

Il Programma H2020 EJP-SOIL

"Towards climate-smart sustainable management of agricultural soils": organizzazione, obiettivi e tematiche di ricerca sulla biodiversità

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EJP SOIL
European Joint Programme



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 652615.

European Joint Programme SOI L



- H2020-SFS-2018-2020 - Topic: LC-SFS-20-2019,
- Type of action: **COFUND-EJP** – Grant Agreement (GA) No: 862695
- **24 PAESI PARTECIPANTI, 26 PARTNERS, 20** Terze Parti (LPTs)
- **80 MIL EURO** (40 FOUND/40 CO-FOUND)
- **5 ANNI** (2020-2025)



Participant organisation name	Country
Institut National de la recherche Agronomique (INRA)	FR
Wageningen Research (WR)	NL
BIOS Science Austria (BIOS)	AT
Flanders Research Institute for Agriculture, Fisheries and Food (EV-ILVO)	BE
Centre Wallon de Recherches Agronomiques (CRAW)	BE
Czech University of Life Sciences (CULS)	CZ
Aarhus University, Danish Centre for Food and Agriculture (AU)	DK
Estonian University of Life Sciences (EMU)	EE
Natural Resources Institute Finland (LUKE)	FI
Johann Heinrich von Thünen-Institut (vTI)	DE
Forschungszentrum Jülich (Jülich)	DE
Centre for Agricultural Research of the Hungarian Academy of Sciences (MTA ATK)	HU
Teagasc (Teagasc)	IE
Council for Agricultural Research and Economics (CREA)	IT
University of Latvia (UL)	LV
Lithuanian Research Centre for Agriculture and Forestry (LAMMC)	LT
Norwegian Institute of Bioeconomy Research (NIBIO)	NO
Institute of Soil Science and Plant Cultivation – State Research Institute (IUNG)	PL
National Institute for Agrarian and Veterinarian Research I. P. (INIAV)	PT
National Agricultural and Food Centre (NPPC)	SK
University of Ljubljana, Biotechnical Faculty, Centre for Soil and Environmental Science (ULBF)	SI
National Institute for Agriculture and Food Research and Technology (INIA)	SP
Swedish University of Agricultural Sciences (SLU)	SE
Agroscope (AGS)	CH
Ministry of Food, Agriculture and Livestock, General Directorate of Agricultural Research and Policies (TAGEM)	TR
Agri-Food and Biosciences Institute (AFBI)	UK



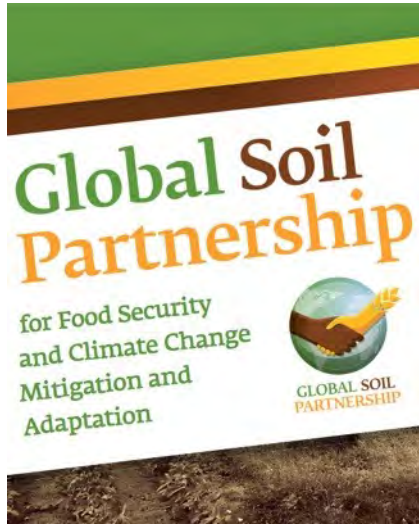
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5) EJP SOIL background: molte iniziative



SoilVER



Mission boards: Soil Health and Food



EJP-SOIL ITALIA - PARTENARIATO

Partner Principale: CREA (64 partecipanti)



UO: Centri Agricoltura e Ambiente (AA), Politiche e Bioeconomia (PB), Viticoltura e Enologia (VE)

Terze Parti collegate (LPTs)



Consiglio Nazionale delle Ricerche

CNR (C. Calzolari team leader, 19 partecipanti)



ENEA (A. Bevivino team leader, 13 partecipanti)



UNIVERSITÀ
DEGLI STUDI
DI PALERMO



ISPRA

ISPRA (F. Assennato team leader, 12 partecipanti)

UNIPA (C. Dazzi team leader, 5 partecipanti)



Agris

Agenzia pro sa chirca in agricoltura
Agenzia regionale per la ricerca in agricoltura

ERSAF Lombardia (S. Brenna team leader, 6 partecipanti)

AGRIS Sardegna (P. Mulè team leader, 6 partecipanti)

Totale: 125 R&T

4) Sfide generali: scopi di EJP

- **LIVELLO SCIENTIFICO**
 - Roadmap di 5 anni
- Nuove conoscenze sulle opzioni di gestione del suolo sostenibile in funzione del cambiamento climatico
 - Nuove conoscenze sul sequestro CARBONIO
 - Base scientifica della politica
- **LIVELLO OPERATIVO**
- Rafforzare l'allineamento della comunità scientifica, l'attuazione della ricerca, la formazione e lo sviluppo delle capacità
 - Sistema armonizzato di informazione sul suolo
- Migliorare mappatura/dati sul suolo (carbonio, degrado del suolo, biodiversità)
- **LIVELLO POLITICO**
 - Raccomandazioni basate sull'evidenza per i responsabili politici
 - Dialogo per i professionisti delle politiche scientifiche
- **LIVELLO SOCIALE**
 - Sensibilizzare sui suoli le loro sfide, la loro gestione
- Migliorare la scienza: dialogo, partecipazione e co-costruzione con le parti interessate

1) Policy challenges on Agricultural soils (Sfide politiche)

Climate

- EU Climate and Energy policy framework (2018) : Reduce emissions by 40% in 2030/1990
- Green Deal (2019): Zero net GHG emissions by 2050
- Paris Agreement : countries/EU NDCs to reduce GHG emissions
- EU adaptation strategy (2013)

Land

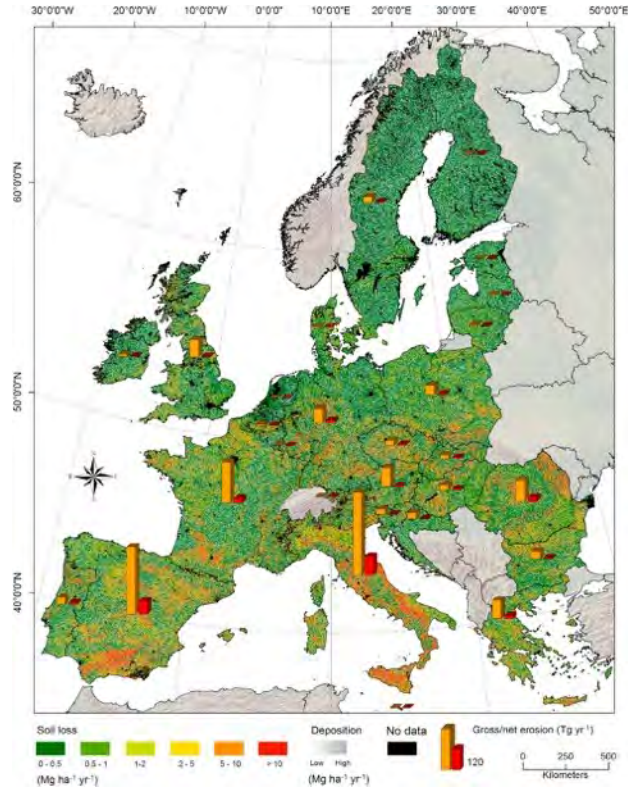
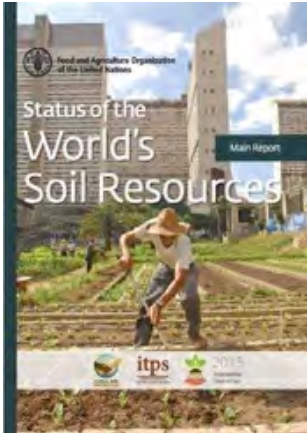
- 7th EAP : no net land take by 2050 in EU
“achieve no net land take by 2050; soil erosion is reduced and the soil organic matter increased, with remedial work on contaminated sites well underway.” (COM (2011) 571)
- UN SDG15: 0 net land degradation by 2030

Agriculture

- Future CAP post 2020
 - contribute to climate change mitigation and adaptation, as well as sustainable energy;
 - foster sustainable development and efficient management of natural resources such as water, soil and air
 - contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes

2- Current situation (Situazione attuale)

Soils inventories (database)

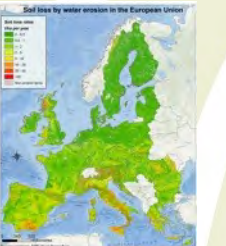
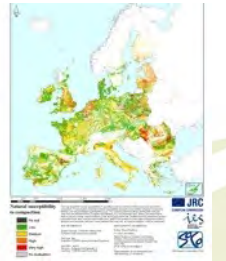
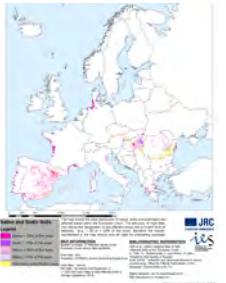
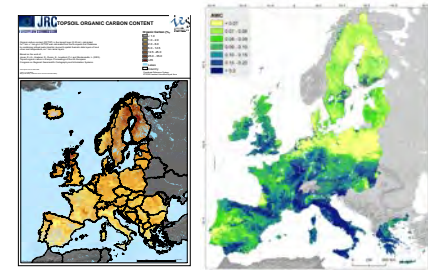


Annual soil loss & deposition
Borelli et al. 2018

Knowledge on soils

Soil information

- Heterogeneity /countries
- JRC European Soil Data Centre
- LUCAS Land cover/land use monitoring
- No systematic national soil monitoring system (*van Leuwen et al. 2017*)
- Methods not harmonized (sampling, measuring, data processing)





Programma EJP SOIL: Towards climate-smart sustainable soil management

Obiettivo Primario: Mitigazione e adattamento ai cambiamenti climatici per Produzione sostenibile, Incremento e regolazione dei Servizi ecosistemici forniti dal suolo, Prevenzione del degrado del suolo

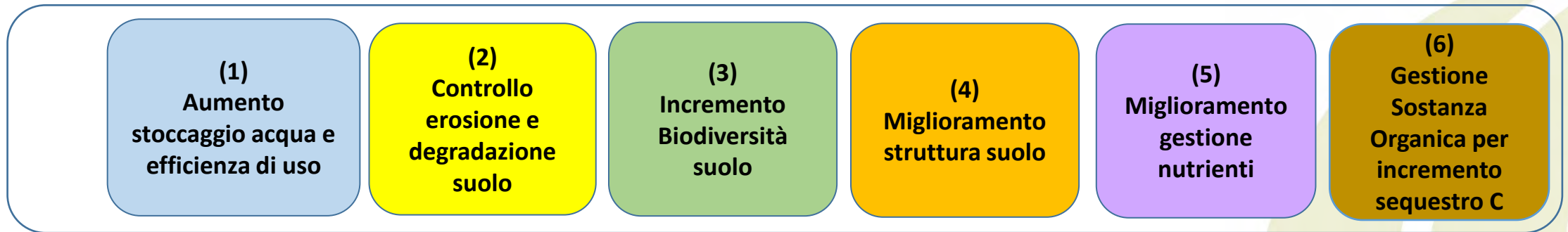
Ambizione: Fornire un quadro di conoscenza completa a livello Europeo attraverso una rete di ricerca di 26 Paesi



Ricerca: Tre anni di Call interne di approfondimento temi Specifici (1-6)

Strumenti: Monitoraggi (Rete LUCAS) Long-Term Experiments Standard comuni su dati suolo

Obiettivi - chiave per la gestione sostenibile del suolo

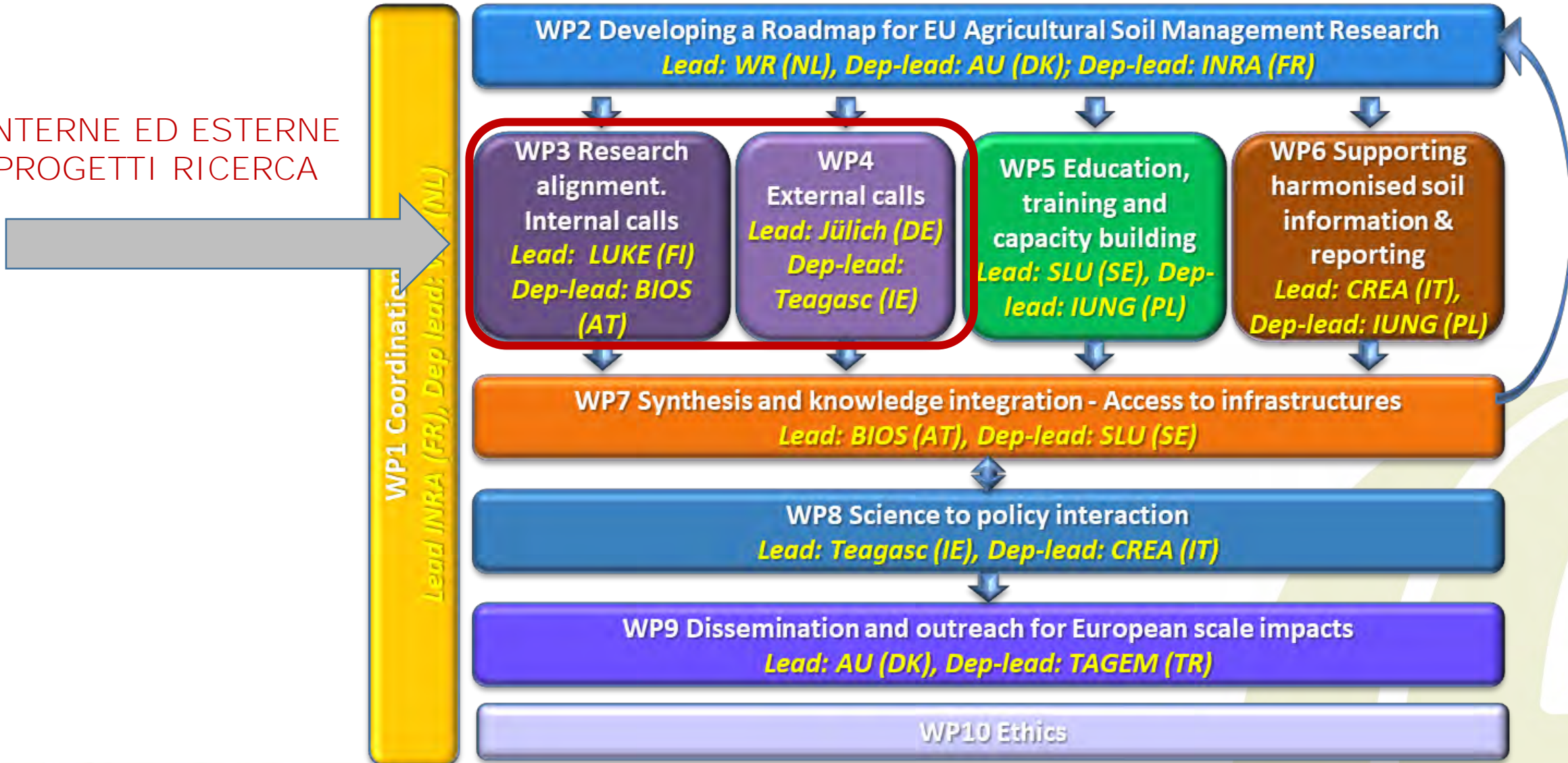


La gestione sostenibile del suolo è necessaria per rispondere agli obiettivi delle tematiche previste dal **Green Deal Europeo: Farm to Fork, Climate, Biodiversity, Pollution, Rural Areas (Nuovo Programma Horizon Europe 2021-2027)**



4) EJP SOIL – WORKPACKAGE STRUCTURE

CALL INTERNE ED ESTERNE
SOTTOPROGETTI RICERCA



5) RETE PORTATORI DI INTERESSE (STAKEHOLDERS)

Stabilita Lista NATIONAL HUB

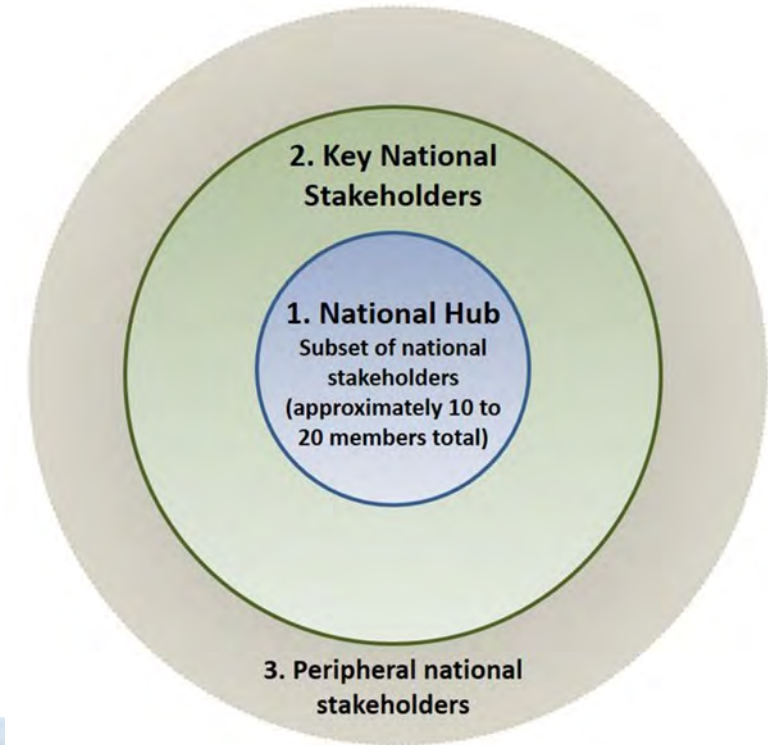
ENTI DI RICERCA/UNIVERSITA'

ENTI REGIONALI

ASSOCIAZIONI CATEGORIA – ASSOCIAZIONI NO-PROFIT

ENTI CERTIFICATORI/VALUTATORI

I NATIONAL HUB Stakeholders forniscono risposte sullo stato dei suoli e sui gap della ricerca/gestione/politiche sul suolo (interviste, questionari, webinar, etc.) durante tutto il Programma EJP-SOIL



Active engagement creates a platform for cross-European interaction between researchers and stakeholders

Progetti di Ricerca (Call interne WP3) su biodiversità del suolo

TEMATICHE RICERCA SECONDO ANNO:

EJP SOIL topic ID [†]	Title	Number of projects, their size	Indicative available funding per project
CM1	Plant below-ground inputs to enhance soil carbon sequestration in agricultural soils	1, medium	2M€
CM5	Effects of the soil biome on the persistence SOC storage and its drivers	1, medium	2M€
CA4/SP3	Contribution of soils to climate mitigation and adaptation, sustainable agricultural production and environment in agroecological systems	1, large	5M€
SP1	Alleviating soil compaction in a climate change context.	1, medium	2M€
SP2	The use, processing and application of external sources of organic matter to mitigate climate change and improve soil health	1, medium	2M€
DATA1	Innovative techniques to monitor SOC stocks and soil degradation/restoration changes in the EU, using spectral systems/NIRS/MIRS, and other proximal sensing tools.	1, medium	2M€

EJP SOIL topic ID [†]	Title	Number of projects, their size	Indicative available funding per project
SE2/INDICATORS 1	Modelling soil functions and soil threats for mapping soil quality, soil functioning and ecosystem services.	1, large	5M€
SE4/INDICATORS 2	European soil biodiversity forecast towards resilient agroecosystems in response to climate change	1, medium	2M€
POL2/ES7	Enabling conditions for climate smart and sustainable soil policy: fair and functional incentives for ecosystem services related to climate mitigation and sustainable production	1, medium	2M€

[†] EJP SOIL topic ID: CM Climate change mitigation; CA Climate change adaptation; SP Sustainable production; NET Networking and knowledge sharing; SE Sustainable environment ; DATA Harmonizing soil information; AD Adoption of sustainable soil management; POL Science policy interface.

Progetti di Ricerca (Call interne WP3) su biodiversità del suolo

CM5 - Effects of the soil biome on the persistence SOC storage and its drivers

Proposta Coordinata da CREA, 9 PARTNERS

AGROECOLOGICAL strategies for an efficient functioning of plant - soil biota interactions to increase SOC sequestration (AGROECOseqC)

Objective/s: In a gradient of agricultural practices ranging from the most intensives (intense tillage, monocropping, mineral fertilization) to the most disruptive ones (agroforestry, introduction of plant services) as well as intermediate practices already set up by the agricultural sector (crop rotation, organic fertilization, microbial inoculants), the main objective of the project is to evaluate the **role of agroecological practices and soil management in shaping soil fauna and microbiome to increase SOC and C persistence**, in terms of:

1. the soil biota capacity to i) mineralize soil organic matter by supplying soluble nutrients to plant needs during the growing season, sequestering nutrients when plant nutrient demand is low (fall, winter); ii) fix atmospheric N₂ and capture phosphorous from soil minerals, compensating for nutrient uptake and promoting SOC accumulation.
2. the contribution of plant community (cultivated, spontaneous and services plants) structure and traits on soil microbial diversity and functioning, biomass production and other benefits related to SOC accumulation and nutrient retention. A special attention will be paid to functional root systems, plant-soil and plant-microbe rhizosphere interactions.

Progetti di Ricerca (Call interne WP3) su biodiversità del suolo

SE4/ INDICATORS 2 European soil biodiversity forecast towards resilient agroecosystems in response to climate change

Proposta Coordinata da CREA, 15 Partners tra cui CNR, ISPRA, ENEA, ERSAF)

Modeling and mapping soil biodiversity patterns and functions across Europe (MINOTAUR)

Objective/s: To fully comprehend the role of soil biodiversity and its ecosystem functions in the context of climate change, sustainable development, and nature conservation, we must invest in understanding what lives belowground (Scow et al. 2020). In this framework, the MINOTAUR project aims to **identify and select relevant taxonomical and functional indicators for soil biodiversity and associated agricultural soil functions, document their status and trends in time and space across Europe, and assess their vulnerability to climate change and sensitivity for management practices applied to respond to such climate change**. The collaboration with EU and international soil biodiversity networks and programs (es. LUCAS, EUdaphobase, Soil BON) is being established to harmonize the integration of biodiversity data across spatial, temporal and taxonomic scales. The ultimate objective is to deliver a valuable information on the state and trends of soil biodiversity and functions to support current policy-making and help reshape it to bring soils and their biodiversity to the center stage of global sustainability thinking.

Progetti di Ricerca (Call Esterne WP4) su biodiversità del suolo

FINANZIAMENTI ESTERNI DA OGNI ENTE FINANZIATORE. MIPAAF (IT) CONTRIBUISCE CON 400.000 €

Link alle call esterne: <https://ejpsoil.eu/research-projects/first-external-call-now-open/>

TIMELINE

25th June 2021 13:00 CET (Pre-registration) via the online submission tool

Complete proposals must be submitted until 07th September 2021 16:00 CET via the submission tool

TEMI DELLA CALL, FINANZIATI DA MIPAAF SOLO B) E C)

A) Understanding SOC sequestration (stabilization, storage and persistence)

B) Soil biodiversity: status, and role in ecosystem services provided by soils

C) Site-specific or landscape-scale approaches to improve sustainability, resilience, health, and productivity of soils



Progetti di Ricerca (Call Esterne WP4) su biodiversità del suolo

TEMI DELLA CALL, FINANZIATI DA MIPAAF SOLO B) E C)

b) Soil biodiversity: status, and role in ecosystem services provided by soils

- Development of holistic indicators and target values to define healthy soils for agricultural productivity, for example soil fertility, biodiversity, resilience, nutrient levels and soil-microbe-plant interactions.
- Understanding the functional role of soils in the provision of ecosystem services, e.g. the provision of food and non-food crops, nutrient cycling, water storage and filtration.
- Understanding the role of fauna, microbiome, plants and their interactions on maintaining, enhancing and restoring healthy and resilient soils for agricultural productivity.
- Impact of novel soil amendment (e.g. fiber sludges from the paper and pulp industry) materials to soil biota.

EJP SOIL

- › SOIL matters
- ›› About EJP SOIL
- ›› Stakeholder portal
- › European roadmap
- ›› Research Projects
- › Knowledge Sharing Platform
- › Visit the EJP SOIL LTEs & Labs
- › Annual Science Days 2021



SOIL matters

We do not always remember the importance of soil, but actually, our lives depend on it.



Become a stakeholder

With active engagement, EJP SOL can create a platform for interaction between researchers and stakeholders.

EJP SOIL is a European Joint Programme Cofund on Agricultural Soil Management contributing to key societal challenges including climate change and future food supply.

EJP SOIL targets climate change adaptation and mitigation, sustainable agricultural production, ecosystem services and restoration and prevention of land and soil degradation.

News & Events

Per altre informazioni, scrivete a ejpsoil.italia@crea.gov.it