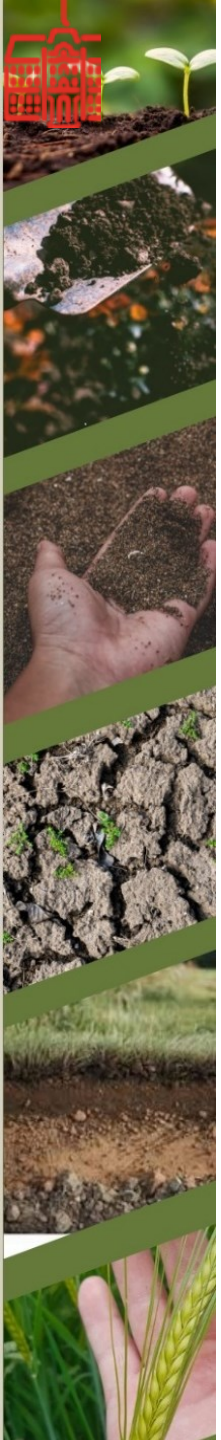


Srečanje ob Svetovnem dnevu tal

Slovensko partnerstvo za tla

Svetovni dan tal

»Skrb za tla: meritve, upravljanje, monitoring«

Vseevropski program

“Na poti k trajnostnemu upravljanju s kmetijskimi tlemi“

Rok Mihelič

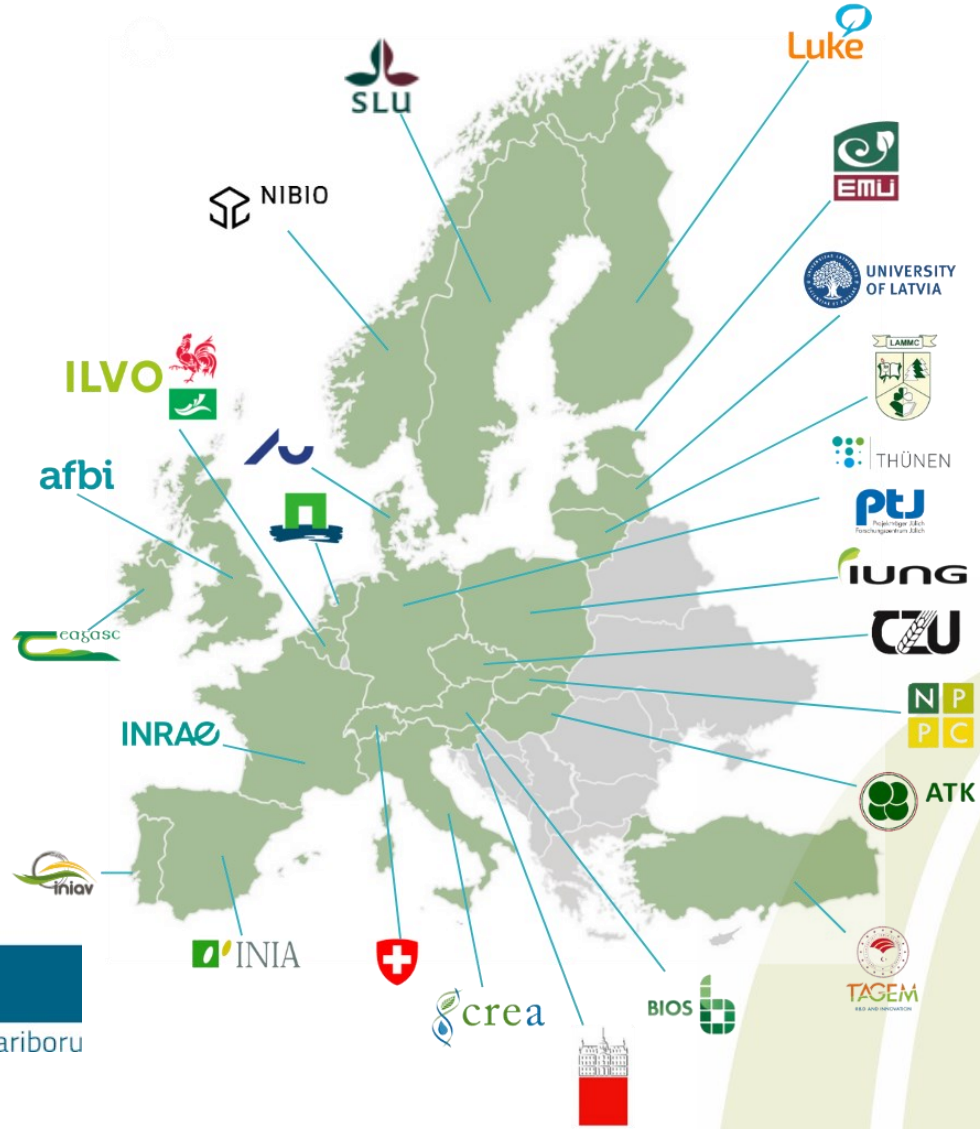
BF UNIVERZA V LJUBLJANI Biotehniška fakulteta

Zoom webinar,
5. 12. 2024

NA POTI K TRAJNOSTNEMU GOSPODARJENJU S KMETIJSKIMI TLEMI

EJP SOIL: A European Joint research Programme “Towards climate-smart and sustainable management of agricultural soils”

Pogodba:	862695
Start:	1. februar 2020
Trajanje:	60 mesecev
Vodilni partner:	INRAE
Tip programa:	European Joint Project COFUND
Finančni obseg:	80 mio €



BF UNIVERZA V LJUBLJANI Biotehniška fakulteta

Kmetijski inštitut Slovenije Agricultural Institute of Slovenia

Univerza v Mariboru

EJP SOIL, 5 letni raziskovalni program

RAZUMEVANJE: gospodarjenje s kmetijskimi tlemi za blaženje podnebnih sprememb

RAZUMEVANJE: sekvestracija ogljika & blaženje podnebnih sprememb

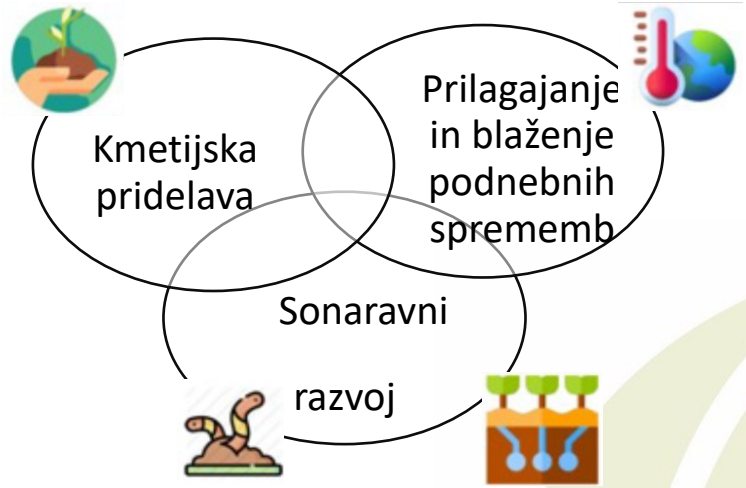
KREPITEV znanstvenih zmogljivosti in sodelovanja

PODPORA pri usklajevanju EU informacij o tleh

SPODBUJANJE sprejemanja podnebno pametnih in trajnostnih praks

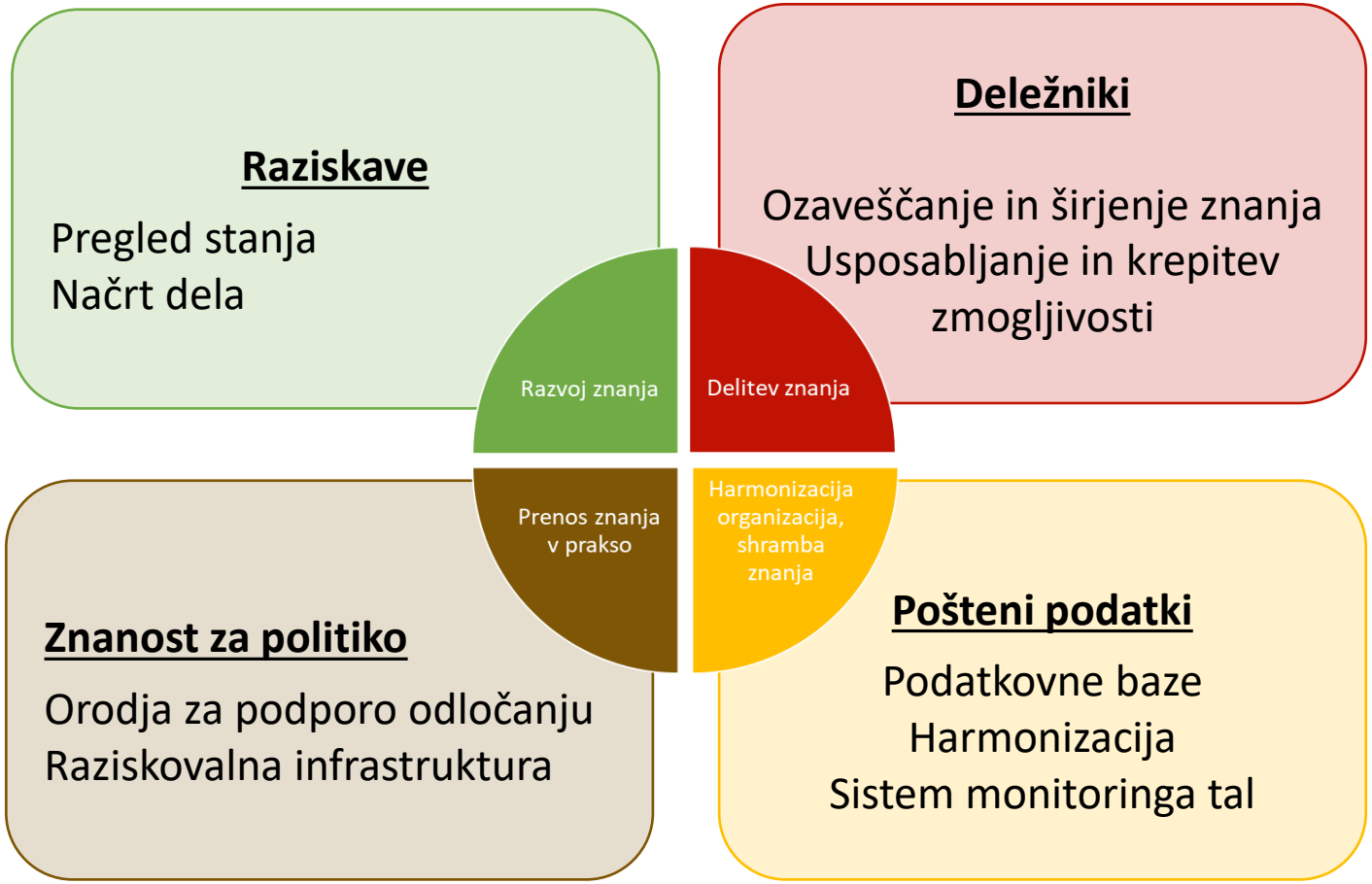
RAZVOJ regijsko specifičnih praks gnojenja

Dolgoročno začrtana pot raziskavam



Kmetje/kmetijski sektor so skrbniki tal in talnih virov

EJP SOIL aktivnosti



EJP SOIL: Delovna struktura

Raziskovalni projekti

(26 internih in 18 eksternih);

Slovenski partnerji smo sodelovali v:

- CarboSeq (ULBF, KIS, UM-FKBV)
- EneryLink (ULBF)
- Minotaur (ULBF)
- ProbeField (UM-FKBV)
- Sommit (ULBF, KIS, UM-FKBV)
- I-Sompe (ULBF)
- Siren (ULBF, KIS)

https://ejpsoil.eu/

Internal & External Projects

Internal Call projects

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

CarboSeq - Soil organic carbon sequestration potential of agricultural soils in Europe

EnergyLink - Linking crop diversification to microbial energy allocation and organic carbon storage in soils

EOM4SOIL - External organic matters for climate mitigation and soil health

INSURE - Wet management of cultivated peatlands a sustainable land use option for peat soils

MINOTAUR - Modeling and mapping soil biodiversity patterns and functions across Europe

MIXROOT-C - Optimizing C inputs through diversification

MaxRoot - C - Optimizing C inputs in annual cropping systems

ProbeField - A novel protocol for in-field monitoring of soil carbon stock, based on proximal sensors and soil spectral libraries

Road4Schemes - Roadmap for carbon farming schemes

SCALE - Managing Sediment Connectivity in Agricultural Landscapes for reducing water Erosion impacts

SensRes - Sensor data for downscaling digital soil maps to higher resolutions

SERENA - Soil Ecosystem seRvices and soil threats modElling aNd mApping

SoilCompaC - Mapping and alleviating soil compaction in a climate change context

SOMMIT - Sustainable Management of soil Organic Matter to Mitigate Trade-offs between C sequestration and nitrous oxide, methane and nitrate losses

TRACE-SoilS - Trade-offs between soil carbon sequestration, greenhousegas emissions and nutrient losses in agricultural soils across Europe: mechanisms and management options

STEROPES - Stimulating novel Technologies from Earth Remote Observation to Predict European Soil carbon

SIMPLE - Scenario modelling for assessing impacts of policy changes and socio-economic effects on ecosystem services of soils

Into-DIALOGUE - More than a Dialogue between actors, seeking the integration of soil-based principles in agroecological systems

BioCASH - Bio-economy and Circular Agriculture for Soil Health

PRAC2LIV - Fostering soil management PRACtices and uptake and developing decision support TOols through LIVing labs in EU

SoilX - Soil management to mitigate climate change-related precipitation eXtremes

ARTEMIS - Agro-ecological strategies for promoting climate change Mitigation and Adaptation by enhancing soil ecosystem services and sustainable crop production

CLIMASOMA - CLIMAte change adaptation through SOil and crop MAnagement: synthesis and ways forward

iSoMPE - Innovative Soil Management Practices across Europe

SIREN - Stocktaking for Agricultural Soil Quality and Ecosystem Services Indicators and their Reference Values

External Call projects

SOMPACS - Soil management effects on soil organic matter properties and carbon sequestration

SoilSalAdapt - Preadapting soil biology for increased tolerance to elevated salinities due to climate change

FREACS - Soil management effects on soil organic matter properties and carbon sequestration

TRUESOIL - True SOC sequestration: understanding trade-offs and dynamic interactions between SOC stocks and GHG emissions for climate-smart agri-soil management

SIC-SOC-DYN - Organic and inorganic carbon dynamics in calcareous soils

WISH-ROOTS - Tuning the wheat root microbiome to improve soil health and optimize rhizosphere nitrogen cycling and availability

ICONICA - Impact of long-term phosphorus additions on Carbon sequestration and Nitrogen Cycling in Agricultural soils

CropGas - The effect of conservation agriculture interventions on greenhouse gas emissions

SoilSynbiotics - Development of Synbiotics for enhancing the soil microbiome

SOIL-HEAL - Symbiotic Solutions for Healthy Agricultural Landscapes

ClimateCropping - Climate Smart Management for Resilient European Cropping Systems

SOIL-ES - Soil ecosystem services under sustainable intensification of agriculture: looking for innovative mapping and monitoring at multiple scales.

TilSoilC - The effects of tillage practice on soil carbon sequestration mechanisms.

SANCHOSTHIRST - Cover cropS (CC) ANd soil health and climAte CHaNge adaptatiOn in Semiarid woody crops. THe RemOte SensIng and furTHer scenaRIoS projecTions.

CarboGrass - Impact of grassland management on soil carbon storage.

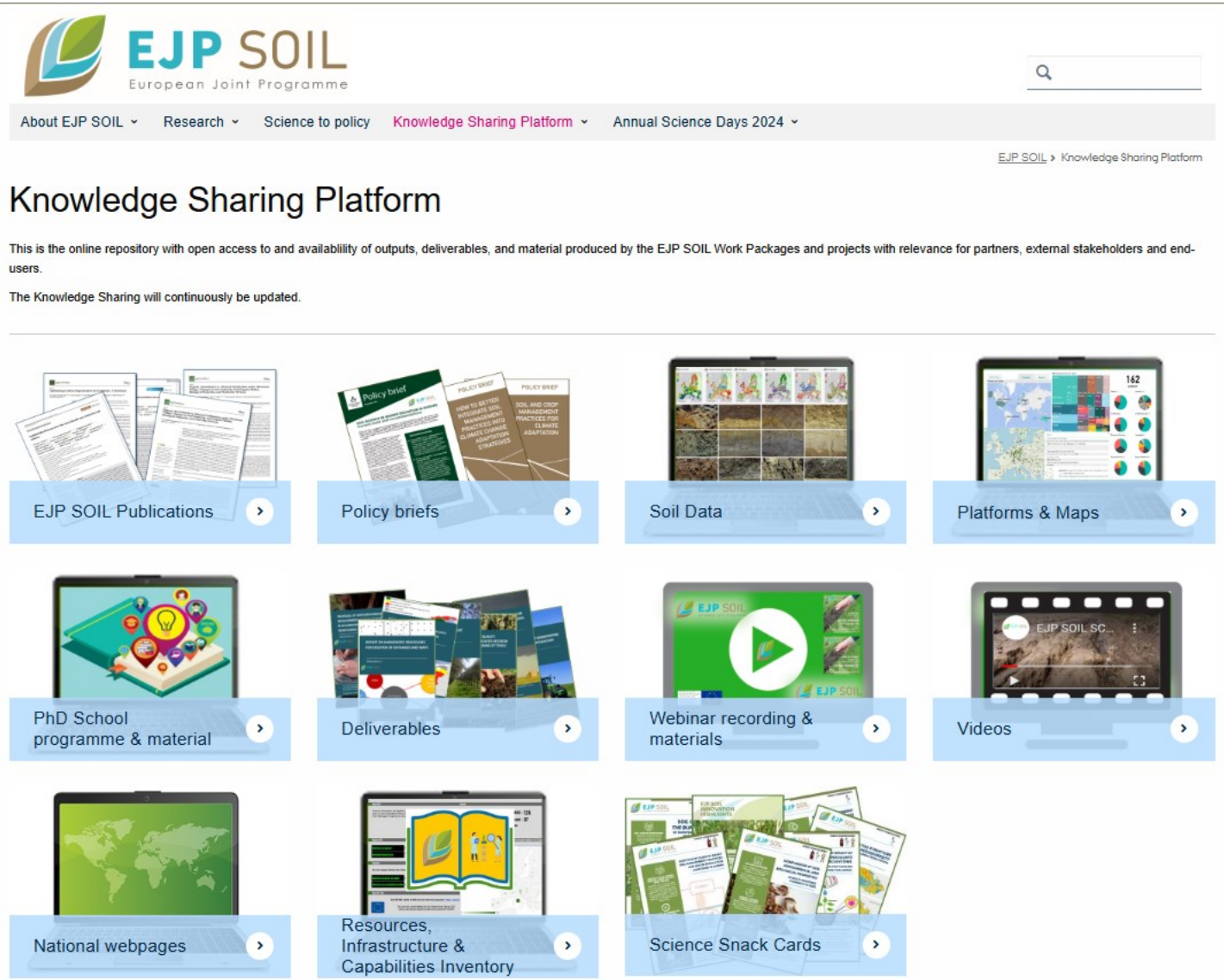
C-arouNd - Refining Soil Conservation and Regenerative Practices to Enhance Carbon Sequestration and Reduce Greenhouse Gas Emissions.

FAMOSOS - FArm MOnitoring via Real-time SOil Sensing.

AGROCOMPOSIT - Biochar-compost composites for supporting site-specific soil agro-ecosystem functions and climate change mitigation.

EJP SOIL
European Joint Programme

Izročki


EJP SOIL
European Joint Programme
About EJP SOIL
Research
Science to policy
Knowledge Sharing Platform
Annual Science Days 2024
EJP SOIL › Knowledge Sharing Platform
Knowledge Sharing Platform
This is the online repository with open access to and availablility of outputs, deliverables, and material produced by the EJP SOIL Work Packages and projects with relevance for partners, external stakeholders and end-users.
The Knowledge Sharing will continuously be updated.
EJP SOIL Publications
Policy briefs
Soil Data
Platforms & Maps
PhD School programme & material
Deliverables
Webinar recording & materials
Videos
National webpages
Resources, Infrastructure & Capabilities Inventory
Science Snack Cards

Kaj je sekvestracija ogljika?

Sekvestracija C v tleh

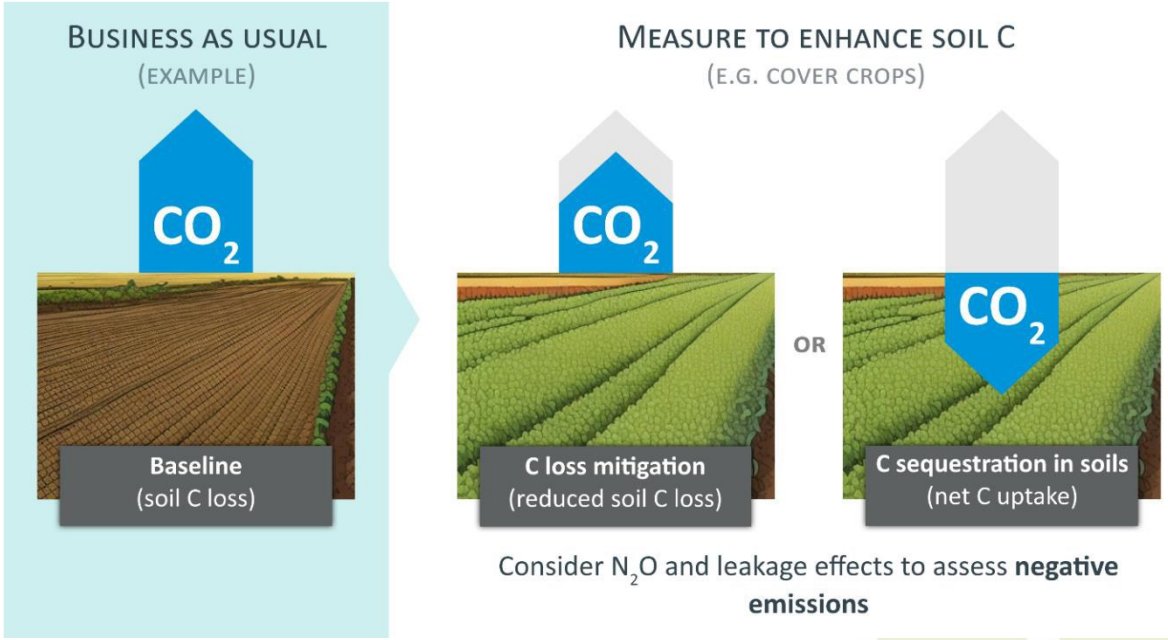
proces prenosa C iz ozračja v tla z rastlinami ali drugimi fotosintetskimi organizmi, pri čemer se shrani v tleh kot talni organski C in se globalno povečajo zaloge C v tleh

Potencial sekvestracije C

Je razlika med običajnimi zalogami SOC (pri običajnih kmetijskih praksah) in zalogami SOC, doseženimi s kmetijskimi ukrepi, ki prispevajo k povečanju SOC po 20 letih, 50 letih.

Negativna emisija

neto odstranitev CO_2-ekvivalenta toplogrednih plinov iz ozračja



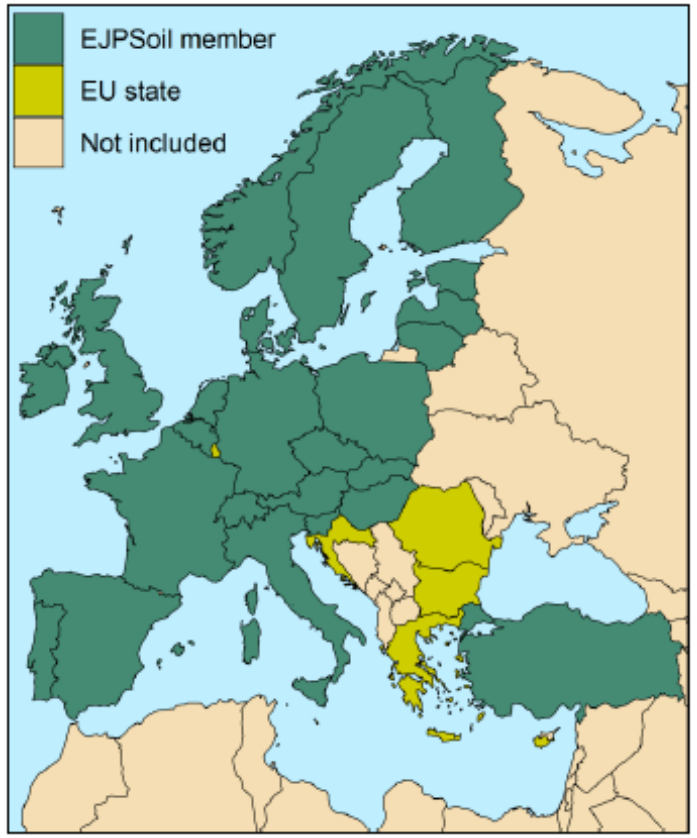
Don A, Seidel F, Leifeld J, Kätterer T, Martin M, Pellerin S, Emde D, Seitz D, Chenu C. (2024) Carbon sequestration in soils and climate change mitigation—Definitions and pitfalls. Global Change Biology, 30, e16983. https://doi.org/10.1111/gcb.16983

Zaloge ogljika v kmetijskih tleh v odvisnosti od kmetijskih praks

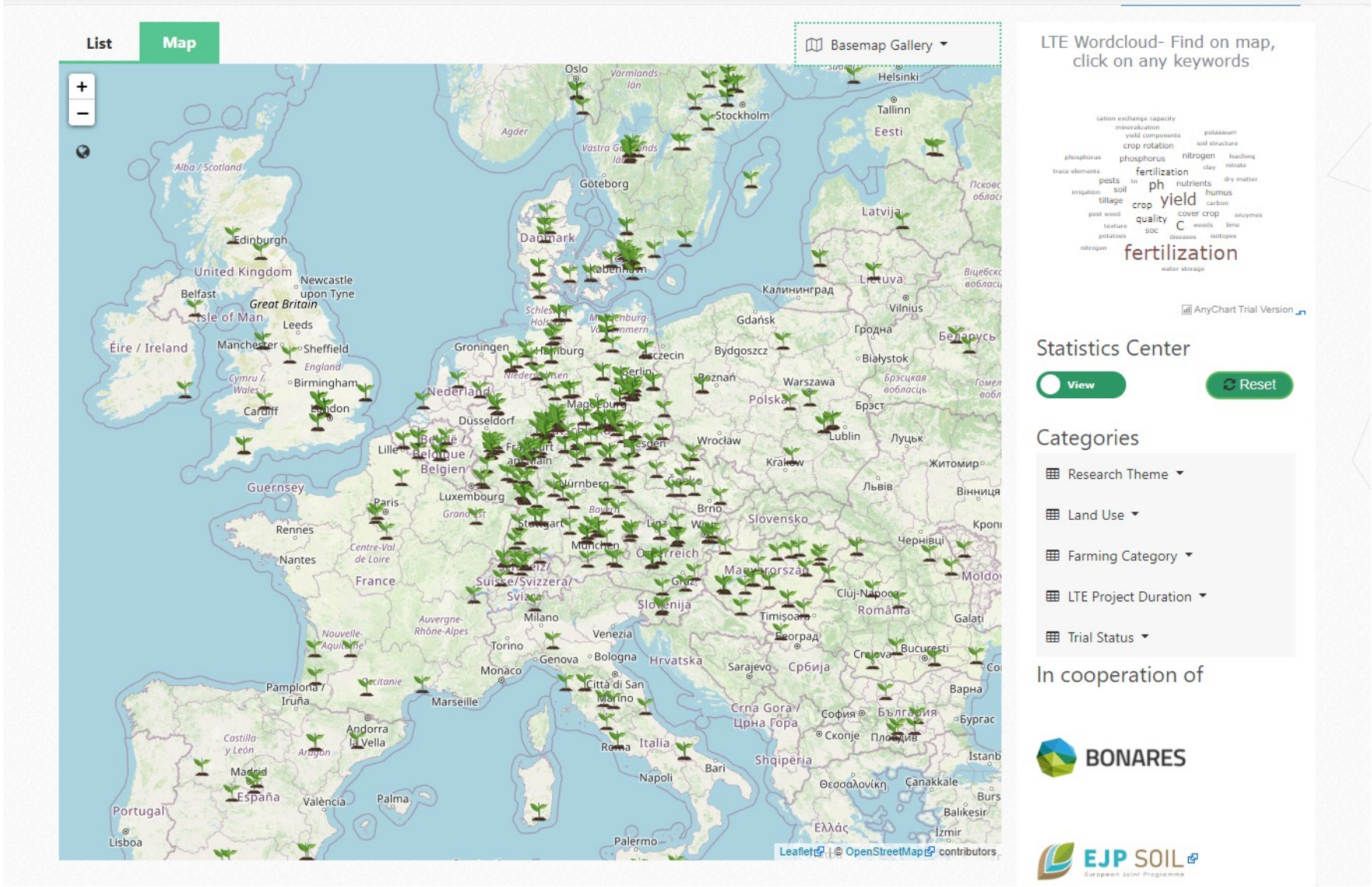
Možnost povečanja zalog ogljika v kmetijskih tleh Evrope

- z vpeljavo **ciljnih kmetijskih praks**
- z **upoštevanjem lokalno-specifičnih razmer:**

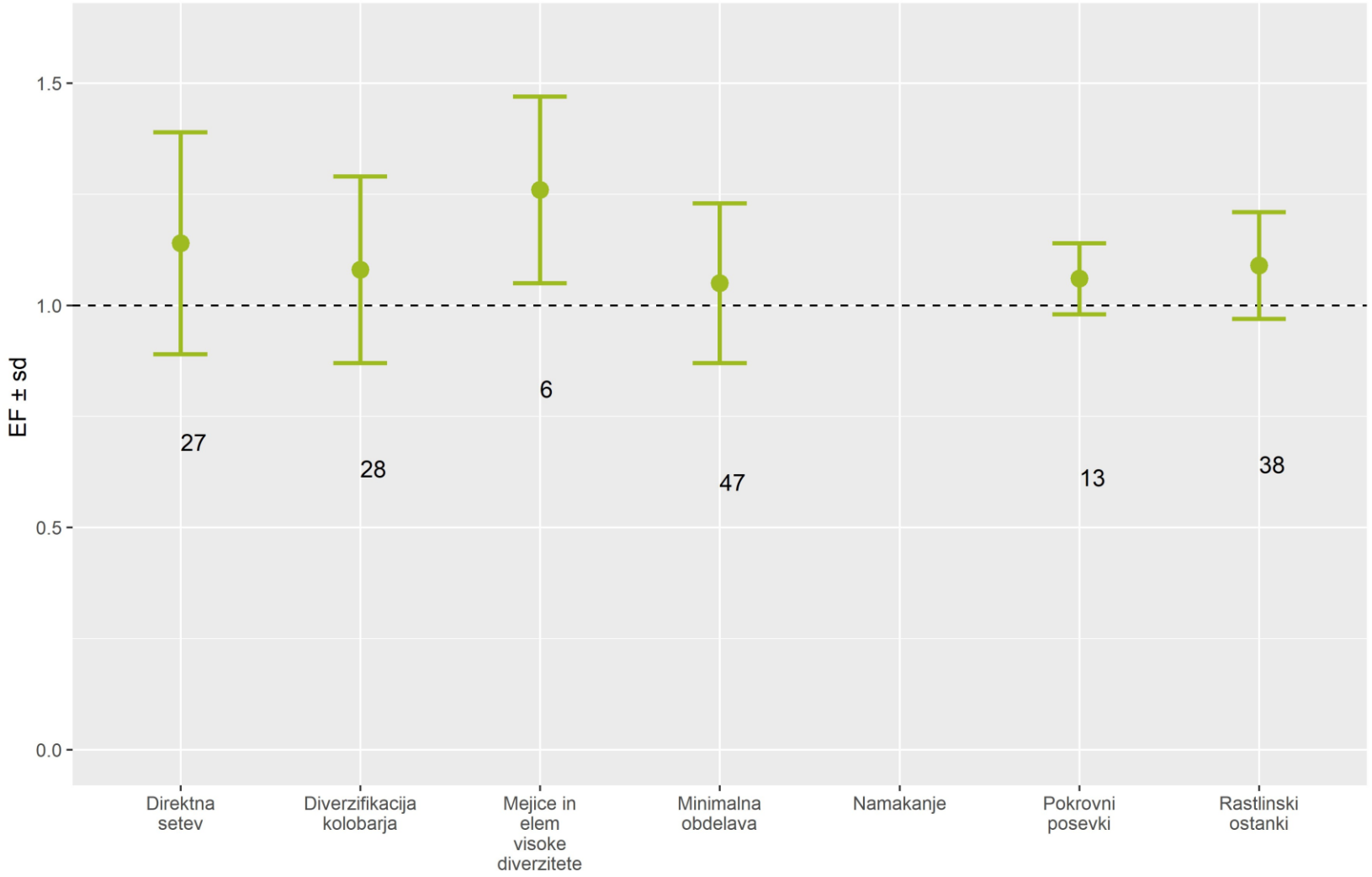
  trenutne rabe tal, možnosti gospodarjenja oz dostopnih tehnologij



Mreža trajnih poljskih poskusov



CarboSeq - Vsi ukrepi značilno povečajo zalogo ogljika v tleh v primerjavi s kontrolo

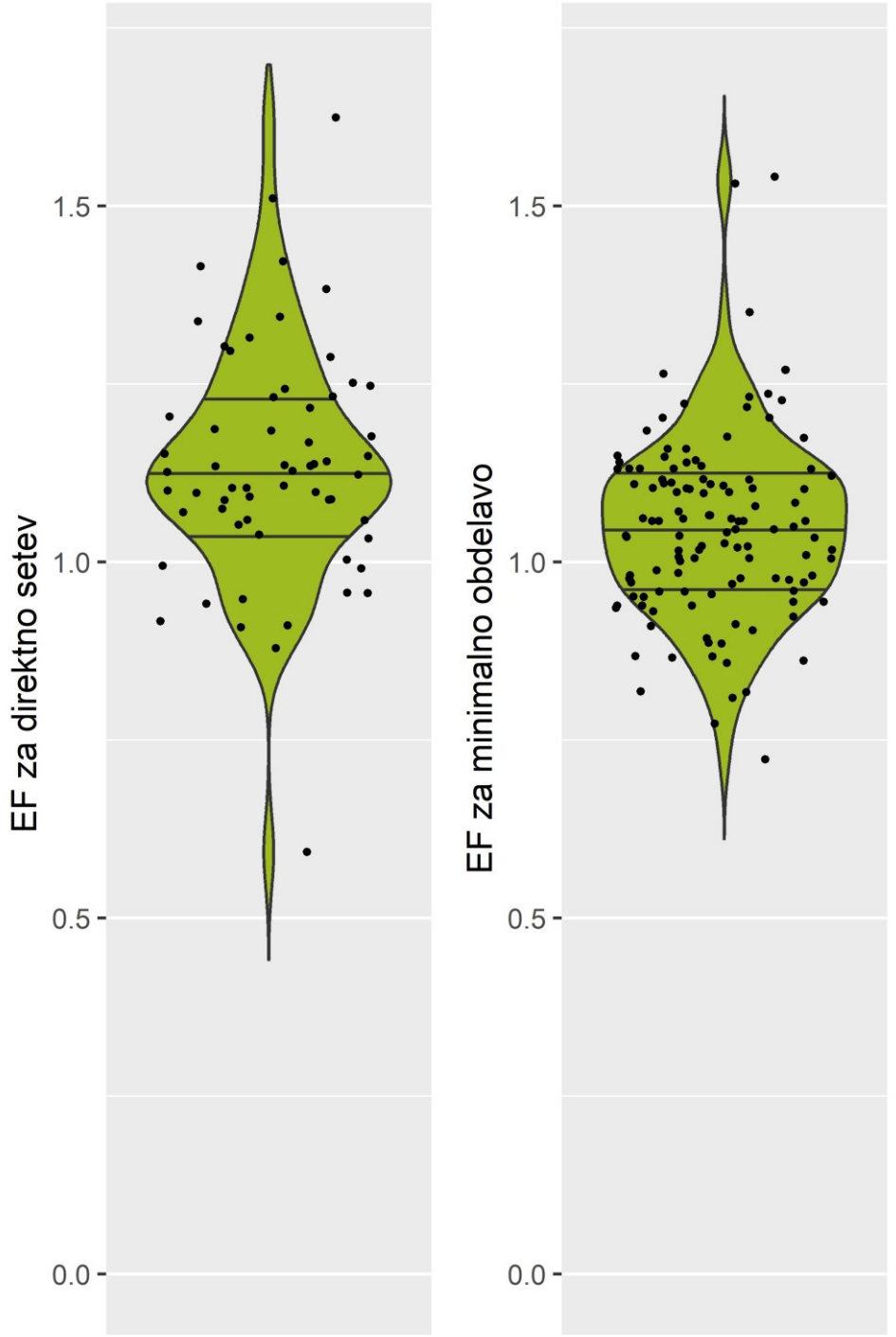


Don A, Seidel F, Leifeld J, Kätterer T, Martin M, Pellerin S, Emde D, Seitz D, Chenu C. 2024. Carbon sequestration in soils and climate change mitigation- Definitions and pitfalls. Glob Chang Biol.

Emisijski faktorji za obdelavo tal

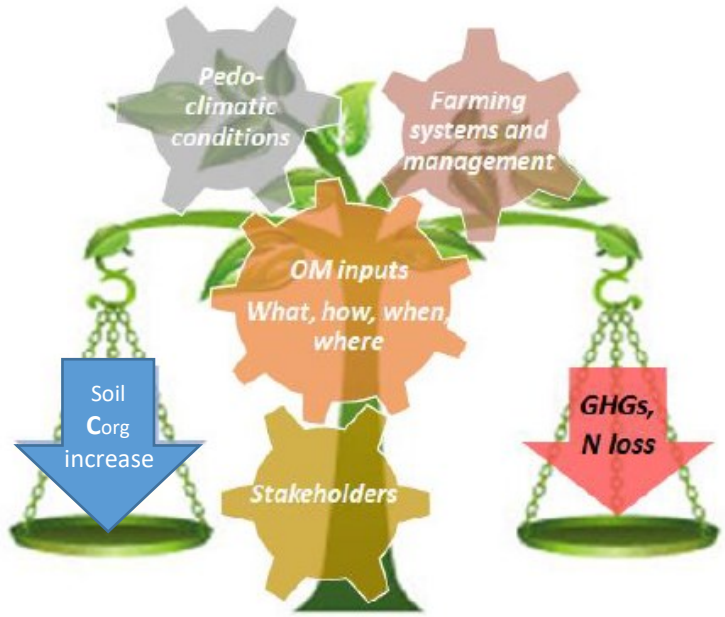
- EF za minimalno obdelavo tal **1,05**
  (IPCC predlaga 1,05)

- EF za direktno setev je **1,14**
  (IPCC predlaga 1,1)



Alonso-Ayuso M., **Ocvirk K.**, Martinez-Garcia L., **Suhadolc M.**, Álvaro-Fuentes J., 2024. Deliverable WP2.1 – Tillage.

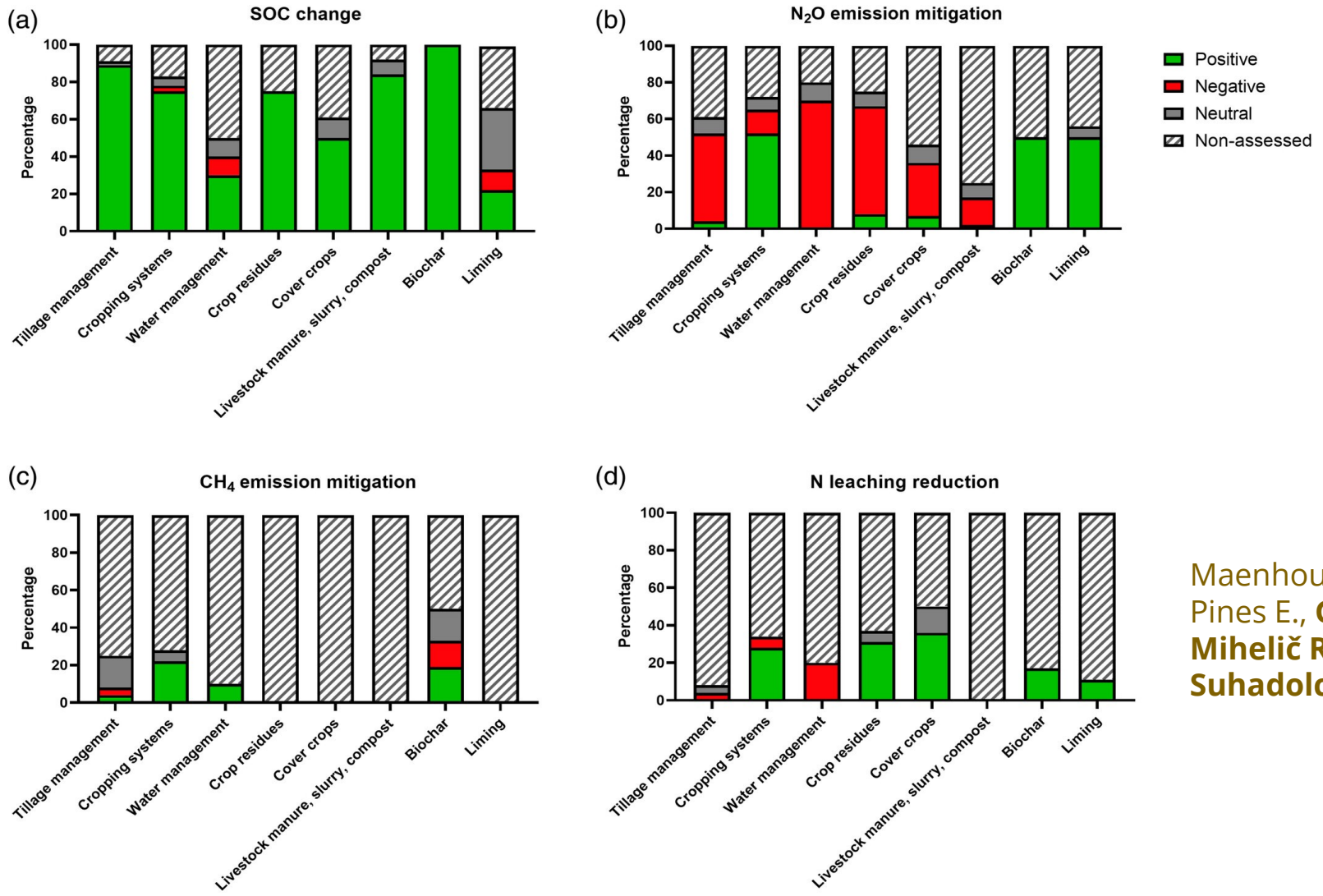
Sekvestracija C *vs.* zaloge C



NEGATIVNE EMISIJE

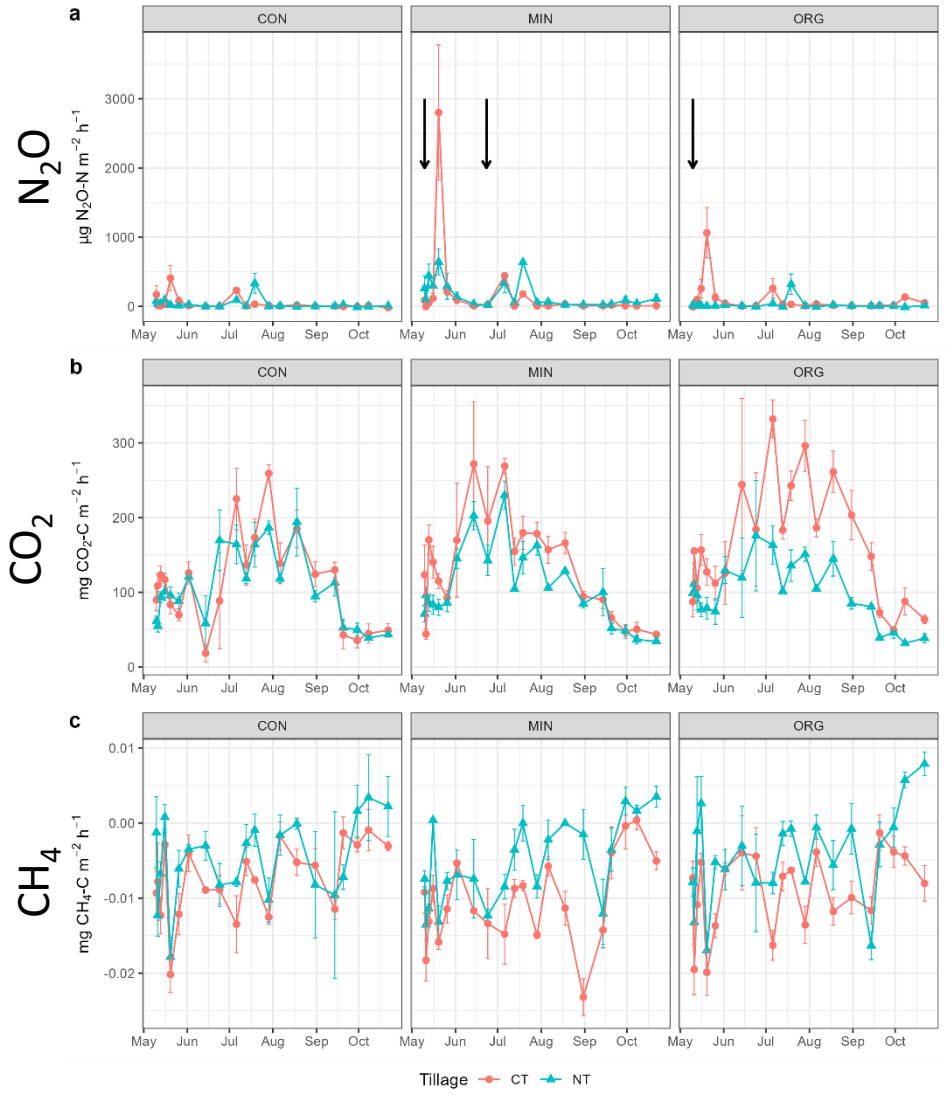
Vsota vseh emisij toplogrednih plinov (CO_2, N_2O in CH_4) (v ekvivalentu CO_2) v ozračje mora biti manjša od vezave v tla

Kompromisi in sinergije sekvestracije C – rezultati metaanalize

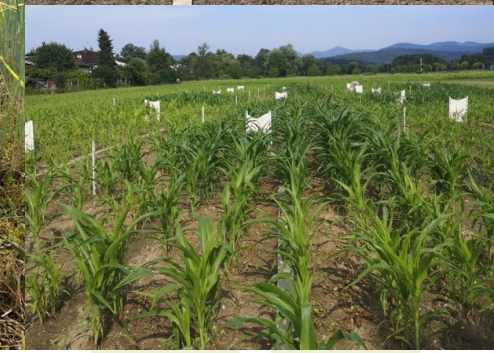


Maenhout P., Di Bene C., Cayuela M.L., Diaz-Pines E., **Govednik A.**, Keuper F., **Mavsar S.**, **Mihelič R.**, O'Toole A., **Schwarzmann A.**, **Suhadolc M.**, Syp A., Valkama E., 2024.

Meritve TGP na poskusnem polju ULBF



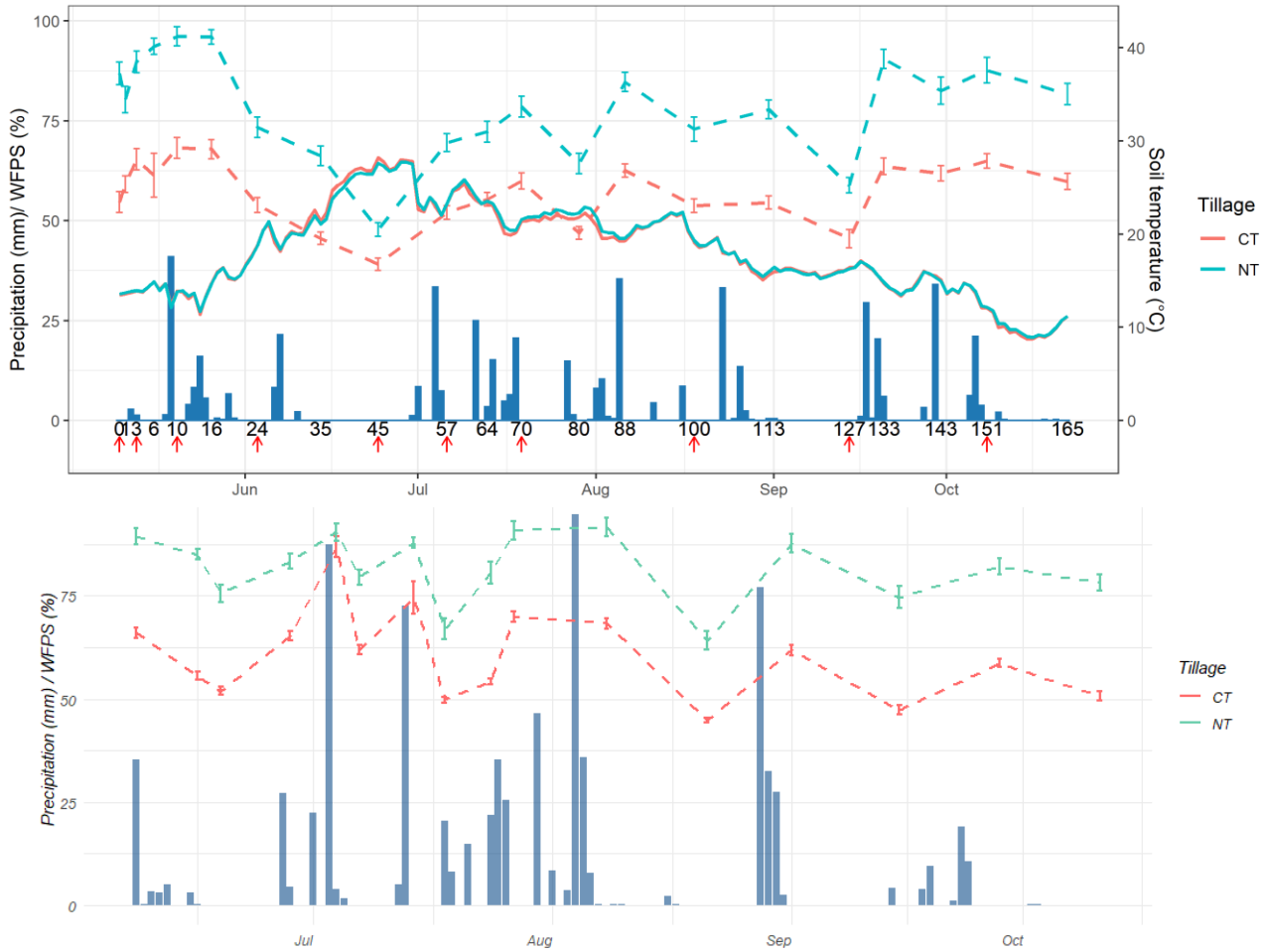
- **"TillComp"** dolgoletni poljski poskus v Ljubljani (od leta 1999)
- Obdelava tal & Gnojenje
- TGP merjeni v letih 2021 & 2023

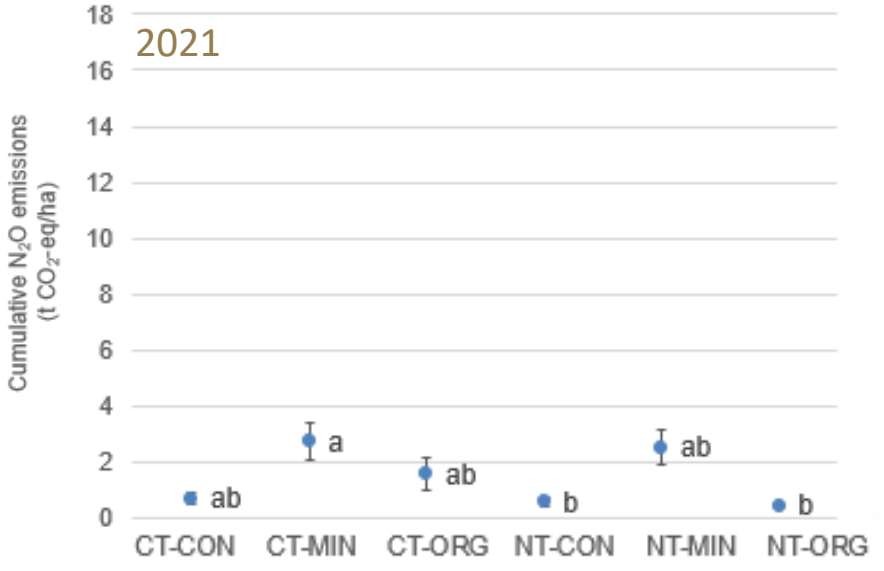


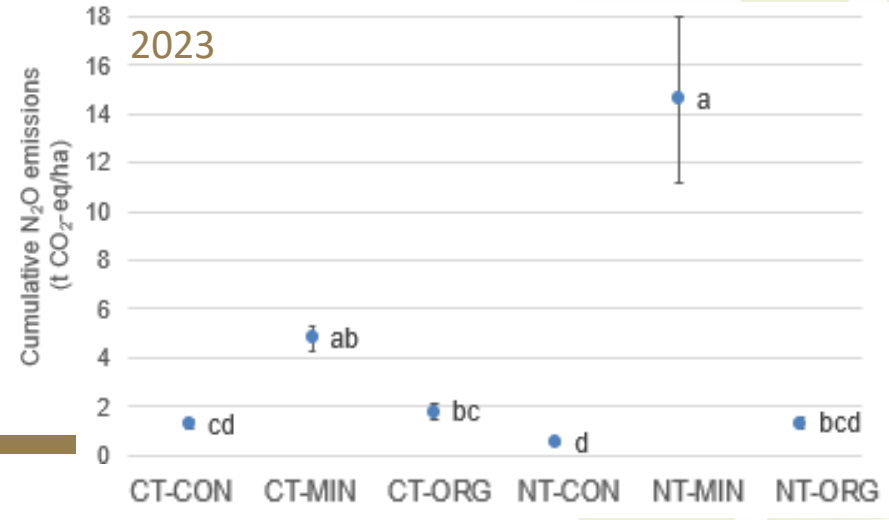
Govednik in sod. STOTEN, 2024
Schwarzmann in sod. - v pripravi

Meritve TGP na poskusnem polju ULBF “TillComp”

Vremenske razmere v sezoni 2021 in 2023 in kumulativne emisije N_2O

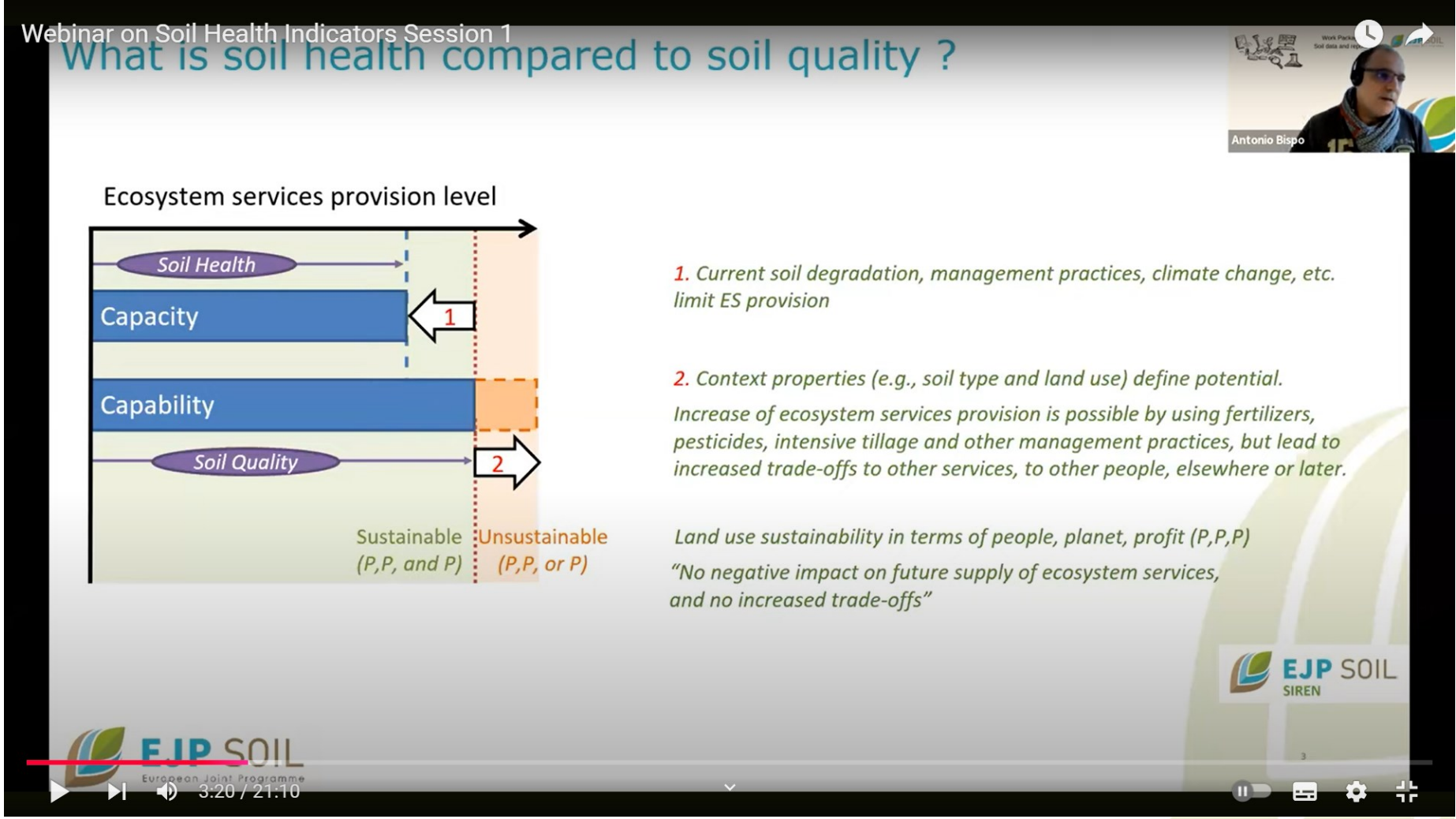






Govednik in sod. STOTEN, 2024; Schwarzmann in sod. - v pripravi

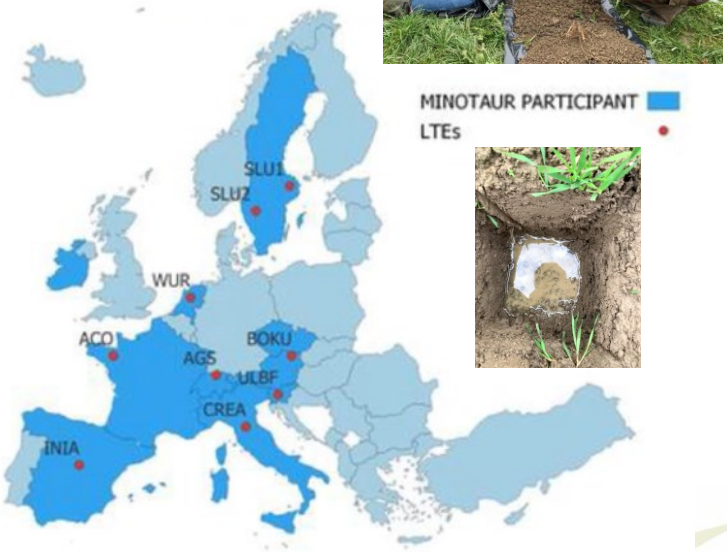
Modeliranje in kartiranje vzorcev biodiverzitete in funkcij tal v Evropi

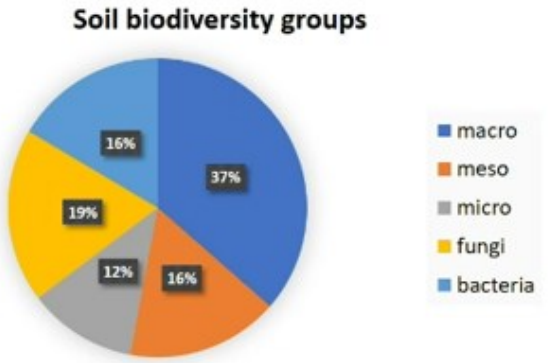


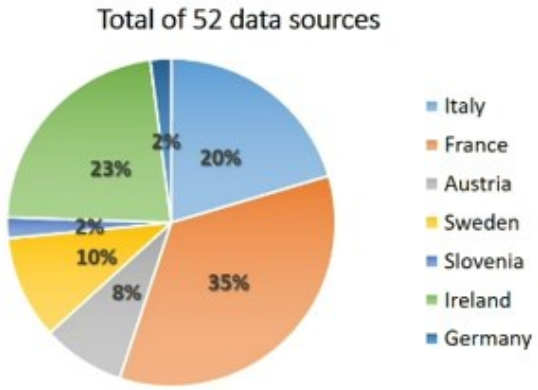
- oblikovanje kazalnikov, pomembnih za oceno biodiverzitete tal in z njo povezanih funkcij kmetijskih tal,
- usklajevanje in povezovanje podatkov o biotski pestrosti tal v EU

EJP Soil – Minotaur zbirka podatkov biodiverzitete kmetijskih tal

- zbiranje podatkov preteklih nacionalnih in EU projektov
- vzorčenje in analize v okviru EJP Soil **Minotaur**
- – **vpliv obdelave na biodiverziteto tal** v različnih edafoklimatskih razmerah - vključena vzorčenja tal dolgoletnih poskusov, npr. ULBF- TillComp







Slovensko nacionalno stičišče za tla

- Vzpostavljeno v letu 2021
- 27 Članov
- Tri srečanja
  - 2021 - ustanovni sestanek na daljavo
  - November 2022- razširjena vsebinska konferenca v sodelovanju z SAZU
  - April 2024 - razširjena vsebinska konferenca

VPRAŠANJA?

Ali je smiselno imeti tako stičišče?

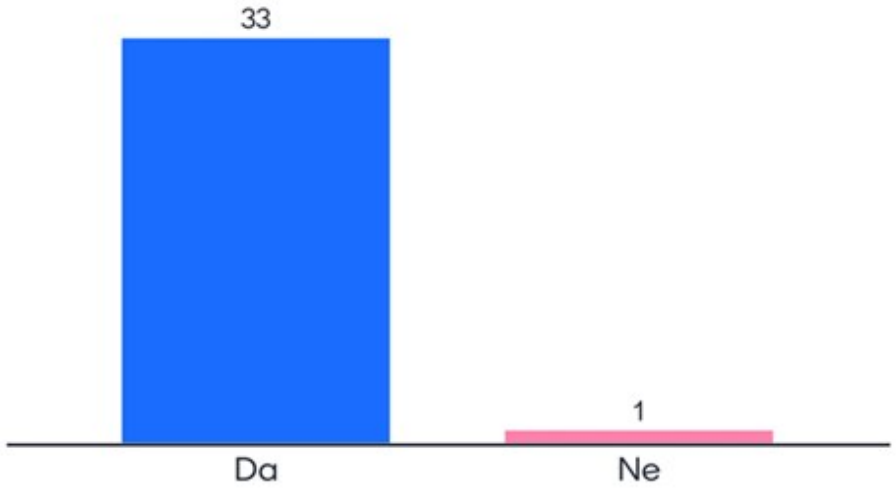
Veliko projektov-veliko stičišč, razdrobljenost informacij

Kako naj živi stičišče po koncu projekta?

Slovensko nacionalno stičišče za tla

Mentimeter

Ali se vam zdi smiselno, da nacionalni inštitut za tla ostane aktiven tudi po koncu programa EJP Soil?



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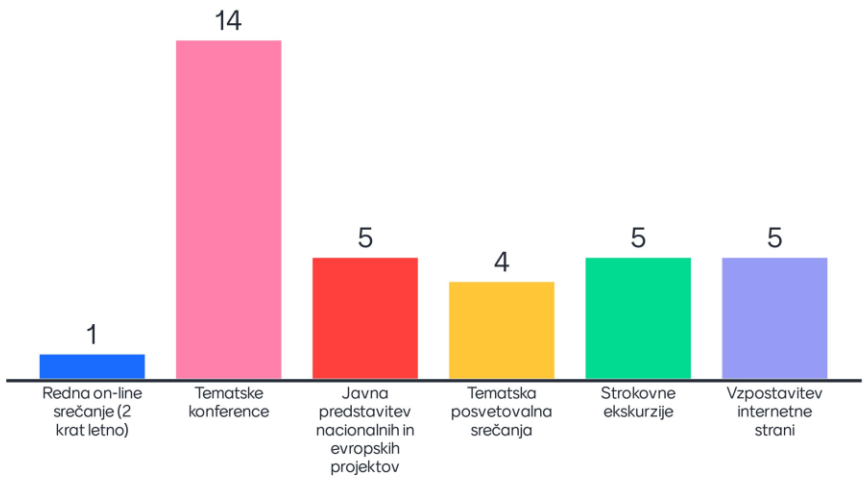
Slovensko nacionalno stičišče za tla

Mentimeter

Katere aktivnosti predlagate za prihodnost (izberete lahko več opcij)



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Slovensko nacionalno stičišče za tla

Mentimeter

Katere aktivnosti predlagate za prihodnost (vaši predlogi)

Demo projekti	Poskusi na kmetijah	Več poudarka tudi na mehanske lastnosti tal. Vpliv mehanizacije na tla.	Ena tematska konferenca in ena ekskurzija s predstavitvijo dobrih kmetijskih praks NA LETO!
Večja aktivnost pri varovanju kmetijskih zemljišč	Povezanost in prenos znanja med razlicnimi institucijami na mlajse raziskovalce na podrocju tal	Poskusi pri kmetih	Vzdrževanje, redne aktivnosti

Slovensko nacionalno stičišče za tla - PREDLOGI

- Ohranimo eno močno nacionalno stičišče za tla
- Koordinirano s strani MKGP
- Vzpostavljena spletna platforma z vsemi informacijami za področje tal na spletni strani MKGP
- Moderator platforme MKGP
- Organizacija letnih tematskih/posvetovalnih konferenc
- Organizacija letnih praktičnih prikazov dobrih praks pri kmetih

ZAHVALA

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