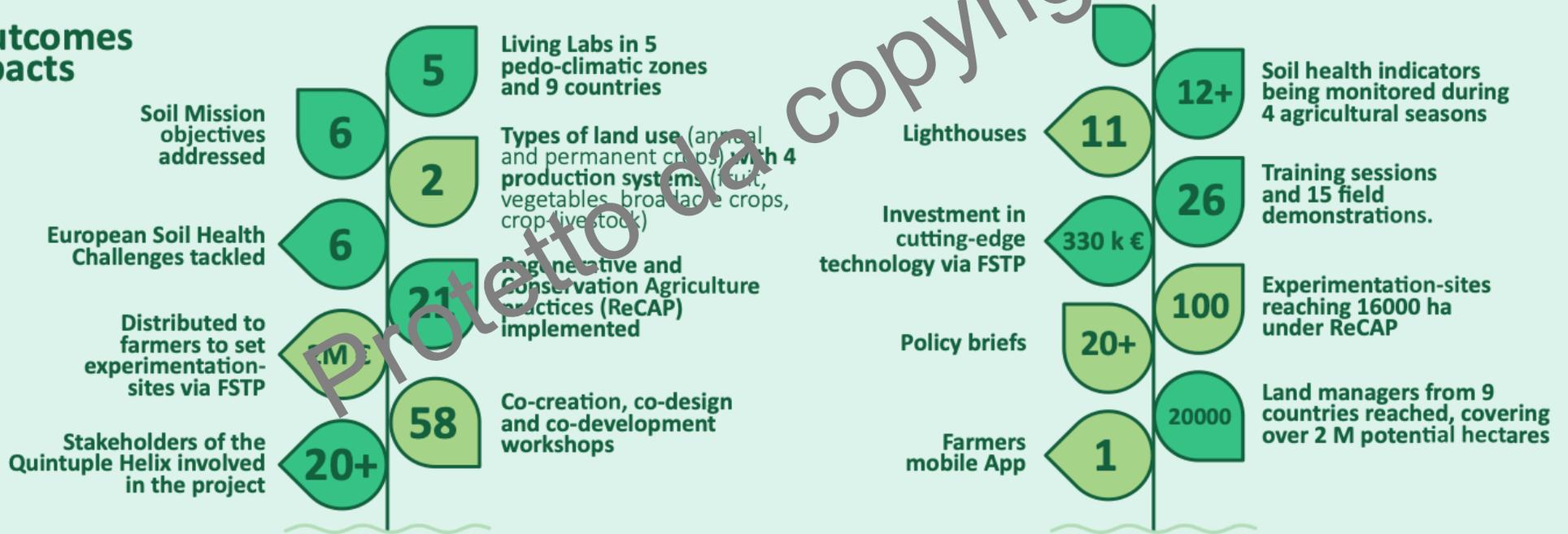
Protetto da copyright

Transformative Living Labs for Soil Health:

Advancing Regenerative and Conservation Agriculture Across Europe



Main outcomes and impacts



Eco-schemes, CAP



List of potential **AGRICULTURAL PRACTICES** that **ECO-SCHEMES** could support

January
#EUGree

Carbon farming including

- > Conservation agriculture (a, d) ←
- > Rewetting wetlands/peatlands, paludiculture (
- > Minimum water table level during winter (a, c
- > Appropriate management of residues, i.e. bur
- > on residues (a, c, d)
- > Establishment and maintenance of permanen
- > Extensive use of permanent grassland (a, c, d



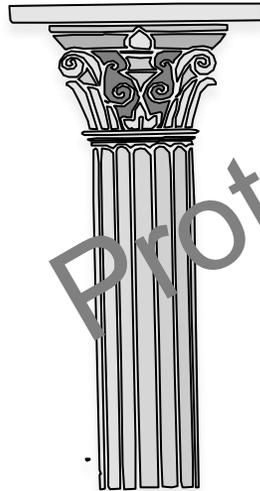
Conservation Agriculture

Greater services to the ecosystem and natural capital

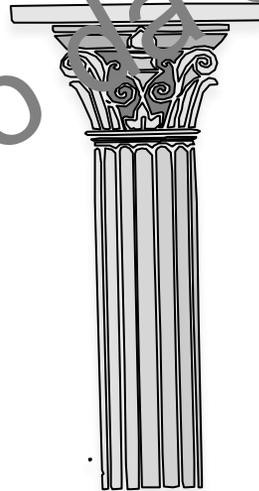
Soil protection and improved water quality

Climate change. Carbon sink

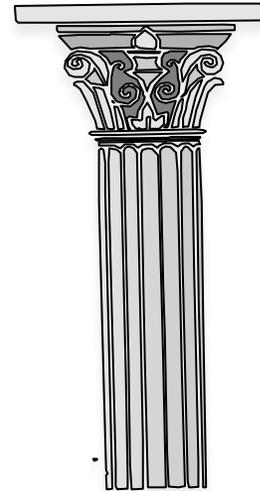
Adapted to different areas and production systems



Minimum soil disturbance: no-till



Permanent soil cover



Crop rotation



CONSERVATION AGRICULTURE

Adapting the system to the conditions of undisturbed soil



TILLAGE BASED FARMING

Modifying the soil to create the seedbed



Protetto da copyright

Undisturbing soil's habitats







Proteetto da copyright

No-tillage in Italy



No-tillage in Greece





Protetto da copyright

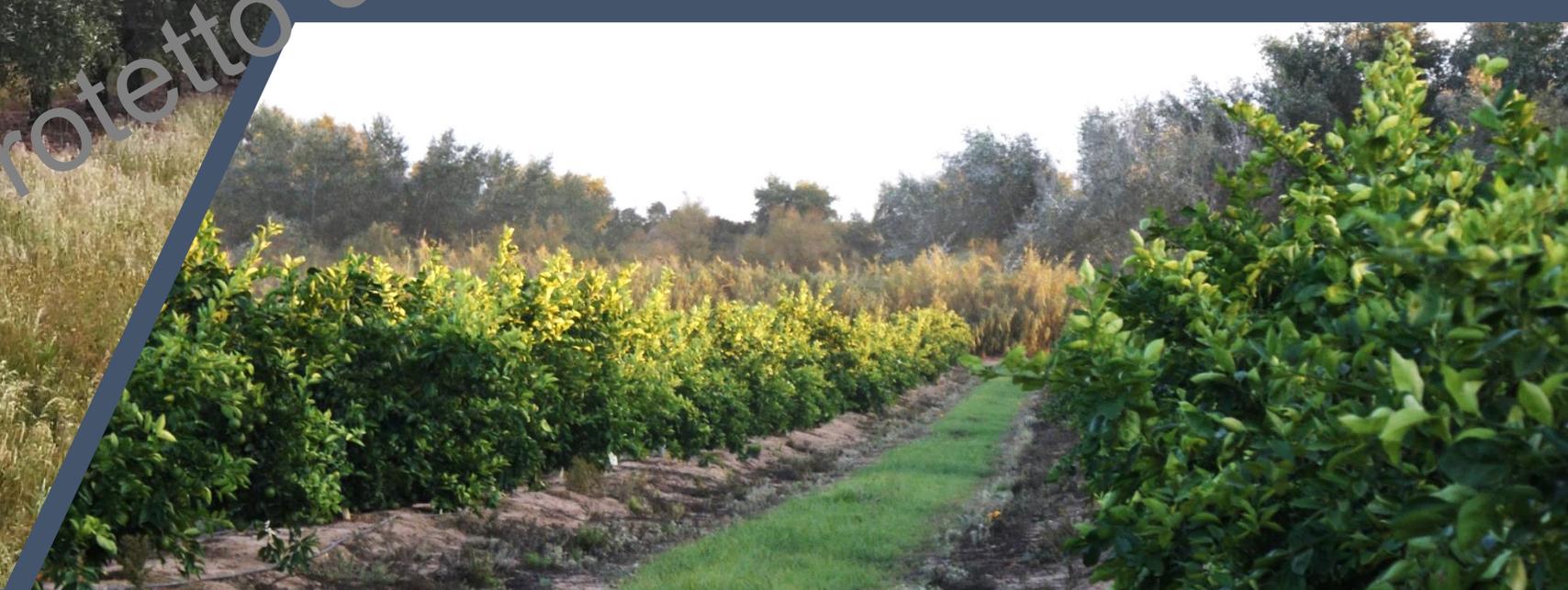
No-tillage in France with Cover Crops



No-tillage in Spain

Protetto da copyright





Protetto da copyright



Protetto da copyright

Picture: Vicente Rodríguez

Soil organic carbon (SOC) loss

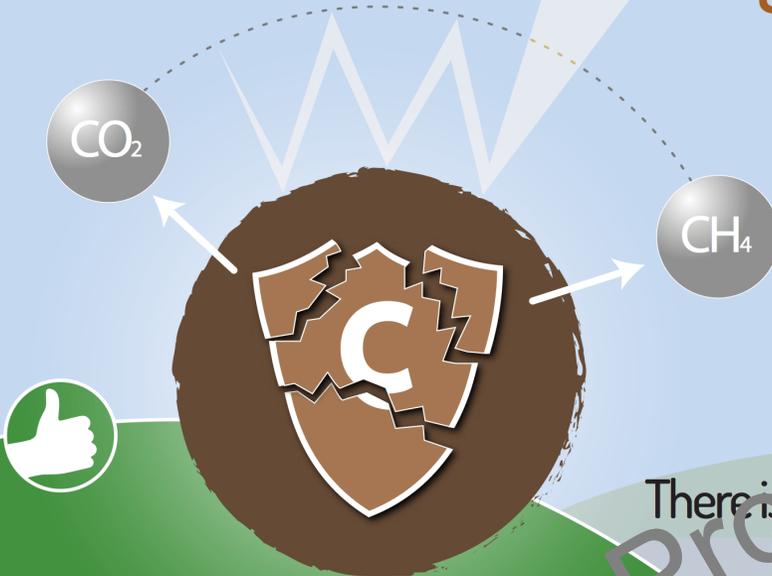
Decline of organic carbon stock in the soil affects its fertility status and climate change regulation capacity.

Approximately 1 417 billion tonnes of SOC are stored in the first meter of soil and about 2 500 billion tonnes at two meters soil depth. The global loss of the SOC pool since 1850 is estimated at about 66 billion tonnes (t), mainly caused by land use change.

SOURCE: STATUS OF THE WORLD'S SOIL RESOURCES - A REPORT



World
Soil Day
2016



SUSTAINABLE SOIL MANAGEMENT FOSTERS CO₂ SEQUESTRATION, BOOSTS SOIL HEALTH AND CONTRIBUTES TO ACHIEVING THE SDGs, ESPECIALLY CLIMATE CHANGE ADAPATATION AND MITIGATION

There is more organic carbon in the soil than there is in the vegetation and atmosphere combined



Every 5 seconds the equivalent of one football pitch of soil is eroded.



Food and Agriculture
Organization of the
United Nations



Protetto da copyright



TRAILS SGR

Guadalquivir river carrying soil sediments, Cordoba, Spain
Roman bridge next to the UNESCO's World Heritage Mosque-Cathedral



TRAILS4SOIL

The mouth of the Guadalquivir River in Spain.

The sediments carried by the river are deposited in the ocean.

**River Thames, London
House of Parliament**



**River Tiber, north of Rome,
April 2013**



**River Douro, north of Portugal,
Jan 2020**





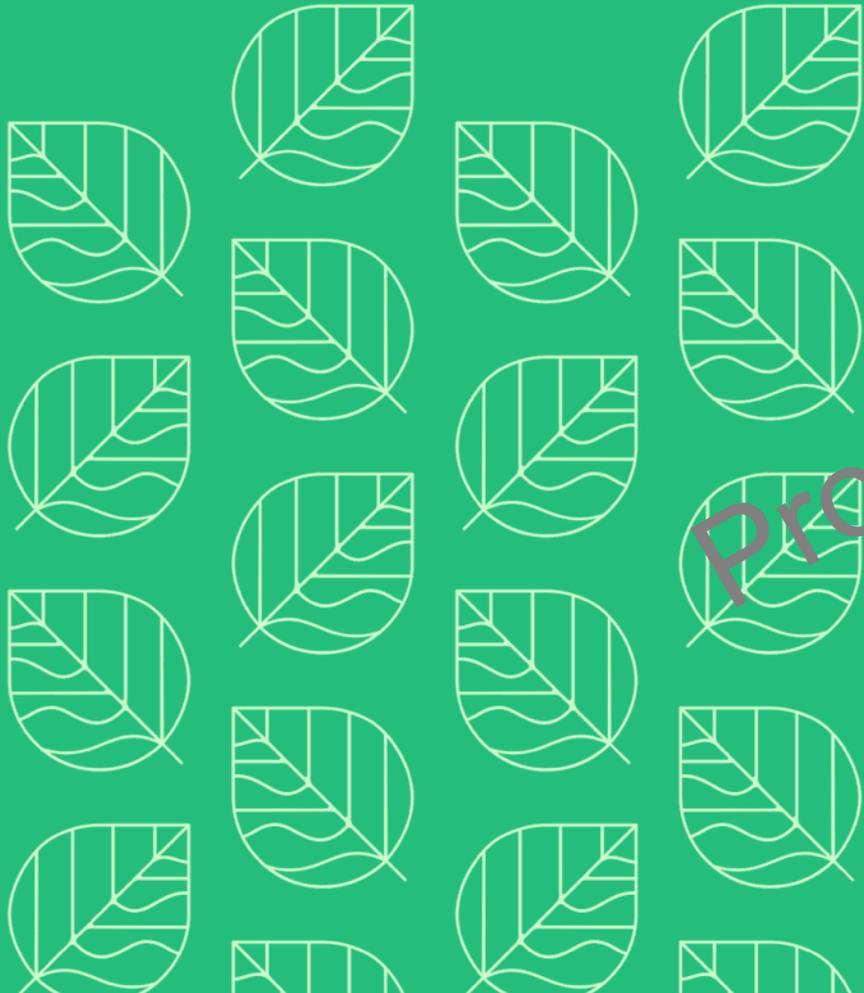
TRAILS4 SOIL



Some take away messages

- The **robust scientific background of Conservation and Regenerative Agriculture** demonstrates a clear contribution to **European soil related concerns**.
- With the next **CAP maintaining its strong climate focus, a significant opportunity exists for Conservation and Regenerative Agriculture**.
- **Restoration of soils and habitats** can go hand in hand with the application of Conservation and Regenerative Agriculture.

**Transformative Living
Labs for Soil Health:**
Advancing Regenerative
and Conservation
Agriculture Across Europe



Fieraagricola Arena, Verona, 6 feb 2026



Thank you! Follow

TRAILS4SOIL in LinkedIn

<https://www.linkedin.com/company/trails4soil>

Prof Dr Emilio González
emilio.gonzalez@uco.es



Funded by
the European Union

GA no. 101218949 — TRAILS4SOIL — HORIZON-MISS-2024-SOIL-01