HORIZON-MISS-2021-SOIL-01-01 /
Preparing the ground for healthy soils:
Building capacities for engagement, outreach and knowledge

PREPSOIL DELIVERABLE

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I. EMSW Agenda

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1. Background and Context: Trans-European event on soil needs assessments

About the Mission 'A Soil Deal for Europe' (*EC, 2023*)

The Mission 'A Soil Deal for Europe' (hereinafter Mission Soil) is a large-scale initiative focused on protecting as well as restoring soils, and promoting sustainable management practices in urban and rural areas. The Mission aims to raise awareness and ensure the long-term health and productivity of soils on all types of land. Moreover, it aims to advance and share knowledge with stakeholders and the general public about sustainable practices related to spatial planning, soil conservation and agricultural techniques, aimed at reducing the use of chemical inputs.

The Mission Soil pioneers, showcases, and accelerates the transition to healthy soils through ambitious actions in 100 Living Labs (LLs) and Lighthouses (LHs) within territorial settings. It combines these actions with a comprehensive transdisciplinary research and innovation programme, a robust, harmonised soil monitoring framework and increased soil literacy and communication to engage with citizens.

About PREPSOIL (Preparing for the 'Soil Deal for Europe' Mission)

The *Preparing for the 'Soil Deal for Europe' Mission* project (hereinafter PREPSOIL) facilitates the deployment of the Mission Soil across European regions. This will be achieved through the co-creation and roll out of tools and spaces for interaction, knowledge-sharing and co-learning, as well as stocktaking and dialogue to understand how regional assessment of soil needs, supported by harmonized monitoring mechanisms, can then lead to action in LLs and LHs on soil health. PREPSOIL as Coordination and Support Action (CSA) is supporting the roll out of the Mission during its first 3 years (2022-2025).

Among their main actions, PREPSOIL aims to: 1. Create awareness and knowledge on soil needs among stakeholders in regions across Europe; 2. Widen the understanding of LLs as a vehicle for engaging stakeholders in soil improvements; 3. Create understanding of how different approaches to soil monitoring may support the transition to sustainable land use and 4. Engage with soil ambassadors and collect information on soil education by establishing a one-stop-shop for soil literacy, communication and engagement as a state-of-the-art web platform.

Soil (Health) Needs Assessment

With concerns to the EU soils, there is evidence of lack of knowledge and awareness of the importance of long-term soil health, which is a major driver of soil degradation affecting its capacity to provide ecosystem services. The Mission Soil proposes a novel approach to (Research and Innovation) R&I for impact, based on Open Science and strong stakeholder and citizen engagement.

Therefore, soil health is high on the EU political agenda. The European Green Deal and other policies recognize soil health as an essential element for achieving their objectives, such as climate neutrality, stopping desertification and land degradation or reversing biodiversity loss.

In this context, one of the PREPSOIL's key actions approach the soil needs assessment. This takes up the entire activity of Work Package (WP) 2. WP2 work is based on soil health with the following scope: *the future needed conditions of soils and their services in a specific region, to be able to set up a balanced overview of management options to respond to external drivers and optimize soil related ecosystem services*.

PREPSOIL WP2 adopts a proactive approach to co-create with stakeholders, leveraging on both offline and online facilities, with the ultimate purpose of generating long-lasting interaction spaces. This interaction and engagement strategy supports stocktaking and dialogue to understand how regional soil needs assessment, supported by harmonized monitoring mechanisms, can lead to action in LLs and LHs for soil health.

PREPSOIL is providing then the first assessments and efforts towards an improved knowledge base and awareness level on soil health for multiple stakeholders. The results of this assessment could be used in the Mission Soil to further help setting up soil health LLs, by proposing targeted research and innovation activities to improve soil health.

PREPSOIL Regional Soil (Health) Needs Assessment

The PREPSOIL regional soil needs assessment activity was based on a set of regions that represent European regions from a soil, climate, geographical location within Europe, socio-economic conditions and land management system perspective. A selected region should include a site where sustainable management is planned or is already in place. Moreover, each region should be representative for other regions in Europe.

The selection process of the representative regions followed an iterative process, consisting of three simultaneous workshops. It was focused on specific landscapes within a NUTS2 region. Envisaged area sizes were around 1000 km². Practical considerations were also taken into account, such as the location and network of PREPSOIL project partners, their existing knowledge, and existing stakeholder networks and LLs. Finally, PREPSOIL selected 20 regions covering different land uses, farming/exploitation systems and geographical balance: 10 have a dominant agricultural land use, 3 a forest/natural land use, 3 have an urban/post-industrial land use and 4 have a mixed land use.

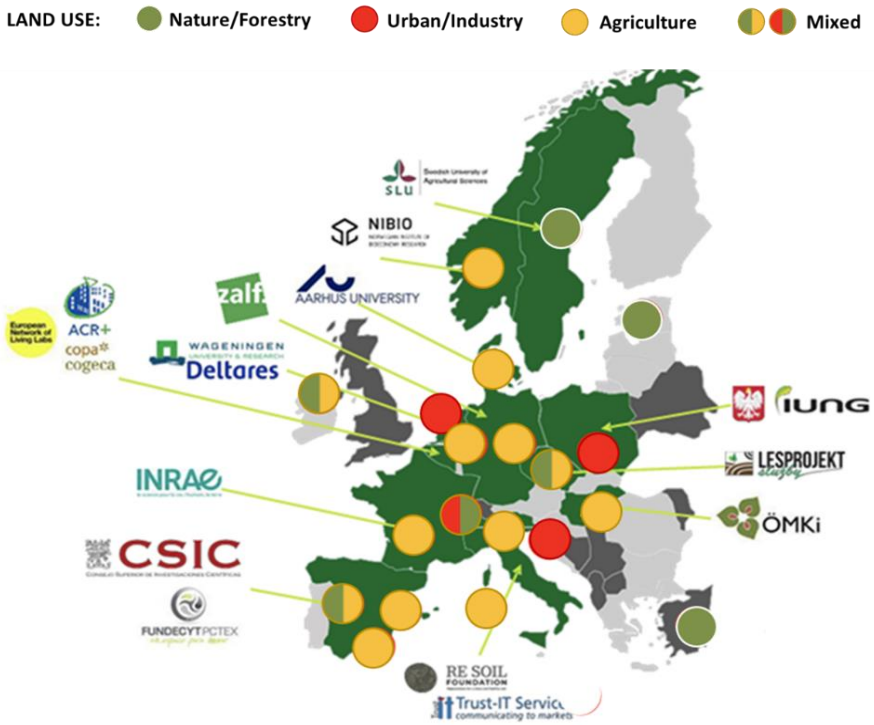


Figure 1. PREPSOIL Regions for soil needs assessment: Land uses and European geographical coverage. PREPSOIL partners in the map.

The selection of the soil needs assessment regions was done on the basis of suitability, available contacts and spatial distribution across Europe. With this approach a good representation of European soil needs regions was reached.

Context: Trans-European event on soil needs assessments and Soil Mission Fair

According the PREPSOIL Grant Agreement (GA), the consortium had the commitment to organize, coordinated by CSIC, a *Key/Major event on Soil Needs targeting all European regions* with the aim to *Support a wider appraisal effort in MS and AC as further preparation for the second phase of the Soil Mission implementation*.

From the beginning, PREPSOIL considered as a profitable option to try to identify a high-level soil event to organize this key event back-to-back to join efforts. By the beginning of 2023 there was no event like that scheduled yet. Then, to move ahead with the implementation plan, a date and location was fixed: 22 November 2023 in Madrid. Subsequently, PREPSOIL representatives had the opportunity to exchange with DG AGRI representatives in Brussels during the *Jump-start the Mission Soil* event (22-23 March 2023). There they expressed their intention to organize the, originally named, first *European Mission Soil Fair* close to the mentioned date. At that moment, PREPSOIL proposed to DG AGRI and Mission Soil Platform the organization of both events back-to-back with the possibility of hosting it in Madrid.

As previously indicated, soil health is high on the EU political agenda. This European Mission Soil event was a perfect opportunity for PREPSOIL to contribute to the Soil Needs Assessment scope. It would add momentum to the ongoing efforts to improve soil health and provide a platform to discuss how soil health, related innovation, experimentation, demonstration, monitoring, increased public awareness and citizen engagement through the Mission Soil can contribute to the green transition.

The European Mission Soil Week (EMSW)

Finally, a positive reply and a brave decision from DG AGRI together with an intense implication of INIA-CSIC to facilitate the hosting led to the organization of the *European Mission Soil Week* (EMSW) in Madrid under the Spanish presidency of the EU with the inclusion of specific sessions for PREPSOIL on its second day.

The overall event was then, organised by the European Commission, Directorate-General for Agriculture and Rural Development (DG AGRI), with co-organization of PREPSOIL and the Joint Research Centre - EU Soil Observatory (EUSO) joining forces to hold a major European conference under the auspices of the Spanish Presidency of the Council of the EU. The event was facilitated by INIA-CSIC (PREPSOIL member) and kindly hosted by the Spanish National Research Council (CSIC) in Madrid from 21 to 23 November 2023.

This was the first European event of this characteristics that gathered the European soil community. Researchers, policymakers, farmers, foresters, spatial planners, landowners and land managers, businesses, and organisations as well as the general public met to discuss the challenges for making and keeping EU soils healthy. The event was an opportunity to communicate and disseminate solutions based on the latest research results and innovations for healthy soils. Therefore, it joined and mobilised communities to protect and restore soil health.

The whole EMSW agenda is available in Annex 1 (last PDF version provided by the EC) and fully updated event information in the event dedicated website: *www.europeanmissionsoilweek2023.com*.

2. PREPSOIL project introduction: supporting the Mission Soil (Plenary)

Preceded by an inspirational speech on *Social, economic, and cultural transformations for soil health*, the EMSW included at the beginning of its second day a dedicated session for PREPSOIL introduction. This was a plenary session to put PREPSOIL in the context of the Mission Soil (general information about the project), introduce the scope of the WP2 activity (intro to regional soil need assessment, methods and advance of key results) and additionally to address briefly other PREPSOIL features and interactions, mostly concerning LLs, monitoring and science-policy.

The session was streamed. It was attended by over 300 participants on-site plus 400 participants online. The full list of registered attendances is preserved by the EC according with the GPDR policy.

22 Nov. 10:00 - 11:00 h [60'] **Plenary Session** - **PREPSOIL project: supporting the Mission Soil**

Session Structure

- *Brief intro to PREPSOIL work to support the Mission Soil* [15'] – Niels Halberg
- *Regional approach and selection of representative regions* [15'] – Saskia Keesstra
- *Soil Needs Assessment in 20 European regions: Method and Key Results* [15'] – Katharina Helming
- *Implications for stakeholder interaction, Living Labs, monitoring, science-policy* [15'] – Line Friis Lindner

Content Summary and Key Message (Recap/Conclusion) from the presentations

PREPSOIL and its work to support the Mission Soil

Line Friis Lindner on behalf of Niels Halberg, *Director at the Danish Centre for Food and Agriculture (DCA), Aarhus University, Coordinator of the EU-funded project PREPSOIL*

The presentation focused on outlining PREPSOIL's main objectives to facilitate the deployment of the Mission across European regions seen in the light of the intervention logic of the Mission Soil. Contributing to the Mission's goals and objectives, the audience was given a thorough presentation of the three impact pathways through which PREPSOIL's activities work towards: 1) Increased soil literacy, awareness and societal appreciation through engagement with Communities of Practice, various dissemination activities, and by informing society to enable informed decisions through access and education; 2) PREPSOIL work towards improving the knowledge base and access to critical information to take action on soil health through the creation of a multi-lingual Knowledge Hub and by exploring co-learning processes between Communities of Practice; and 3) through the last impact pathway, PREPSOIL works towards preparing and supporting effective Mission deployment by establishing networking and knowledge exchange and supporting innovative science-to-policy advice.

Key message: The Mission's approach to systemic innovations requires that local and regional communities work together and that requires in turn that we act on various stakeholder interaction structures at all geographic levels. As a CSA project, PREPSOIL has adopted a proactive approach to co-create and engage with multiple stakeholders with the purpose of generating long-lasting interaction and engagement spaces.

Identifying soil needs: the PREPSOIL regional approach

Saskia Keesstra, *Senior Researcher at the Wageningen Environmental Research (WUR)*

For the soil need assessment, as indicated, PREPSOIL selected 20 regions to represent the main soil types, land uses and climatic zones of Europe. The aim was to select a set of regions in which the majority of European citizens would recognise their own living environment. To reach this aim, an inventory was made of the land uses. There were the following main land uses:

- For Agriculture, 10 cases were selected: irrigated agriculture, olive production, dairy farming in the north and in the south of Europe, arable cropping in the north and the south of Europe, high technological farming, mixed farming, organic farming and *terroir*.
- For Forestry/Nature, 3 cases were selected: Forestry in the south and forestry in the north on mineral and peat soils.
- For Urban/(Post) Industrial, 3 cases were identified: densely urban, post-industrial land (brownfield) and post mining land.
- In addition, as Mixed land use, 4 cases were identified: agro-forestry, reforested land, alpine tourism and peatland.

For each selected region, guidelines were developed to make the soils needs assessments comparable following a *Driver-Pressure-State-Impact-Response* (DPSIR) methodology. Moreover, due to the diversity of regions and their respective stakeholder implication, the workshops were translated in the local languages and adapted to suit the specifics of the regions. The soil needs assessments included: i) the literature review for the general relation between the specific land use and soils plus specifics for the region selected; ii) a workshop with all relevant stakeholders; iii) targeted interviews with key stakeholders.

Key message: For good representation of all regions of Europe, 20 regions were selected across the territory covering the most common land uses. In each region a soil needs assessment was conducted comprising of a literature review, a stakeholder workshop and targeted interviews to assess the soil needs in each region.

Soil needs assessment in 20 European regions: method and key results

Katharina Helming, *Co-Head Research Area 3, Agricultural Landscape Systems at the Leibniz Centre for Agricultural Landscape Research (ZALF)*

Soil Needs are defined as the requirements from existing and emerging socio-economic and geo-biophysical perspectives that determine soil health and related services to human society. Taking a forward looking, systems approach, the PREPSOIL project conducted an assessment of soil needs for the 20 different regions. It was stakeholder inclusive and combined natural science knowledge on the functioning of soils and ecosystem services with research methods from social sciences. Expert knowledge and literature analyses were combined with participatory methods to collect stakeholder perspectives as well as to generate awareness and literacy on the importance of soils. Results showed that socio-economic conditions, policy regulations and to a lesser extent knowledge and perception are key drivers of decision making for land use and management that determine soil health deterioration. As a consequence, these conditions are to be altered when soil health improvements are targeted at. While cause effect relationships are highly regionally specific, the requirements for climate change adaptation makes soil health needs increasingly urgent, regardless of the dominant land use, geophysical and socio-economic conditions. The stakeholder inclusive, regionally specific

approach to the soil needs assessment proved to be a useful first step towards developing a long-term collaboration with stakeholders in a LL context.

Key Message: Soil Needs are defined as the requirements from existing and emerging socio-economic and geo-biophysical perspectives that determine soil health and related services to human society. To improve soil health, one has to address the underlying causes of soil deteriorating management and not the symptoms of soil degradation.

Implications for stakeholder interaction, living labs, monitoring, science-policy

Line Friis Lindner, *Danish Centre for Food and Agriculture (DCA), Aarhus University, PREPSOIL Project Manager*

Following from the presentations on spaces for stakeholder and citizen engagement and the development of tools for interaction, co-learning and building awareness to back up the Mission's implementation plan; the appraisal of soil needs at regional level, in the last of the plenary presentations, Line Friis Lindner gave a presentation on how these activities will provide direction and capacities for the future soil health monitoring mechanisms, and for mapping and preparing the implementation of regional LLs; science-policy interface; and strengthening stakeholder interaction.

Key message**:** The Mission's approach to systemic innovations requires that local and regional stakeholders work together, create communities for participatory actions at local level, thereby mobilising actors across society in more systematic ways. And the soil needs assessments have shown that LLs are a well-chosen systemic tool for the Mission Soil to support such interactive, participatory systemic innovations with strong citizen and stakeholder involvement.

3. PREPSOIL Soil needs Assessment Regional Study cases (BOS)

While the previous plenary session introduced PREPSOIL, the region selection criteria, the assessment methodology and key results; this Breakout Session (BOS) aimed to go further on the results in a participative way. The main objective was to inform the audience about the soil needs assessment performed by PREPSOIL with a representative example for each one of the four land uses approached and to collect feedback, validation and additional outcomes from the audience. It can help to formulate actions needed in regions regarding sustainable soil needs mitigation.

The session was not streamed. It was attended physically by over 200 attendances (218 registered).

The main challenge for the organization of this session was to share the most representative results possible, taking into account that PREPSOIL worked in 20 different regions covering 4 different land uses, with a very limited time slot with the audience.

After a long decision-making process and evaluating different cases studies and speakers, it was decided to take the following approach: 1. To cover the four PREPSOIL land uses (Agricultural, Urban/industrial, Natural/Forest + Mixed), 2. To keep balance in terms of European territory and 3. To share cases with clear significance in terms of relevance and representativeness. Moreover, it was considered as an asset to invite (covered by PREPSOIL) and involve regional contributors external to the PREPSOIL consortium which played an active role in the previous assessment work of their respective regions. The following cases were selected:

- Urban Case: *Amsterdam, Netherlands* (PREPSOIL Regional Contributor)
- Forest Case: *Soomaa region, Estonia* (PREPSOIL Regional Contributor)
- Agriculture Case: *Dong Creek Region, Hungary* (PREPSOIL Regional Partner)
- Mixed Use Case: *Dehesa in Extremadura, Spain* (PREPSOIL Regional Contributor)

22 Nov. 11:30 - 12:40 h [70'] **Breakout session 4** - **Soil needs in PREPSOIL regions**

Session Structure

Introduction: Explanation of the session objective and the *Slido* use [5']

Through *Slido* get an idea of the background of the audience:
- Which country are you from? (Open Question)
- Which land use you are most interested in? (Options)
- What kind of organisation do you work at? (Options)

Pitches of 4 PREPSOIL regions cases (4 land uses): soil needs assessments in contrasting regions

For each case:
- Case presentation by regional contributor [5']
- Synthesis of specific soil need challenge. Extrapolable to other regions [3']
- *Slido* interaction to validate PREPSOIL findings and get extra input for roadmap [4']
  - Do you agree with the presented statement about the main soil needs? (Percentage)
  - Which other solutions would you suggest for this area? (Open Question)
- Wrap up closure [10']

The session was conducted and moderated by two PREPSOIL WP2 representatives: Saskia Keesstra (Wageningen University & Research) and Linda Maring (DELTARES)

Content Summary and Key Message (Recap/Quote) from the presentations

Soil needs in PREPSOIL regions Urban soil case. Amsterdam

Thijs Vlaar, *Soil adviser, Municipality of Amsterdam*

The City of Amsterdam has many different land uses and ambitions that require a strong foundation: a healthy soil. A unique feature of urban areas is that there are many other, sometimes spatially competing, land uses. In recent decades, urban soil has mainly been seen as a source of pollution due to historical industrial activities, but awareness is growing on the essential role of healthy soil life and the physical aspects of the soil in achieving climate goals, restoration of biodiversity, and sustainability of (urban) agriculture. It is necessary to assess more than just the pollution degree: Amsterdam faces an inevitable transition to an integrated approach towards soil health. To increase the quality of the urban living environment, the municipality has to deal with a lot of pressures and impacts on the soil. The difficulty is that those are not uniform across the whole urban region but vary according to the different land uses. Therefore, it is important to try to define soil health in urban areas by distinguishing different land use types and assigning and prioritizing different soil functions within those categories, while recognizing the unique characteristics and requirements of urban soils which differ from the more homogenous agricultural, nature and forest soil ecosystems. With the help of an urban soil health index, concrete steps can be taken regarding research, soil improvement and citizen participation/awareness.

Key message: There is no uniform definition of soil health in urban areas. Traditionally seen as polluted, urban soil now garners recognition for its vital role. Transitioning to an integrated approach to soil health is imperative for urban well-being, tailored strategies across varied land uses are needed.

Case study from Estonian forested peat soils

Anna-Helena Purre, *Member of the board and organisations, Elige LLC*

Soomaa area in Estonia mainly has peat soils, where significant parts have been drained for forestry during the Soviet period. The area is very sparsely populated and about half of it is protected. Main activities are tourism (especially during the spring flooding), forest and semi-natural meadow management. Peat soils are large carbon pools, significantly more than is in the forest vegetation above. To improve the forest growth and allow its management with heavy machinery large areas of peat soils were drained thus increasing the peat mineralization and related CO_2. Also, the forest management in the Soomaa is affected by spring flooding and climate change. The main pressures area related with drainage, time limitations for forest managements, heavy machinery on wet peatland soils, spruce and pine monocultures from the Soviet time and restoration where forest ecosystems are replaced with open peatlands and semi-natural grasslands. At the same time the increasing nature protection and large differences inside and outside the protected areas lead to decrease of livelihood possibilities and inequality which results in decreasing population. According to the stakeholders related to the area, the balancing of different needs and possibilities is necessary while also more research is needed about the impact of tourism, flooding regime, restoration activities and mitigation measures of forest management activities.

Key message: Traditional forestry on peat soils decreases the peat carbon whereas increasing the carbon in the tree layer. As the peatlands are important carbon pools, the management of peatland forests should be developed to balance the need for long-term carbon storage, biodiversity, soil health and livelihoods of forest managers.

Soil needs Assessment Dong creek watershed, Sand Ridge, Hungary

Judit Berényi Üveges, *Lead Researcher at the Hungarian Research Institute of Organic Agriculture*

One of the soil needs assessment done in a region with predominantly agricultural landuse in Hungary were presented. The main challenge in the region is climate change emphasize the vulnerability of the sandy soils in the region that has originally low fertility. Other challenges areloosing land productivityand yield instability due to drought, desertification, wind erosion. Water management is now concentrating on drainage (drainig wetlands and flood protection was historical priority). Potential solutions discussed on stakeholder workshop were changing the concept of water management: keeping water in the landscape, with focusing on water retention and changing soil use: applying regenerative farming practices adopted to the region (tillage reduction, using cover crops etc.) Soil conservation techniques are well known in theory. Their adaptation to the climatic and farming conditions of a certain region is better to do in cooperation with local farmers, advisors and research community in the region including on-farm experiments. Saving water and developing water retention methods also a key issue in dry sandy regions. To find the best ways need cooperation with water management people to find the best solutions for the regions. Water management and application of soil conservation techniques have to be applied together to stop desertification processes in the region.

Key message**:** For farmers open mindset and farm trials are needed fo find ways to adapt to the rapidly changing environment of the farmlands in this region working together with researchers advisors and authorities and other stakeholders. Water management and application of soil conservation techniques have to be applied together.

Soil needs in PREPSOIL regions DEHESA, Extremadura, Spain

Manuel Pulido Fernandez, *Associate Professor, University of Extremadura (Spain)*

The *dehesa* is a centennial farming system aimed at raising local livestock species for meat production of high quality. They graze for the entire year in large farms composed by scattered trees and annual pastures created from the progressive clearing of the climatic Mediterranean forest. It represents a traditional strategy of adaptation both to shallow soils and dry summers in which 6 M livestock heads are extensively raised every year. We have developed a DPSIR scheme to better understand its resilience and we have agreed some drivers, pressures and responses that were discussed at the last EMSW. Nowadays, *dehesa* could be considered as an endangered system due to its main drivers: low farm profitability, lack of generational replacement and loss of traditional knowledge that they are provoking needs of cultivation, farm fragmentation, increasing of stocking rates, replacement of sheep by cattle, lack of tree regeneration, land abandonment and changes in land management. The responses to these problems should include zero tillage, smart farming, soil protection, and fair prices, among others. We concluded that the ecological value of *dehesa* meat should be recognized by the market in order to increase farm profitability as way to tackle other undesired drivers and pressures.

Key Message**:** *Dehesa* is an example of how livestock is useful both in agricultural systems as natural fertilizer and herbicide and to prevent wildfires in forests. Its provision of ecosystem services should be a priority for EU policies and consumers. Labelling products as geographical indication will be useful in this matter.

AUDIENCE INTERACTION AND FEEDBACK (*Slido*)

General initial questions for testing background of the audience:

Which country are you from?

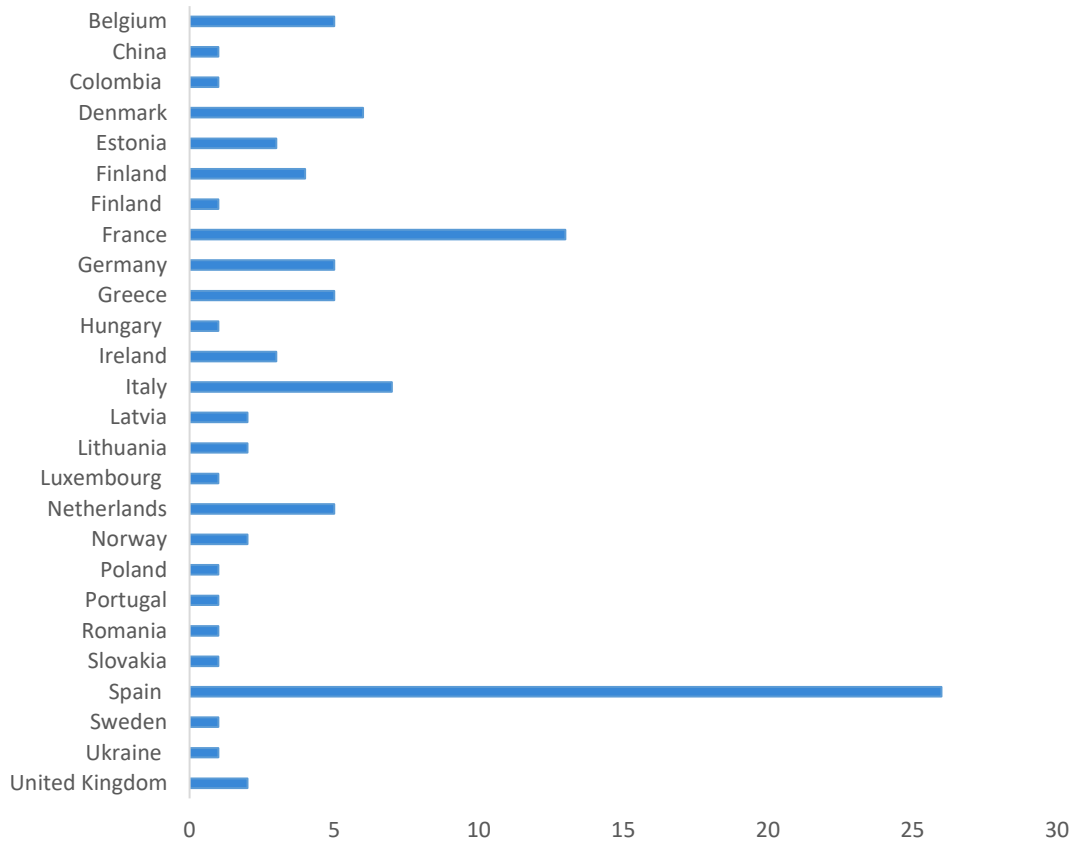


Figure 2: Distribution graphic generated by PREPSOIL from the above question replies collected in situ trough Slido

Which land use you are most interested in?

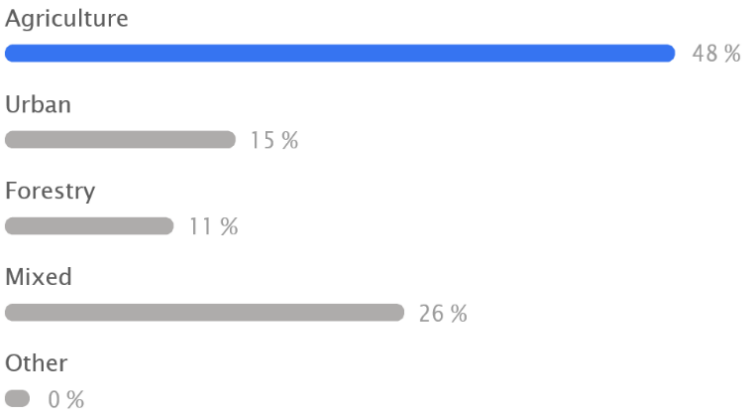


Figure 3: Distribution graphic generated by Slido from the above question replies collected in situ

What kind of organisation do you work at?

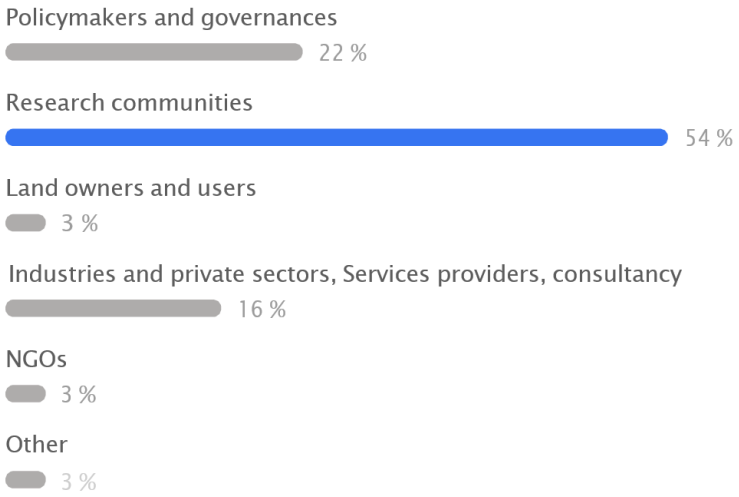


Figure 4: Distribution graphic generated by Slido from the above question replies collected in situ

Specific questions for the respective representative regional cases shared:

Urban Case: *Amsterdam, Netherlands*

How to address these soil needs in Amsterdam?

Define soil health in urban areas

- Important distinguish between different land uses but also taking an integrated approach
- Prioritize soil functions per land use in defined frameworks and policies
- The city of Amsterdam is currently working on defining an own Soil Health Index

Take concrete actions

- Important to concretize abstract ambitions, especially now

Raise awareness and create a shared vision

- Bring citizens, urban landowners and governments together to create a shared vision: soil as a communal asset.

Invest in Urban Living Labs (LLs)

- LL's can help broaden knowledge on the currently little-known urban soil heath.
- LL's play a crucial role in raising awareness and bringing different stakeholders together.

"It is important to recognize the unique characteristics and requirements of urban soils which differ from the more homogenous agriculture, nature and forest soil ecosystems."

Do you agree with the presented statement about the main soil needs?

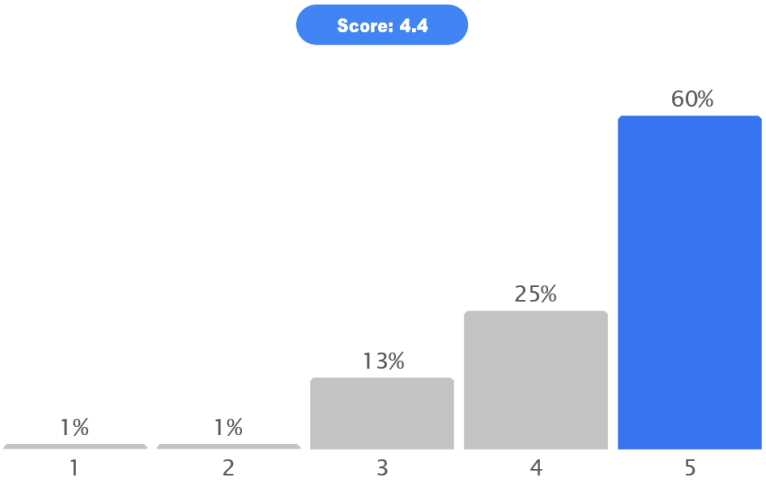


Figure 5: Distribution graphic generated by Slido from the above question replies collected in situ. 5 = Totally agree

Which other solutions would you suggest for this area?

Figure 6: Word cloud generated by PREPSOIL from the above question replies collected in situ trough Slido

Forest Case: *Soomaa region, Estonia*

Possible Solutions to the Estonian forested peat soils challenges

- Overall wilderness area, forestry for farmers own use and some areas restricted from tourists, need to increase the National Park area
- Development should be: Homogenous between municipalities; Balanced on activities and stakeholders; Human well-being designated areas needed and managed as such; More natural succession; Improve tourist infrastructure to avoid trampling and erosion; Based on long-term site-specific planning
- Less drastic differences between the National Park area and bordering area
- Need consensus within local community and authorities

Wider Possibilities

- Need for research about the impact of tourism, restoration activities, machinery working on very wet soils with possible mitigation, flooding regime on soils and ecosystem, forest fertilization outside of protected areas
- Balancing of nature protection, forestry management, tourism and people living in the area

People mainly understand now what happens with the forest biodiversity and why it is important to protect forests, but the soil biodiversity and health is not topic at all and people do not think and know about that

Do you agree with the presented statement about the main soil needs?

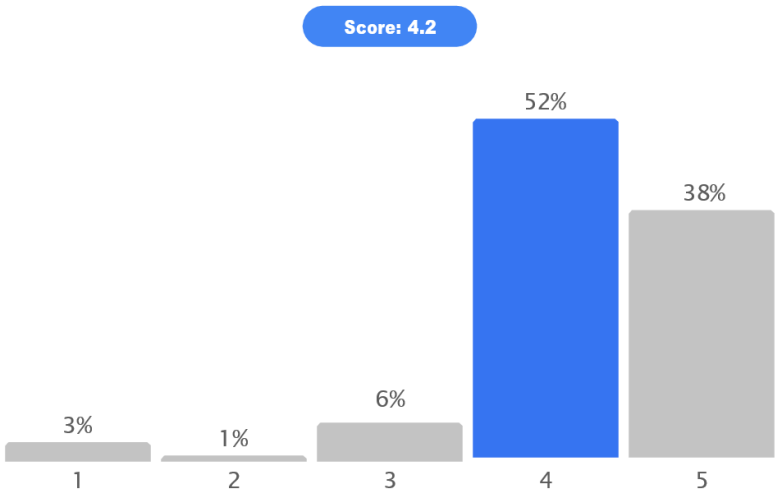


Figure 7: Distribution graphic generated by Slido from the above question replies collected in situ. 5 = Totally agree

Which other solutions would you suggest for this area?

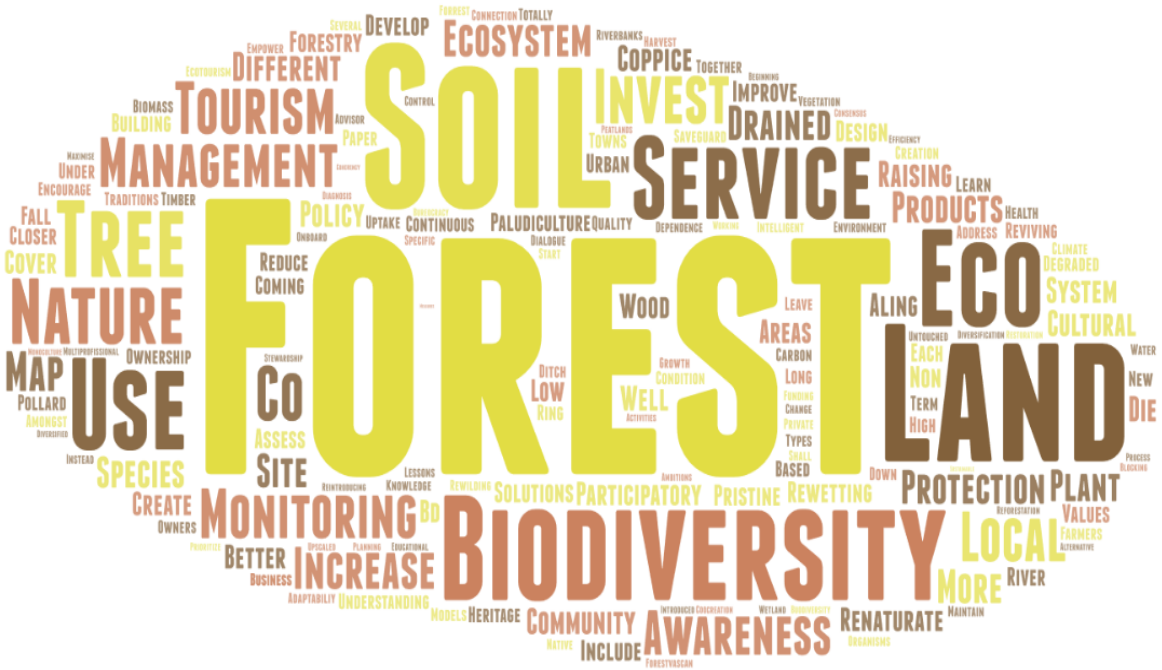


Figure 8: Word cloud generated by PREPSOIL from the above question replies collected in situ trough Slido

Agriculture Case: *Dong Creek Region, Hungary*

Message from the Dong Creek region to other similar regions

- Soil conservation techniques are well known in theory. Their adaptation to the climatic and farming conditions of a certain region is better to do in cooperation with local farmers, advisors and research community in the region.
- Saving water and developing water retention methods also a key issue in dry sandy regions. To find the best ways need cooperation with water management people to find the best solutions for the regions.
- Water management and application of soil conservation techniques have to be applied together.

Open mind-set and experiments are needed to find the ways on how to adapt to the rapidly changing environment of the farmlands.

Do you agree with the presented statement about the main soil needs?

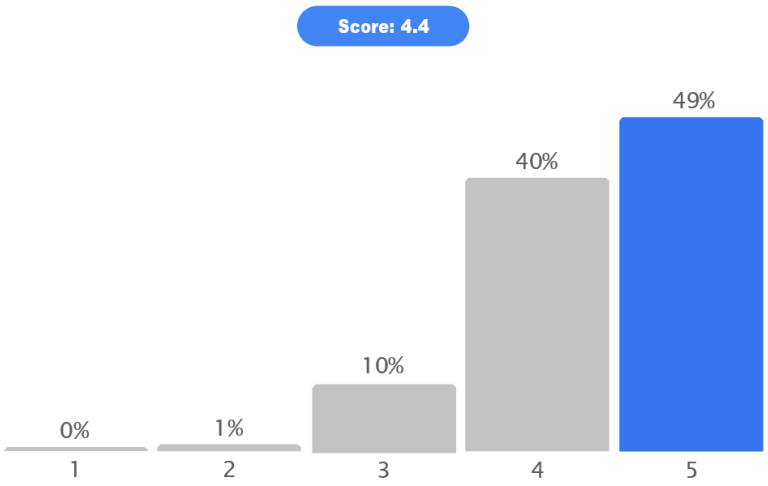


Figure 9: Distribution graphic generated by Slido from the above question replies collected in situ. 5 = Totally agree

Which other solutions would you suggest for this area?

Figure 10: Word cloud generated by PREPSOIL from the above question replies collected in situ trough Slido

Mixed Use Case: *Dehesa in Extremadura, Spain*

***Dehesa* possibilities *versus* Other currently suitable farming systems**

- Vs. Agricultural monocrops: introducing livestock (mixed systems)
- Vs. Unmanaged forest areas: clearing forests (fires, hunting animal control)
- Vs. Landless husbandry: labelling products (animal welfare, ecosystem services)

The European Commission recognized '*Extremadura Cattle'* as a new geographical indication, which guarantees quality to the consumer and collective rights over the product to all producers in the geographical area

"Extremadura 2030" aims to undertake a project to highlight all the social, cultural, environmental and economic potential of Extremadura's pastures, creating networks of unique *Extremaduran* pastures, both public and private, developing training programs for sustainable management, designing tools for certification, and promoting their use, approving an *Extremaduran* pasture law, and the first public catalogue of regional pastures among many other actions.

Do you agree with the presented statement about the main soil needs?

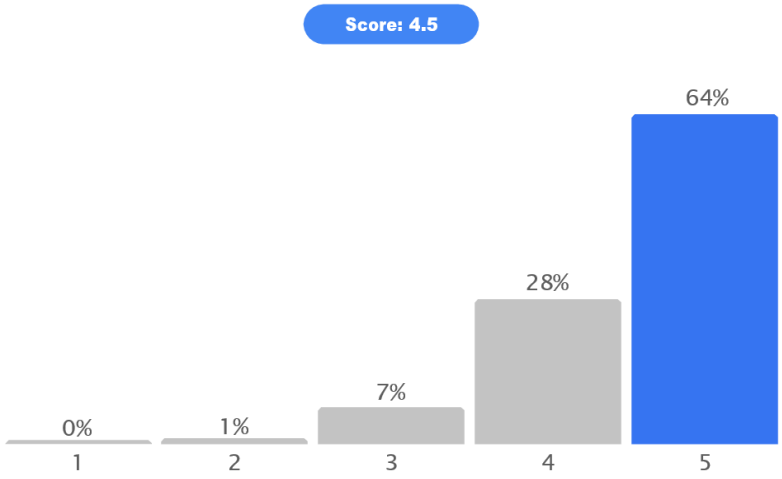


Figure 11: Distribution graphic generated by Slido from the above question replies collected in situ. 5 = Totally agree

Which other solutions would you suggest for this area?

Figure 12: Word cloud generated by PREPSOIL from the above question replies collected in situ trough Slido

The raw data document with all the *Slido* feedback collected from the PREPSOIL Sessions is available in Annex 2.

A more detailed edited compilation of this BOS attendees' feedback for the four land uses is included in section 6.

4. PREPSOIL engagement with multiple actors (Additional Session)

Even though the main scope of this Trans-European event was the soil needs assessments, taking into account the characteristics of the PREPSOIL project, it was considered pertinent and needed to briefly address also the engagement with multiples actors. PREPSOIL performed a fruitful activity in this area, which is moreover, a crosscutting aspect of soil health awareness. In this scope, the PREPSOIL WP6 is fully addressed to *Promoting soil education, awareness and engagement of Communities of Practice*. A short additional session after the Soil Needs Assessment part was dedicated to the PREPSOIL WP6 activity for engagement with multiple actors.

22 Nov. 12:40 - 13:00 h [20'] **Addition to BOS4** - **PREPSOIL engagement with multiple actors**

This session included a short presentation from Christina Lundström (SLU, PREPSOIL member and representative for WP6) to summarize the work with the communities and practitioners linked to the regional cases. It was followed by an interview/dialogue with Sara Guerrini (Re Soil Foundation, PREPSOIL partner) to present a success case for school teaching in Italy.

Session Structure

- *Presentation of the PREPSOIL work with the communities and non-research /technical soil expertise linked to the regional cases*. Eg. Soil advocates, Communities of Practice, and building awareness through best examples of teaching for young people [9']
- *In-depth case of engaging young generation*: PREPSOIL feature of best cases of introducing soils in primary/secondary teaching: Christina Lundström interview Sara Guerrini [10']
- *Final Slido interaction (2 Open Questions) for collecting the audience feedback* [1']

Content Summary and Key Message (Recap/Quote) from the session

PREPSOIL: Engagement with multiple actors to increase soil literacy

Christina Lundström, *Researcher at Swedish University of Agriculture (SLU).* Presenter & interviewer

Sara Guerrini, *Novamont (Re Soil Foundation).* Interviewed

PREPSOIL WP6 aims to inspire and support key persons and facilitators in their work to build awareness and activities for soil health in different sectors and areas. There are three parts and three main target groups. Part 1) so called soil advocates and communities of practice, Part 2) professionals working with soil in agriculture, forest and urban sectors and part 3) teachers in primary and secondary schools as well as vocational training and their pupils/students. In agriculture and urban/gardening spheres, there are soil advocates and communities of practice, who facilitate engagement, co-learning and co-creation concerning methods and experiences to establish soils. Soil advocates and communities of practice will be found and presented on the PREPSOIL website. Key actors' (in agriculture, forest and urban sectors) understanding of the soil health concept and how they put their knowledge to practice in their professional roles will be explored in part two, by a questionnaire and focus group interviews. The last part aims to present good teaching stories to inspire teachers in primary and secondary schools as well as vocational training. In 2023 there was an open call for good teaching stories and images from those were shown in parallel with a conversation between Christina

Lundström (SLU, Sweden) and Sara Guerini (Novamont, Italy) about experiences concerning soil pedagogy, especially in relation to the Italian winner from 2023.

The experience from Umbria region secondary schools:

The winning experiences were two located in Central Italy (Umbria Region). Here a group of teachers designed projects especially targeted to explore soil – related topics; soil is a subject scarcely or not at all present in the Italian secondary education. The importance of soil as a living organism, and its relations with many different other curricular topics were explored, with a focus on the carbon cycle. Interactive lessons, workshops, and laboratory activities were integrated to have a better involvement of the over 100 students (aged between 15 and 16). This mixed approach was very much appreciated by the students who actively participated to the program.

Audience interaction and Feedback (*Slido*)

2 *Slido* Open Questions were launched before closing the session for collecting the **audience feedback**:

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

Figure 13: Word cloud generated by PREPSOIL from the above question replies collected in situ trough Slido

What measures would you suggest to address these hindrances or bottlenecks?

Figure 14: Word cloud generated by PREPSOIL from the above question replies collected in situ trough Slido

5. Dissemination of Regional Soil needs Assessment Results: Booklet and Posters' exhibition

PREPSOIL WP2 developed a challenging and intense work between July 2022 and November 2023 for the Soil Needs Assessments task. It involved the selection of the study regions, the mapping and engagement of relevant stakeholders, the development of a common methodology for the assessment and the data collection and analysis.

From the beginning of this task and data collection process, PREPSOIL has been sharing the available information at the due time in its dedicated section on its website. This included the selected study regions, information about the respective workshop organizations and preliminary outcomes, photos, video, etc., in corresponding blogposts.

Additionally, to this online material shared along the way and the preliminary extracted WP2 results presented and discussed with the audience at the event dedicated session, two parallel dissemination actions were conducted taking advantage of the momentum provided by the EMSW: a PREPSOIL Regional Soil needs Assessment Booklet and a Poster Exhibition.

PREPSOIL Regional Soil needs Assessment Booklet

Preliminary outcomes of the PREPSOIL Soil Need Assessment were extracted as *easy-reading* summary contents and individualized info sheets (1 page) were designed for each of the 20 study cases. These were written for reaching overall public and all stakeholder types and included the following information:

- Indication about the region, land use, study case and authors
- Regional information and soil details
- Stakeholders' interaction figures
- Soil Needs Assessment summary classified by the DPSIR framework
- Mission Soil Objectives concerned (own iconography was developed for this by PREPSOIL)
- Key Message
- QR code for accessing to this material online

These 20 individualized info sheets were collected with an introductory information and edited by PREPSOIL to compose a booklet: ***Soil Needs and Drivers of Change Across Europe and Land Use Types***[1].

Over 200 printed copies of this document were distributed among the EMSW interested participants.

PREPSOIL Poster exhibition

Additionally, these 20 region info-sheets were edited for A0 format. Two visibility actions were taken for this material:

[1] https://prepsoil.eu/sites/default/files/2023-11/PREPSOIL_Booklet_DIGITAL_Workshops_Nov2023.pdf

- They were printed in paper and displayed in a Poster Exhibition on *Soil Needs in PREPSOIL regions* during the EMSW day 2 and day 3 (22 and 23 November 2023) in the event venue *Cloister* building (1 min walking form the main hall).
- They were projected in slideshow mode on two large screens (60 inches) strategically located at the access doors of the EMSW main plenary hall during the whole event.

PREPSOIL's web portal (www.prepsoil.eu) is envisaged as the European "one-stop-shop" for all information, resources and digital engagement tools for the Mission stakeholders. It will offer an open-source workspace, including collaboration instruments, ready to be expanded to meet requirements from the Mission. All this information and dissemination materials on WP2 soil needs assessment are online available there: regions selected, info about the workshops, preliminary summary results, pictures videos, posters, etc.

The final and complete results of this activity have been reported in the PREPSOIL Deliverable 2.1 (D2.1): *Synthesizing soil needs and drivers of change across Europe and land use types.*

Additionally, for the EMSW, PREPSOIL produced and delivered project visibility material which was given to all the physical participants as attendance "gift". More than 300 units of the PREPSOIL visibility set (including tote bags, *plantable* pencils and notebooks) were distributed at the registration desk. This material was watched to be produced in a sustainable way, for real practical use and directed and limited distribution.

6. Outcomes and Conclusions

EMSW (and PREPSOIL Soil Need Assessment Session) in figures

- 3 full days
- > 300 participants on-site + 400 participants online, each day
- Mixed participants: farmers, foresters, policy-makers, scientists, investors…
- > 100 speakers
- Social media: > 1,6 million people
- Other soil project initiatives concentrated that week around the main event

Figure 16: Graphic recording for final recap about the EMSW provided by the EC. Author: Carlotta Cataldi

Starting from a very ambitious commitment - such as organizing a Trans-European event on soil needs of these characteristics - and based on a complex project activity - such as the soil need assessment - PREPSOIL has taken great efforts, time and dedication to achieve high-quality results for sharing, presenting them in the most appropriate way and giving the widest possible visibility.

The agreement and collaboration with DG AGRI to co-organize and include the PREPSOIL event inside the EMSW was a strategic decision that has been very positive in terms of visibility, outreach and networking for the PREPSOIL objectives and for the EC ones. It was achieved with the continuous support of the PREPSOIL`s local partner INIA-CSIC based in Madrid.

Key Messages from the PREPSOIL presentations/interventions:

The PREPSOIL activity:

PREPSOIL and its work: The Mission Soil's approach to systemic transitions towards soil health, requires that local and regional communities work together. This requires in turn that we act on various stakeholder interaction structures at all geographic levels. As a CSA, PREPSOIL has adopted a proactive approach to co-create and engage with multiple stakeholders with the purpose of strengthen the knowledge, collaboration and networks aimed at improving soil health

PREPSOIL regional approach: For good representation of all regions of Europe, 20 regions were selected across the territory covering different land uses. In each region a soil needs assessment was conducted comprising of a literature review, a stakeholder workshop and 10 targeted interviews to assess the soil needs in each region.

PREPSOIL Soil needs assessment method: Soil needs are defined as the requirements from existing and emerging socio-economic and geo-biophysical perspectives that determine soil health and related services to human society. To improve soil health, one has to address the underlying causes of soil deteriorating management and not only the symptoms of soil degradation.

PREPSOIL Interactions: The Mission's approach to systemic innovations requires that local and regional stakeholders work together, create communities for participatory actions at different levels, thereby mobilising actors across society in more systematic ways. The soil needs assessments show that LLs are a well-chosen systemic tool for the Mission Soil to support such interactive, participatory systemic innovations with strong citizen and stakeholder involvement.

Figure 17: Graphic recording from the PREPSOIL BOS provided by the EC. Author: Carlotta Cataldi

PREPSOIL Soil Needs Assessment - Cases from Representative Regions

Urban soil in Amsterdam. The Netherlands: There is no uniform definition of soil health in urban areas. Diverse land uses need a robust foundation: healthy soil. Traditionally seen as polluted, urban soil now garners recognition for its vital role. Transitioning to an integrated approach to soil health is imperative for urban well-being, necessitating tailored strategies across varied land uses.

From the audience interaction, 60% of the attendances fully agree with the presented statement about the main soil needs in this case with a score of 4.4. Not statistically significant mid or full disagreement was registered.

Estonian forested peat soils: Traditional forestry on peat soils decreases the peat carbon while increasing the carbon in the tree layer. As the peatlands are important carbon pools, the management of peatland forests should be developed to balance the need for long-term carbon storage, biodiversity, soil health and livelihoods of forest managers.

From the audience interaction, 52% of the attendances stated high-agreement with the presented statement about the main soil needs in this case with a score of 4.2. Not statistically significant mid or full disagreement was registered.

Dong creek watershed, Hungary: For farmers open mindset and farm trials are needed fo find ways to adapt to the rapidly changing environment of the farmlands in this region working together with researchers advisors and authorities and other stakeholders. Water management and application of soil conservation techniques have to be applied together.

From the audience interaction, 49% of the attendances stated high-agreement with the presented statement about the main soil needs in this case with a score of 4.4. Not statistically significant mid or full disagreement was registered.

***Dehesa* in Extremadura, Spain:** Dehesa is an example of how livestock is useful both in agricultural systems as natural fertilizer and herbicide and to prevent wild fires in forests. Its provision of ecosystem services should be a priority for EU policies and consumers. Labelling products as geographical indication can be useful in this matter.

From the audience interaction, 64% of the attendances stated high-agreement with the presented statement about the main soil needs in this case with a score of 4.5. Not statistically significant mid or full disagreement were registered.

PREPSOIL awareness and engagement

PREPSOIL engagement with multiple actors: PREPSOIL supports inspiring and effective key persons and facilitators in their work to build awareness and activities for soil health in different sectors and areas. This activity is guided in three lines and target groups: soil advocates and communities of practice; professionals working with soil and teachers (primary/secondary) and their pupils/students.

Key Recommendations for *Soil Needs and Drivers of Change across Europe and Land Use Types*

Considerations for soil needs must be integrated into land use decision-making processes at all levels, from regional to national and European scales. Efforts to limit land abandonment and promote renaturing must be accompanied by robust monitoring systems to mitigate harmful consequences such as desertification, soil erosion, compaction, loss of soil carbon and biodiversity and soil sealing. Priority should be given to the de-sealing of land, particularly in rural areas, while forest management and restoration activities should be tailored to address climate change impacts such as greenhouse gas emissions and biodiversity loss. Economic incentives targeting farmers, foresters and developers should prioritize the enhancement of ecosystem services provided by soils alongside business activities. Diversification of income sources in rural areas can help prevent soil degradation processes like long-term abandonment, while agricultural production should align with the capacity of soils to provide ecosystem services. Adopting new governance models such as soil districts and living labs can ensure long-term sustainability with sufficient financial support. Finally, the soil needs assessment should be an integrated part of other Mission Soil Projects to further enhance sustainable soil management strategies.

CONCLUSIONS

PREPSOIL: supporting the Mission Soil

PREPSOIL's alignment with the Mission Soil's goals involves three main impact pathways: increasing soil literacy and awareness, improving access to critical information, and supporting effective Mission deployment. This includes soil needs assessments, enhancing knowledge exchange through a multi-lingual Knowledge Hub, and fostering collaboration among Communities of Practice. Through these efforts, PREPSOIL contributes to informed decision-making and the promotion of sustainable soil management practices.

PREPSOIL's **regional approach** and soil needs assessment methodology underscore the importance of collaborative efforts and stakeholder engagement in addressing soil health challenges. By prioritizing systemic solutions and participatory actions at the local level, PREPSOIL contributes to the Mission's goal of fostering sustainable soil management practices across Europe. The emphasis on understanding underlying causes of soil degradation ensures more effective interventions and long-term resilience. Moving forward, continued collaboration and engagement with stakeholders will be key to implementing solutions that promote soil health and support societal well-being.

The **soil needs assessment** methodology is particularly important within the framework of the Mission Soil objectives. As we strive to understand and protect our soil resources, conducting thorough assessments is paramount to inform policy decisions and land management strategies. Moreover, the concept of LLs, which emphasizes real-world experimentation and collaboration, aligns well with the principles of soil needs assessment. By integrating these approaches, we can foster innovation and drive practical solutions to soil-related challenges.

PREPSOIL engagement with multiple actors

Raising awareness and fostering engagement are crucial components in advancing the goals of the Mission Soil. The PREPSOIL project plays a key role here by supporting educational resources for primary and secondary school levels, interactive programs, and hands-on activities tailored to younger audiences. By instilling a sense of environmental responsibility and understanding of soil ecosystems early on, students not only become stewards of their environment but also contribute to the larger mission of protecting and conserving soil health. Through initiatives like those performed in PREPSOIL WP6, young minds are empowered to take proactive steps towards sustainable soil management, ensuring the long-term viability of our ecosystems and practices.

PREPSOIL Soil needs Assessment Regional Study cases

During the EMSW PREPSOIL Soil Needs Assessment breakout session, feedback was collected from the audience in real-time for the different regional cases. By engaging a broad public in the validation process, PREPSOIL enhanced the credibility of the findings. Over 200 people from 26 countries were attending the session.

Through an interactive question: ***Which other solutions would you suggest for this area?*** responses, consisting of key words and short sentences, were collected. This feedback could be further analyzed and used by PREPSOIL to enhance understanding and add to the strategies for addressing soil needs in different regions.

> ***Disclaimer****: the statements included below for the different regional land uses cases are the result of a preliminary recap and edition of the BOS' attendees feedback, including fully and without filtering each and every one of the items collected in situ for the purpose of this deliverable. The information does not come from the PREPSOIL soil needs analysis reported in D2.1.*

Urban (Post-Industrial) Land Use. Representative example: Amsterdam, Netherlands

In urban areas, ensuring soil health would require a multifaceted approach that engages both the public and practitioners. Key strategies suggested by the participants of the session were:

- **Monitoring and Assessment**: Implement soil monitoring programs to evaluate soil quality and health regularly.
- **Community Engagement**: Involve citizens and practitioners in decision-making processes regarding soil management policies and initiatives.
- **De-sealing Events**: Organize events involving the public to de-seal areas and regenerate soil using recycled materials and nature-based solutions.
- **Participatory Research and Action**: Conduct participatory research and action projects focused on soil regeneration, urban gardening, and circular waste management.
- **Urban Gardening and Agriculture**: Promote building gardening, urban agriculture, and gardening regeneration initiatives to increase green spaces and improve soil quality.
- **Technosoils and Phytoregeneration**: Explore innovative techniques like technosoils and phytoregeneration for soil remediation and revegetation.

- **Policy and Funding Support**: Advocate for funding and policies that prioritize desealing, soil monitoring, and nature-based solutions in urban planning.
- **Education and Awareness**: Raise awareness about the importance of soil-based ecosystem services and the role of soil in urban environments through education and outreach programs.

By implementing these strategies, cities could work towards healthier soils, greener spaces, and more sustainable urban environments.

Forestry (Natural) Land Use. Representative example: Soomaa region, Estonia

To enhance soil health in forestry and natural areas, a comprehensive approach would be needed. Strategies suggested by the session participants were:

- **Prioritize ambitions:** Focus on key goals like biodiversity and soil protection.
- **Reduce bureaucracy:** Streamline processes for efficient implementation.
- **Develop participatory processes:** Engage stakeholders from the outset for inclusive decision-making.
- **Improve management control:** Ensure effective supervision of conservation efforts.
- **Invest in advisor services:** Provide guidance for sustainable land management practices.
- **Create ownership:** Encourage communities to take responsibility for local ecosystems.
- **Include soil biodiversity:** Recognize and preserve the diversity of soil organisms.
- **Implement diversified land use:** Incorporate paludiculture and other practices to enhance soil resilience.
- **Empower local communities:** Enable them to contribute to and benefit from conservation initiatives.
- **Enhance eco-tourism activities:** Offer experiences that educate visitors about soil and forest conservation.
- **Monitor soil condition:** Continuously assess soil health to inform management decisions.
- **Involve forest services:** Collaborate with relevant agencies to coordinate conservation efforts.
- **Encourage sustainable business models:** Develop economic incentives that support soil-friendly practices.
- **Upscale successful policy lessons:** Expand effective strategies to broader regions for greater impact.

By taking these steps, we could ensure that soil health remains a priority in forestry and natural resource management, leading to more resilient ecosystems and sustainable land use practices.

Agricultural Land Use. Representative example: Dong Creek Region, Hungary

To enhance soil health in agricultural areas, a multifaceted approach combining various practices that were recommended by the participants of the session:

- **Afforestation and Agroforestry:** Planting trees and integrating agroforestry systems enrich soil health by increasing organic matter and biodiversity.
- **Multicropping and Legumes:** Growing multiple crops, especially legumes, enhances soil fertility through nitrogen fixation and diversifies agricultural landscapes.
- **Biochar for Soil Improvement:** Incorporating biochar improves soil structure, water retention, and microbial activity, boosting overall soil health.
- **Regenerative Agricultural Practices:** Practices like permaculture and organic farming reduce erosion, enhance soil structure, and promote natural nutrient cycling.

- **Minor Crops and Organic Amendments:** Cultivating minor crops and using organic amendments enrich soil with nutrients and organic matter, supporting soil health.
- **Digestate and Mycorrhiza:** Adding digestate and mycorrhizal fungi improves nutrient availability and enhances root development, benefiting soil health.
- **Small Ponds and Wetlands:** Constructing ponds and wetlands helps retain water, replenish groundwater, and support biodiversity, aiding soil health.
- **Farmer Involvement and Capacity Building:** Engaging farmers in decision-making and providing training empowers them to implement sustainable soil management practices.
- **Knowledge Sharing and Co-Designing Solutions:** Collaborating with farmers to share knowledge and co-design tailored solutions ensures effective soil conservation.
- **Circular Management and Fertilizers:** Adopting circular management and using organic fertilizers promote nutrient recycling and sustain soil fertility.
- **Keyline Systems, Windbreaks, and Swales:** Implementing these systems prevents erosion, manages water runoff, and enhances soil moisture retention.
- **Grazing Systems and Animal Integration:** Integrating livestock grazing improves soil fertility through nutrient cycling and vegetation management.
- **Citizen Involvement and Eco-Tourism:** Involving citizens in soil conservation and promoting eco-tourism raise awareness and create additional income opportunities.
- **Awareness Raising about Soil Conservation:** Educating stakeholders fosters a culture of sustainability and encourages efforts to maintain healthy soils.

By implementing these strategies, we prioritize the health of agricultural soil, fostering resilient ecosystems and sustainable land use practices.

Mixed Land Use. Representative example: *Dehesa* in Extremadura, Spain

Promoting and enhancing soil health in mixed soil areas, from the *dehesa* example, requires a multifaceted approach. Suggestions from the session participants were:

- **Economic Incentives and Consumer Custom Change:** Offer economic incentives for diversifying crops and encourage consumer custom change towards supporting diversified production.
- **Water Management:** Encourage infiltration of rainwater through small earthworks, water basins, and swales to improve soil moisture and health.
- **Ecosystem Disclosure and Education:** Disclose ecosystem services provided by healthy soil and educate stakeholders, including farmers and consumers, on the importance of soil health.
- **Biodiversity and Livestock Management:** Integrate diverse livestock species like Yeomans and native cattle, promote balanced livestock density, and implement holistic pasture management practices.
- **Collaborative Governance:** Engage commercial stakeholders, regional governments, farmers cooperatives, and local communities in participatory approaches to decision-making, ensuring the inclusion of all land uses and perspectives.
- **Innovation and Technology:** Implement smart farming techniques, introduce new drought-resistant grass species, and utilize agroforestry practices such as planting trees and combining with truffles.
- **Tourism and Eco-awareness:** Promote eco-tourism, demonstrate farms as awareness-raising locations, and highlight the value of soil and landscape diversity to tourists and local citizens.

- **Waste Management and Recycling:** Reuse organic wastes as compost or biochar to increase soil organic matter and fertility.
- **Policy and Regulation:** Advocate for less bureaucracy in animal husbandry, support regional government initiatives to assign fair prices for products, and implement certification programs for quality and environmentally friendly products.
- **Community Engagement and Future Planning:** Involve future generations, in discussions on sustainable land management and empower citizens to understand the importance of livestock management in preserving natural habitats.

By combining these strategies, stakeholders can work together to enhance soil health, promote sustainable agriculture, and ensure the long-term viability of mixed soil areas.

Madrid, 31 January 2024

ANNEX I

EMSW Agenda (last printable version shared by the EC)

European Mission Soil Week

21-23 November 2023 | Madrid, Spain

Venue

Consejo Superior de Investigaciones Científicas - sede central (C. de Serrano, 117, 28006 Madrid, Spain).

Plenary sessions are also **web streamed.**

Event description

The Horizon Europe Mission 'A Soil Deal for Europe' (Mission Soil), the EU Soil Observatory Stakeholders' Forum and the EU-funded PREPSOIL project are joining forces to hold the first edition of the **European Mission Soil Week**.

The European Mission Soil Week is an annual event designed as a major European gathering that brings together the European soil community. Researchers, policymakers, farmers, foresters, spatial planners, landowners and managers, businesses and organisations as well as the general interested public will meet to discuss the challenges for healthy soils. The event will be an occasion to communicate and disseminate solutions based on the latest research results and innovation. The European Mission Soil Week will mobilise communities to protect and restore soil health.

This year the event has a particular importance in the context of the European Soil Monitoring Law. The proposal for a directive was launched on 5 July with the aim to ensure healthy soils by 2050 in close connection with the Mission Soil.

The event is organised by the European Commission – Directorate-General for Agriculture and Rural Development with the support of the Joint Research Centre –, and the Horizon Europe Project PREPSOIL.

The event is hosted by INIA-CSIC at the central facilities of the Spanish National Research Council (CSIC), under the Spanish EU Council Presidency. It will also be livestreamed, allowing everyone to get involved.

Day 1 – Tuesday 21 November 2023 (09:00 – 19:00 CET)

<table>
<tr><th>Time</th><th colspan="3">Agenda item</th></tr>
<tr><td>9:00-9:30</td><td colspan="3">Registration and welcome coffee</td></tr>
<tr><td>9:30-10:15</td><td colspan="3">OPENING SESSION DAY 1 (45 min)
Welcome speeches by:
• Representative of the Spanish EU Council Presidency
• Maciej Golubiewski, Head of Cabinet Wojciechowski - European Commissioner for Agriculture
• Representative of the Spanish National Research Council (CSIC)</td></tr>
<tr><td>10:15-11:00</td><td colspan="3">PLENARY SESSION: Setting the scene for the Mission Soil (45 min)
• Keynote speech: The status of soils in Europe
Prof. Bridget Emmett, Head of Soils and Land Use Science Area for UK Centre for Ecology and Hydrology
• Q&A session</td></tr>
<tr><td>11:00-11:30</td><td colspan="3">Break and refreshments (30 min)</td></tr>
<tr><td>11:30-13:00</td><td colspan="3">PLENARY SESSION: The Mission Soil in a nutshell (1 h 30 min)
• Policy context and main Mission Soil achievements
Kerstin Rosenow, Head of Mission Secretariat ‘A Soil Deal for Europe’ and Head of unit F2 ‘Research and innovation’, DG Agriculture and Rural Development, European Commission
• Testimonies from land managers
• Q&A session</td></tr>
<tr><td>13:00-14:00</td><td colspan="3">Lunch break (1 h)</td></tr>
<tr><td>14:00-16:00</td><td>BREAKOUT SESSION 1 - Soil health for climate (2 h)</td><td>BREAKOUT SESSION 2 - Soil health for food (2 h)</td><td>BREAKOUT SESSION 3 - Farming practices for soil health (2 h)</td></tr>
<tr><td>16:00-16:30</td><td colspan="3">Coffee break (30 min)</td></tr>
<tr><td>16:30-16:45</td><td colspan="3">PLENARY SESSION: Reporting from breakout sessions (15 min)</td></tr>
<tr><td>16:45-17:45</td><td colspan="3">PLENARY SESSION: The Mission’s international dimension (1 h)
• The Mission’s international dimension
Kerstin Rosenow, Head of Mission Secretariat ‘A Soil Deal for Europe’ and Head of unit F2 ‘Research and innovation’, DG Agriculture and Rural Development, European Commission
• Launch of the International Research Consortium on soil carbon (IRC)
Horizon Europe project, ORCaSa,
Jean-François Soussana, Vice-Chair for international of INRAE (French National Institute for Agriculture, Environment and Food)</td></tr>
</table>

17:45-18:15	***CLOSING SESSION (30 min)*** • Mission Soil photo competition award ceremony ***Close of day 1***
18:15-19:00	***Reception, drinks and networking***

Day 2 – Wednesday 22 November 2023 (09:00 – 19:00 CET)

Time	Agenda item		
9:00-9:30	***Registration and welcome coffee***		
9:30-10:00	***OPENING SESSION DAY 2 (30 min)*** • Keynote speech: Social, economic, and cultural transformations for soil health *Anna Krzywoszynska, Professor of History, Culture and Communications Studies at University of Oulu, Finland, and member of the Mission Board 'A Soil Deal for Europe'*		
10:00-11:00	***PREPSOIL PROJECT: Supporting the Mission Soil (1 h)*** • PREPSOIL and its work to support the Mission Soil *Niels Halberg, PREPSOIL Project Coordinator, Director Danish Centre for Food and Agriculture (DCA), Aarhus University* • Identifying soil needs: the PREPSOIL regional approach *Saskia Keestra, Senior Researcher Wageningen Environmental Research* • Soil needs assessment in 20 European regions: method and key results *Katharina Helming, Co-Head Research Area 3 -Agricultural Landscape Systems, Leibniz Centre for Agricultural Landscape Research ZALF* • Implications for stakeholder interaction, living labs, monitoring, science-policy *Line Friis Lindner, PREPSOIL Project Manager, DCA, Aarhus University*		
11:00-11:30	***Break and refreshments (30 min)***		
11:30-13:00	***BREAKOUT SESSION 4* - Soil needs in PREPSOIL regions: engaging with multiple actors *(1 h 30 min)***	**BREAKOUT SESSION 5 – Knowledge transfer to farmers' advisors *(1 h 30 min)***	
13:00-14:00	***Lunch break (1 h)***		
14:00-16:00	**BREAKOUT SESSION 6 - Living Labs and other experiences from placed-based innovation *(2 h)***	**BREAKOUT SESSION 7 - Soil biodiversity *(2 h)***	**BREAKOUT SESSION 8 - Business models for soil health *(2 h)***

16:00-16:30	***Coffee break (30 min)***
16:30-16:45	***PLENARY SESSION: Reporting from breakout sessions (15 min)***
16:45-17:30	***PLENARY SESSION: The Mission's regional and local dimension (45 min)*** • Panel discussion
17:30-18:15	***CLOSING SESSION (45 min)*** • Mission Soil Manifesto and Mission Ambassadors
18:15-19:00	***Reception, drinks and networking***

Day 3 – Thursday 23 November 2023 (09:00 – 16:30 CET)

Time	Agenda item
9:00-9:30	***Registration and welcome coffee***
9:30-10:00	***OPENING SESSION DAY 3 (30 min)*** • Welcome by the Joint Research Centre • EU Soil Observatory (EUSO): State of play, developments and achievements
10:00-11:00	***PLENARY SESSION: Soil monitoring and indicators (1 h)*** • AI4Soil, Benchmark, Horizon Europe funded projects
11:00-11:30	***Break and refreshments (30 min)***
11:30-13:00	***PLENARY SESSION: Soil monitoring and indicators (1 h 30 min)*** • AI4Soil, Benchmark, Horizon Europe funded projects
13:00-14:00	***Lunch break (1 h)***
14:00-15:30	***PLENARY SESSION: Outcomes of the EUSO Working Groups and Research agenda (1 h 30 min)***
15:30-15:45	***Coffee break (15 min)***
15:45-16:30	***CLOSING CEREMONY (45 min)*** **Closing words by:** • Joint Research Centre representative • Eloísa del Pino Matute, President, Spanish National Research Council (CSIC)

SIDE ACTIVITIES

- Photo Exhibition (all days)
- Stands for Mission Soil funded projects and Mission Soil Manifesto Signatories (all days)
- Poster Exhibition: Soil needs in PREPSOIL regions (day 2 and day 3)

ANNEX II

***Slido* feedback collected in BOS4. Full raw data**

EUROPEAN MISSION SOIL WEEK

European Mission Soil Week

22 – 29 Nov 2023

Poll results

PREPSOIL BOS4 EXTRACT

slido

EUROPEAN MISSION SOIL WEEK

Table of contents

Plenary - Main Hall (Building A)

- Which country are you from?
- Which land use are you most interested in?
- Do you agree with the presented statement about the main soil needs for urban areas?
- Which other solutions would you suggest for urban areas?
- Do you agree with the presented statement about the main soil needs for forestry? Which other solutions would you suggest for forestry?
- Do you agree with the presented statement about the main soil needs for agricultural areas?
- Which other solutions would you suggest for agriculture?
- Do you agree with the presented statement about the main soil needs for mixed landuse areas?
- Which other solutions would you suggest for areas with mixed land use?
- Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?
- What measures would you suggest to address these hindrances or bottlenecks?
- What kind of organisation do you work at

Which country are you from?

(1/4)

103

- Italy
- Spain
- Spain
- Uk
- Colombia
- France
- Germany
- Spain
- Spain
- Ireland
- Spain
- Spain
- FRANCE
- Spain
- France
- Greece
- Norway
- Estonia
- Lithuania
- Belgium
- Netherlands
- Dk
- Spain
- Hungary
- Spain
- Slovakia
- Based in Germany
- Poland
- Spain
- UK

Which country are you from?

(2/4)

- Finland
- Greece
- Spain
- Belgium
- Greece
- France
- Spain
- China
- France
- Estonia
- Spain
- Spain
- UK
- Germany
- Denmark
- Greece
- Italy
- Spain
- Romania
- Spain
- Greece
- Spain
- Denmark
- Sweden
- Lithuania
- Ukraine
- Italy
- Luxembourg
- France
- France

EUROPEAN MISSION SOIL WEEK

Which country are you from?

(3/4)

103

- SPAIN
- Italy
- Spain
- Ireland
- Finland
- France
- Spain
- Latvia
- France
- France
- I am based in Denmark
- Latvia
- Portugal
- Belgium
- Denmark
- The Netherlands
- Spain
- Spain
- Italy
- Belgium
- France
- Finland
- Spain
- France
- Denmark
- The Netherlands
- France
- NORWAY
- Netherlands
- Spain

Which country are you from?

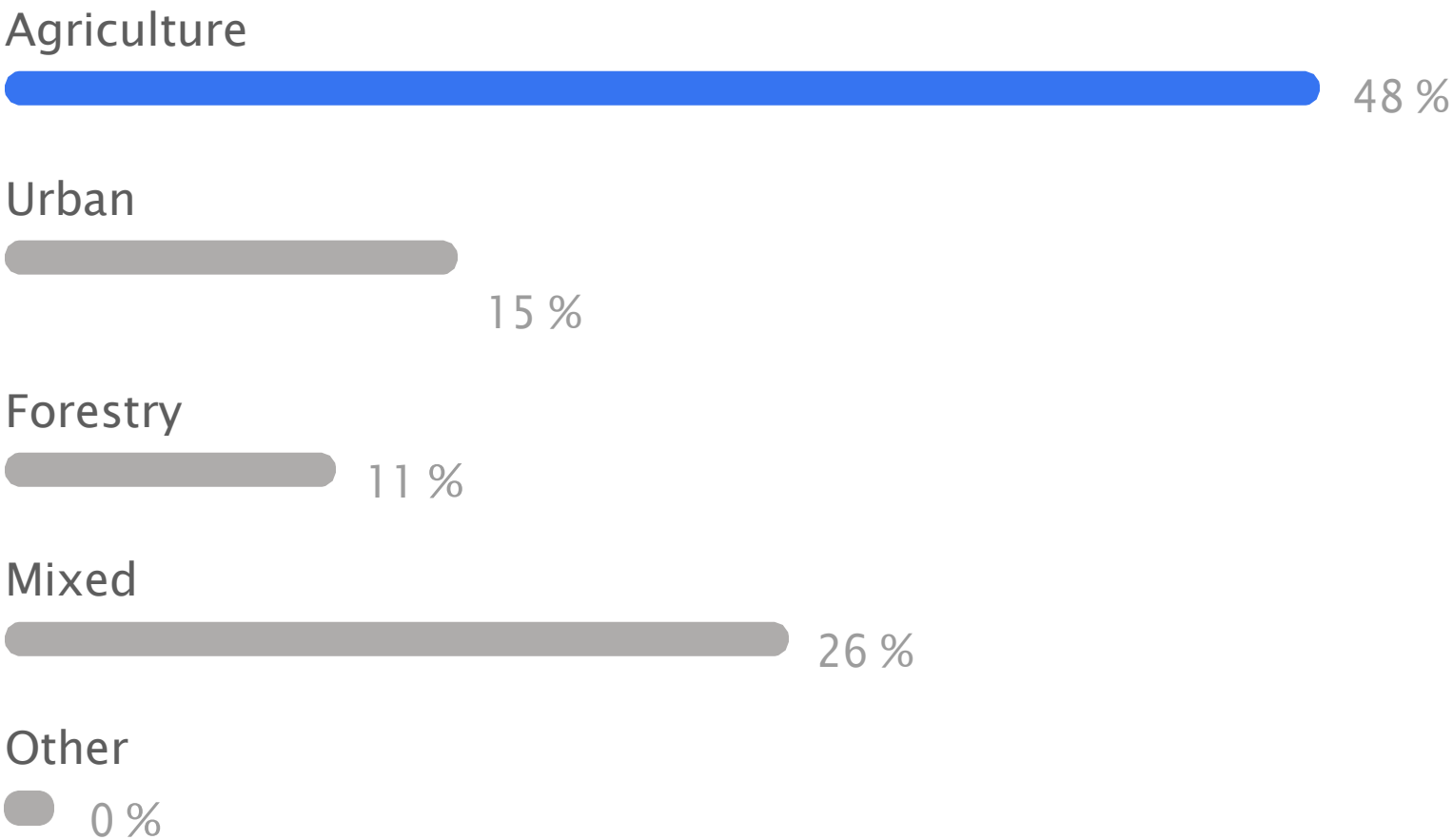
(4/4)

- Ireland
- Finland
- Spain
- Germany
- Netherlands
- Germany
- United Kingdom
- Italy
- Belgium
- Finland
- estonia
- Italy
- Spain

EUROPEAN MISSION SOIL WEEK

Which land use are you most interested in?

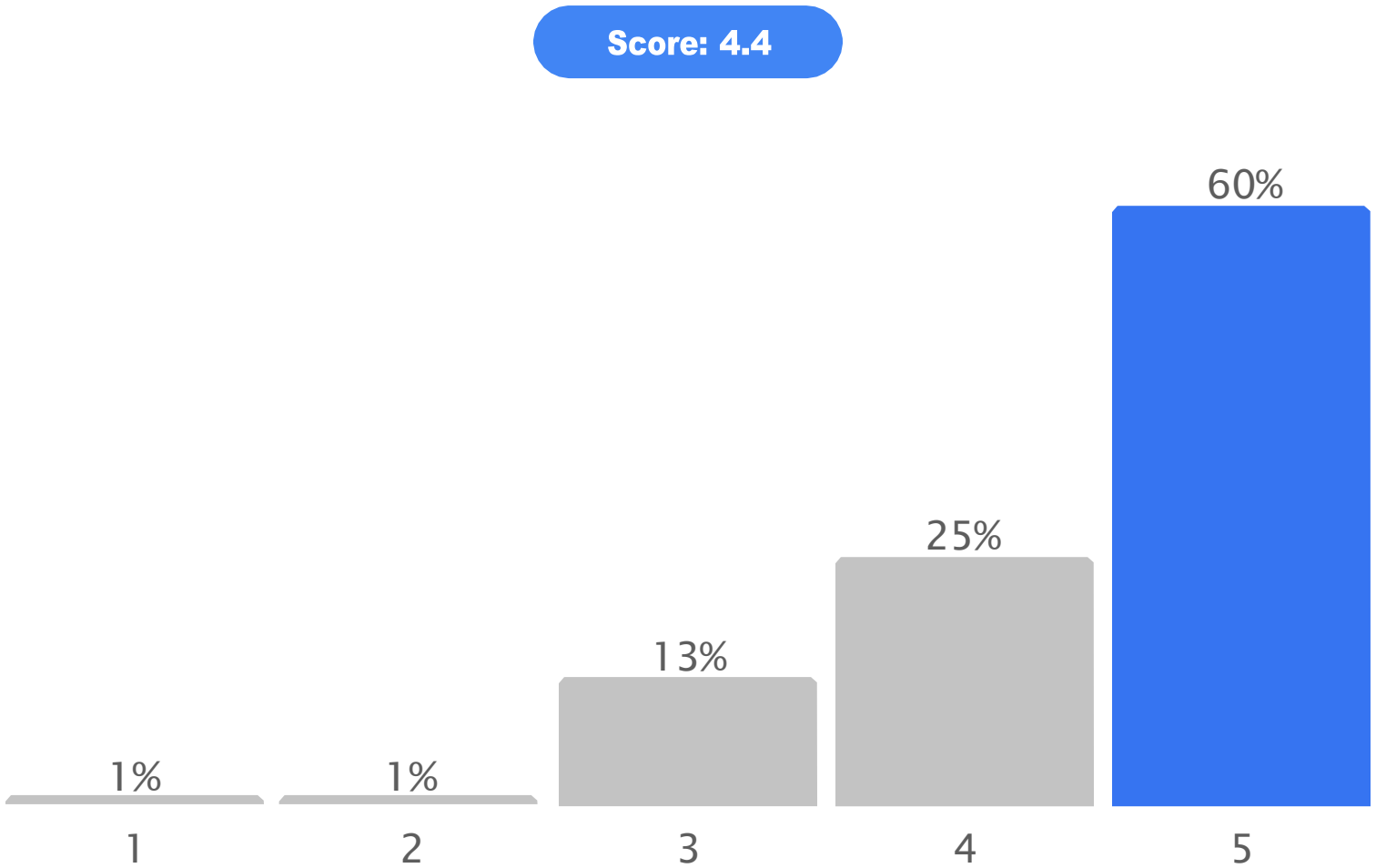
117



EUROPEAN MISSION SOIL WEEK

Do you agree with the presented statement about the main soil needs for urban areas?

0 9 7



Which other solutions would you suggest for urban areas?

(1/4)

- Monitoring
- De-sealing events that involve the public
- Involving citizens and practitioners in decision-making process
- Soil occupied managament policies
- Desealing
- Participatory research and action
- Building gardening
- Regenerate with recycled materials
- Technosoils
- Teleworking
- Revegetation
- Greening cities
- Greening city
- Trees
- Better public engagement
- Irban composting initiatives
- Citizen participation
- Soil quality assessment for all city gardeners
- Ungentrify
- soil monitoring
- Awareness in soil based ecosystem services

Which other solutions would you suggest for urban areas?

(2/4)

- Gardening
- Regeneration
- Risk based remediation and land use
- Nature
- Circular soil and land use
- Urban gardening
- Gardening
- Circular waste
- Trees
- Soil monitoring gone public
- Circular economy for soils.
- Develop partipatory processes. HUMUS methodology
- Monitoring
- Preserve soil
- Analyse all soil types within city
- Nature based solutions
- Urban agriculture
- Add amendments
- De-sealing
- deseal and regenerate
- trees
- Tecnosols
- Revegetation
- Relistic & pragmatic risk assessment of soil chemical pollution

Which other solutions would you suggest for urban areas?

(3/4)

- Benchmarking with other cities
- System approach Community building
- Community-wide based monitoring
- Phytoregeneration
- River landscape management
- Connect urban planificación, environment and human health
- Greening cities
- Nature based Solutions
- Soil monitoring - evaluation - planning
- Revegetatiom
- Involve and make develops + businesses uses the spaces engaged in the process
- Smart desealing
- More green surfaces
- More holistic land use planning
- Soil monitoring
- Urban gardening spheres (eg. roofs)
- Include school Projects
- Circular waste
- Nature based solutions
- Raise awareness
- More public greenspaced

EUROPEAN MISSION SOIL WEEK

Which other solutions would you suggest for urban areas?

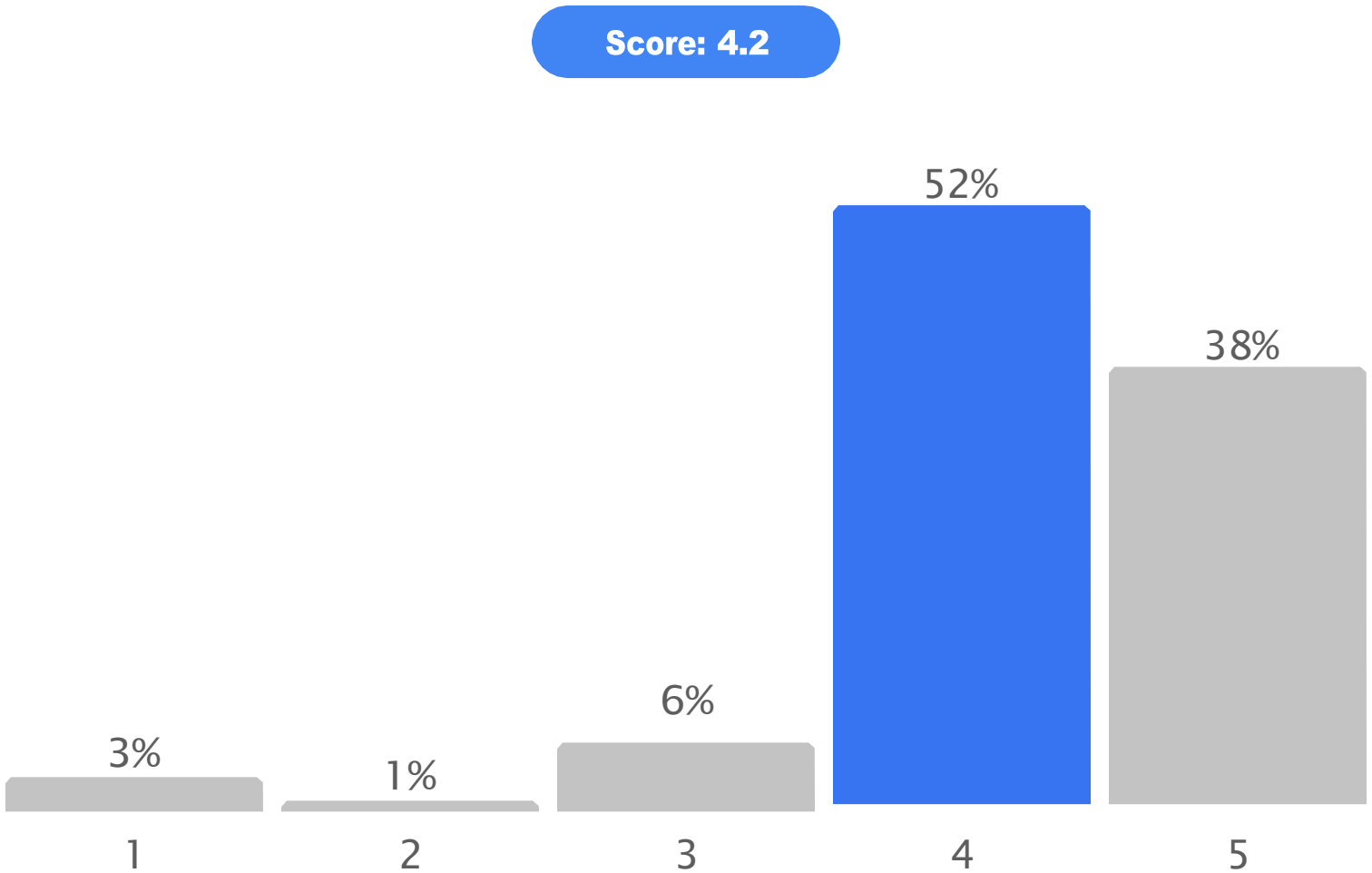
(4/4)

- Green areas
- Urban agriculture
- Tecnosols
- greening cities
- Funding and policies
- desealing
- Policy Learning
- Soil monitoring
- Technosoils
- Revegetation
- Innovation on housing
- Inventory of polluted sites
- Reduce density
- Soil engineering
- Place based solutions and Education
- Role of urban food production
- Tecnosols
- Debelop parricpatory processes
- Greening cities
- Soil monitoring
- Less totally sealed areas
- Ban Airbnb
- Gardening
- Tecnosols

EUROPEAN MISSION SOIL WEEK

Do you agree with the presented statement about the main soil needs for forestry?

100



EUROPEAN MISSION SOIL WEEK

Which other solutions would you suggest for forestry?

0 7 1

(1 / 5)

- Renaturation
- Invest in the cultural heritage as well by reviving the cultural traditions that might be there
- Rewilding
- Increase awareness
- Rewilding
- Protection of ALL natural forests
- Rewetting
- Encourage eco tourism
- Use degraded soils to plant more wood land
- Assess ecosystem services coming aling with rewetting
- Rewilding
- Eco tourism
- Pollard and coppice closer to towns
- Awareness raising on forest values
- Awareness raising
- Saveguard local knowledge of forest management
- Rewilding
- Rewilding
- Sustainable management
- Monitoring
- Co- creation

EUROPEAN MISSION SOIL WEEK

Which other solutions would you suggest for forestry?

0 7 1

(2 / 5)

- Intelligent system for production and environment together
- Participatory policy
- Paludiculture
- “Let nature be nature”
- Connection solutions urban–forest–river. Protection of riverbanks
- Better understanding of soil condition under trees
- Alternative forest products
- Pristine forest
- No draining
- Rewilding
- Increase biodiversity based in nature
- Increase biodiversity
- Diversification of species
- Address dependence on low quality biomass in forestry (for paper)
- Better understanding of how different organisms in forests communicate amongst each other.
- Ecotourism
- Mapping carbon uptake of different types of vegetation

EUROPEAN MISSION SOIL WEEK

Which other solutions would you suggest for forestry?

0 7 1

(3/5)

- Non-timber products
- Renaturate forests to learn about adaptabiliy to climate change
- Empower the farmers
- Soil management and monitoring
- Multiprofissional forests
- Develop business models to maintain the soil health in the long term
- Investment
- More dialogue with land owners
- Ecosystem service

create awareness by coocreation of solutions

Open text poll

- Ring the trees and let them die and fall down
- Leave some are totally untouched Continuous growth / harvest? Several different tree species?
- Buodiversity
- Improve eco-tourism activities
- Monitoring
- Reforestation with native trees
- Monitoring
- Planning
- Invest on eco tourism and on reintroducing pristine forest. Also use

Which other solutions would you suggest for forestry?

0 7 1

(4/5)

forestvascan educational site for the working of your specific wetland system

- Funding for private ownership stewardship
- Biodiversity
- Continuous cover forestry on drained peatlands Restoration of high BD areas Water management (ditch blocking) of drained forest areas
- Community building
- Policy lessons shall be upscaled
- Plant biodiversity
- Land use/ land cover monitoring
- Coppice
- Alternative forest products
- Prioritize your ambitions
- New species introduced
- Biodiversity
- monitoring sites
- Soil biodiversity
- Monitoring
- Forrest services onboard
- Ecosystem services
- Start locally
- Soil monitoring
- Reduce monocolture

Which other solutions would you suggest for forestry?

0 7 1

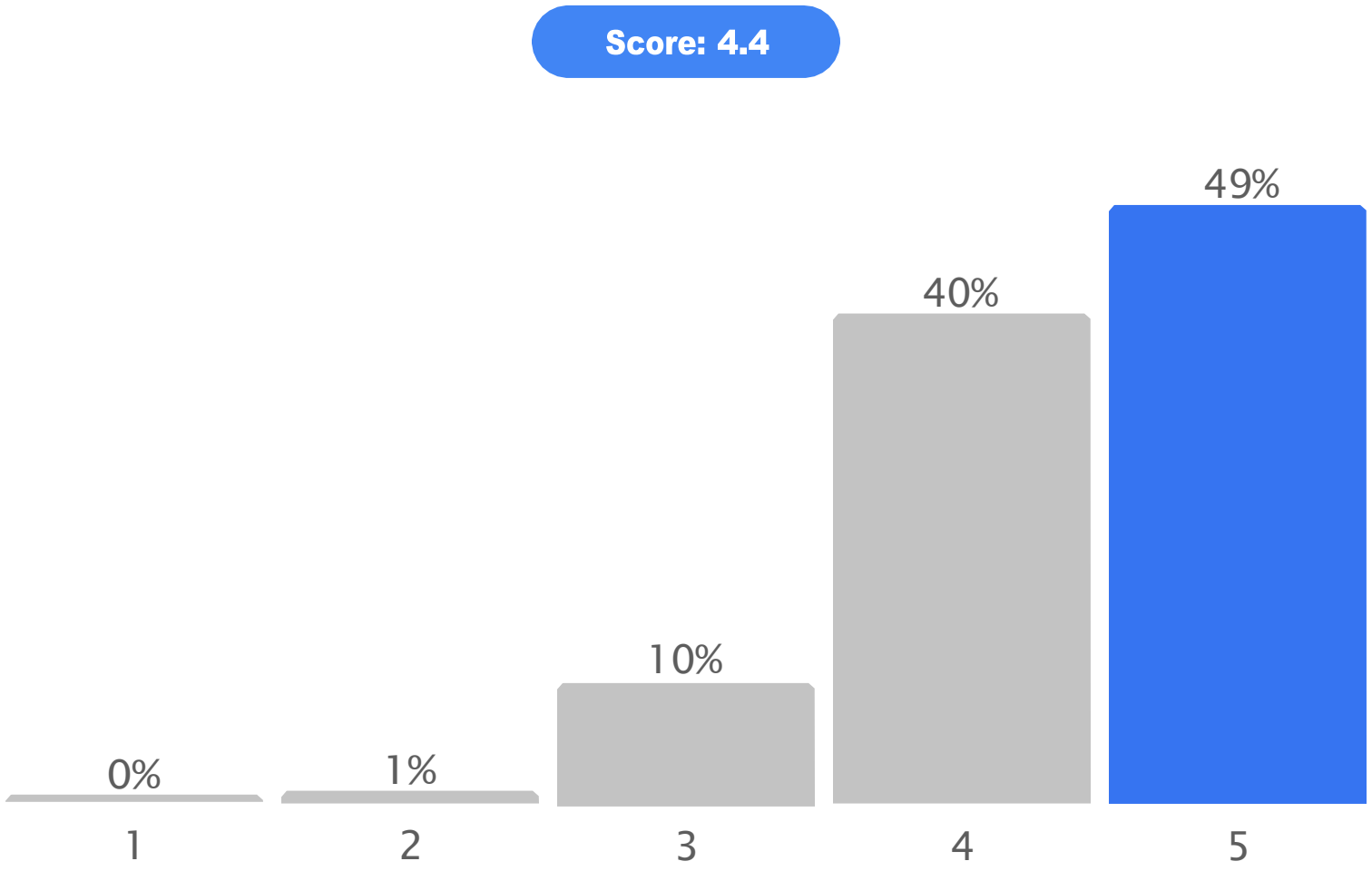
(5 / 5)

- Reduce bureocracy
- Instead of building consensus, could you develop a participatory process to design the measures from the beginning including a participatory diagnosis?
- Eco tourism
- Improve management control
- Advisor service
- Create ownership
- Sustainable management
- Co-design with local communities to maximise coherency and efficiency
- Protection
- Soil biodiversity map
- Diversified land use (paludiculture)
- Include soil biodiversity

EUROPEAN MISSION SOIL WEEK

Do you agree with the presented statement about the main soil needs for agricultural areas?

0 9 0



Which other solutions would you suggest for agriculture?

061

(1 / 4)

- afforestation
- Multicropping
- Legumes
- Biochar would be interesting to try.
- Agroforestry
- Regenerative narative agricultural practices
- Legumes
- Swales
- Introduce minor crops
- Swales
- agroforestry combination
- Increase value of agricoltural products for farmers
- Small ponds across landscape
- Organic amendments
- Organic fertiliser digestate
- Permaculture
- agroforestry
- Capacity Building in regenerative farming
- Très diversity
- Encouraging enhanced compost with high fungal presence. Adopt circular management and add organic amendments
- Grazing, water accumulation systems

Which other solutions would you suggest for agriculture?

(2/4)

- Develop eco-tourism to alliw News value chains for farmers
- Keyline system
- Windbreaks
- Hear from farmers what is really needed in the local context...
- Enable farmers as agents of change
- Create projects
- Citizens awarenes
- ponds?
- Plant trees and hedges
- Replicate this type of community engagement processes to empower farmers communities
- constructed wetlands
- Diversity
- Awareness
- Agroforestry
- Dig swales
- Stabilized amendments
- Hydropony
- Soil amendments
- Land use change
- Ponds
- Working closer with farmers
- Minor earthworks
- Knowledge sharing/learning with other similar regions/areas

Which other solutions would you suggest for agriculture?

0 6 1

(3/4)

- Codesign with farmers to better understand their needs, and training and educating how to make a change
- Applying circular fertilisers such as digestate
- Nature based solutions to recover rainwater
- Agroforestry
- Restoration
- Use of mycorrhiza
- Biochar
- Pedoclimatic regions specific solutions
- Citizen involvement
- Keyline
- Soil amendments
- Showcasing existing solutions
- Grazing introduce animals
- Small scale farming
- Agroforestry, plant hedgeros etc to improve microclumate
- Introduce ponds
- Muching
- Agroforestry
- Farmers need Social security and financial support
- Permanent cover

Which other solutions would you suggest for agriculture?

061

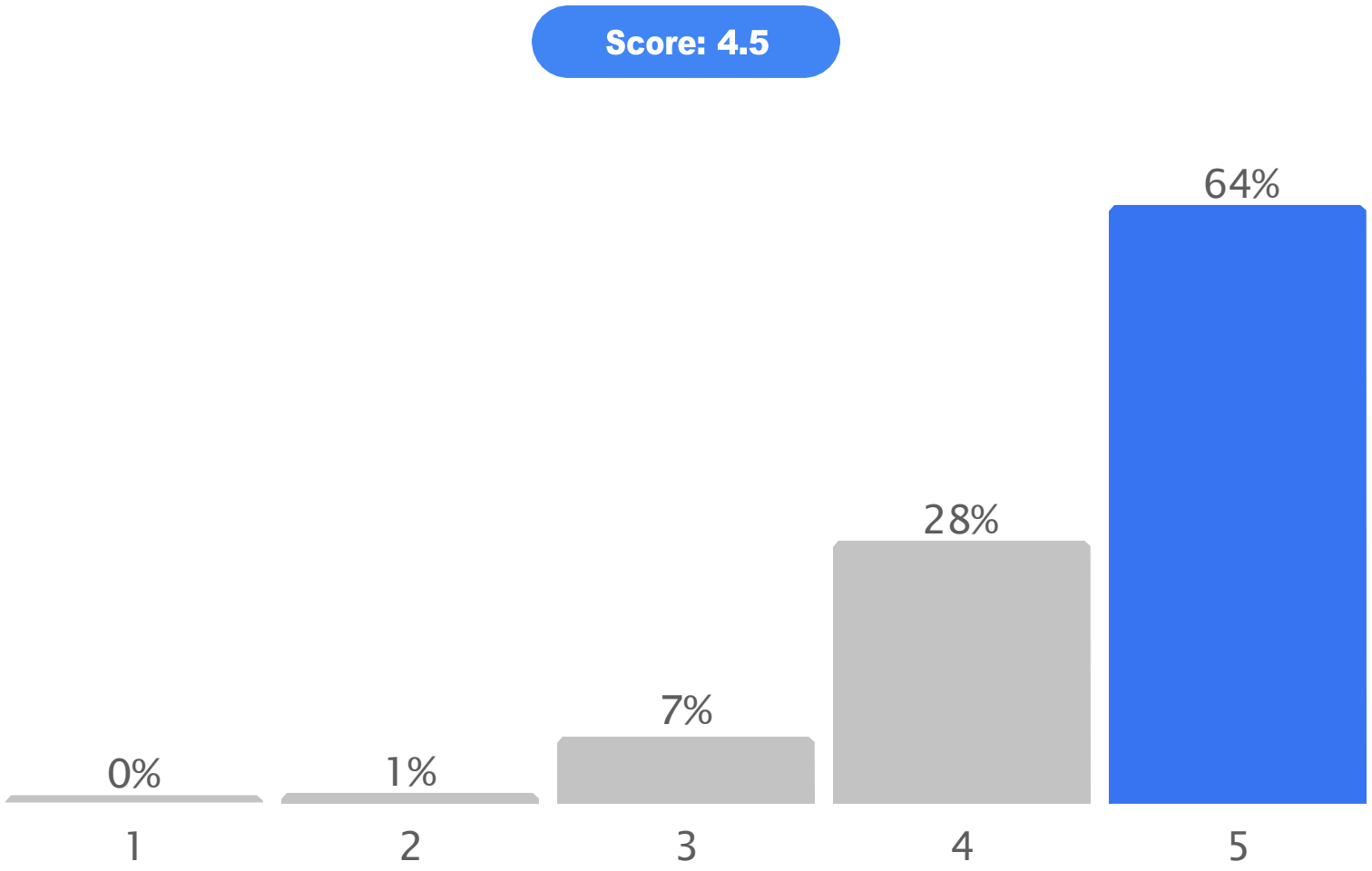
(4/4)

- Intertwine with agroecology to increase water content in soils.
- Increase crop diversity
- Consider the soil–water nexus
- Intercropping
- Agroforestry
- Land use change
- Keyline !!
- Abandonment
- Improve soil biodiversity
- Biochar based soil amendments
- Improve advisory services
- Implement swales
- Landscape management
- Grazing and agroforestry
- Biochar

EUROPEAN MISSION SOIL WEEK

Do you agree with the presented statement about the main soil needs for mixed landuse areas?

0 8 3



Which other solutions would you suggest for areas with mixed land use?

(1 / 4)

- Economical incentives for diversifying crops
- Consumer custom chamge
- Encourage infiltration of rainwater
- Disclose ecosystem services
- Combine with truffels
- Yeomans
- Differents livestock. (species)
- Involving comercial stakeholders, valuing the product as a high quality product thatwouldnt exist without the enviroment supporting it
- Over generational discussion between farmers.
- Diversified production
- Gather stakeholders from all land uses concerned and make them talk and make decisions together
- Opportunities for new settlers – access to land for those wanting to farm in the extremaduran way
- Regional government to help dehesa farmers assign the right price (and prepare the market) to pay fair price for meat, such to halt the trend in increased livestock breeding

EUROPEAN MISSION SOIL WEEK

Which other solutions would you suggest for areas with mixed land use?

057

(2/4)

- Eco-tourism promotion
- New Consumer customs - eating less
- Education
- Small earthworks
- Putting environmental needs first
- introduce mushrooms
- Payments to farmers/land managers who work in very remote areas to help maintain rural populations
- Farmers cooperative
- Stakeholders, involve local community
- More trees, more legumes, more agroforestry
- Reduced grazing density
- less bureaucracy
- Regional government support
- Certificate?
- Use as awarness raising location: educative activities
- perennial cereals
- Water basins
- Balanced livestock
- Increase tourism
- Participatory approaches
- Education

Which other solutions would you suggest for areas with mixed land use?

(3/4)

- Promote livestock breed adapted to the local context
- Better land management
- consumer involvement – KM0
- Manage Landscape diversity
- Supoprt agroforestry by labelling of products
- Rotative livestock
- Holistic pasture management
- Communication of value
- Less beurocracy on Animal husbandry
- Green cover
- Soil organic matter increase programs
- Reuse of organic wastes as compost, biochar...
- Agroforestry
- Different native cattle species
- Samrt farming
- Quality products
- Enable citizens to understand that livestock management is essential for most agro ecosystems to manage our natural and biodiverse habitats
- Demonstration farms
- Wait for gen. z people
- Eco-turism

EUROPEAN MISSION SOIL WEEK

Which other solutions would you suggest for areas with mixed land use?

(4/4)

- Livestock density
- New drought resistant grass species
- Planting trees
- Green cover
- Keyline
- Stakeholders engagement
- Smart farming
- Consumer involment
- Social awareness
- Less stricte animal register
- Quality products
- Balance Livestock density
- Tourism
- Razionale Pasture Voisin
- Swales

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

096

(1 / 9)

- Soil is a means not an end and gets warn out through use. People are more interested in ends and products.
- More urgent problems
- Citizens engagement
- No possibility to car for soil and make a living
- Curriculum overload
- Rules of the legislation sometimes incoherent
- Lack of understanding about the importance of soils
- Legislativo and lack of knowledge in innovative management
- Make soils more visible: linking soil health to human health
- lack of science-based education
- Exploitation of natural resources and humans as the basis of social order
- Good educational programme
- Moral values carring for yourself
- Soil in private hands
- Teaching On food and heslth instrac of pure biology
- People learn very little of soils

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

(2/9)

in schools. People don't understand how long soil pollution stays in the ground. People don't care about soil.

- Time
- Lack of appreciation for farmers or producers
- Too many issues for people and schools to deal with.
- People do not appreciate how dependent we are on soil We have to integrate the knowledge available about soil
- society don't see soil as crucial as other environmental compartmenta
- Lack of information about soil importance
- too many historical pollution, buildings, ...
- Soil as dirt
- Capitalism
- Communication
- Importance of soil health is not understood
- Lack of community and solidarity econonomics
- Lack of understanding

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

096

(3/9)

of the importance and consequences of poor soil health
- Responsibility
- Capitalism
- Lack of clear messages
- Education
- Soil science communication too comolicated
- Incoherency between soil protection and urban and industrial planning policies and public speeches
- Soil is seen as something nasty
- Human ignorance
- Capitalism
- Lack of formation of the teachers
- Individualism
- Knowledge
- Gap between research and general society
- Law makers lack interest and lack of literacy
- political priorities
- Private land ownership
- Awareness of decision-makers that need to be convinced that this is a priority, with benefits beyond soil preservation

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

096

(4/9)

- Human Disconnection from nature/soil
- Capitalism
- Awarness
- soil health not obvious
- Lack of knowledge
- Lack of awareness
- Visibility
- School pensum
- Money in agriculture
- Interest Money
- 2. Polluters pay principle 3. Active role and accountability of public authorities in good soil management
- Take time !
- Economy, profitability, lack of sensity
- Communication
- Biocides and industry
- Tradicional farming mindset
- Lack of awareness in the society
- Capitalism
- Sharing the risk of applying new practices between society and land manager

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

096

(5/9)

- Education
- Not finding sense in which society hear
- Distance urban culture and rural culture
- Lack of knowledge
- Education
- Ownership/jurisdiction/responsibility of damage and improvements
- Lack of knowledge Lack of political awareness Lack of dialogue between all stakeholders (including citizens and public authorities)
- Drive change in farming practices eg by policy, intrinsic drive at farmers
- Awareness – many citizens do not realise soils is a living ecosystem
- Exploitation as the basis of the economic system
- lack of knowledge on soil importance, slow regeneration
- *Microorganisms are stills seen as pathogenic when just a very little fraction are
- Capitalism
- Soil investments in the local policy

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

(6/9)

- Capitalism
- No teaching On food and soil in schools
- Making the soil interesting, using the cotton under wear test
- Education
- Soil is not apreciated
- Socialism
- Involucration os stakeholders
- Capitalism
- Insight in what the vale is of soil health
- Willingness for personal comfort
- Lack of priority
- Lack of knowledge about the importance of soil health
- Lack of interest
- The CAP
- Lack of education in soil in schools
- No sensorial access to the underground beauty
- Soil not obvious to public
- Soil is overseen
- Common message at all level
- Short term interests
- Capitalism

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

096

(7/9)

- Trade offs with yield
- lack of sanctions
- Funding
- Soil literacy
- Science communication
- Awareness
- Curricula
- Increase awareness
- Blind Capitalism
- Diets
- Capitalism
- Lack of interest
- School programs
- Soil literacy
- Interest
- Unawareness
- Economical reasons
- Value in agriculture
- Complexity
- Industry
- lack of knowledge and interest
- soil health understanding among the community
- NO AWARENESS OF THE PROBLEMS
- Lack of awareness

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

(8/9)

- invisible soils
- Education
- NIMBY
- lack of knowledge
- Legislation
- Actionable knowledge transfer
- Lack of interest
- Capitalism
- Soil literacy Soil awareness Consumer involment
- Knowledge – awareness
- Industrialization of agriculture
- Little awareness of ecosystem functions
- Transdiciplinary collaboration
- Habbits
- A lack of understanding from academia on how farmers, land managers will take up good practices.
- Attitudes
- lack of knowlage
- Difficult to make it visible
- Visualization
- Knowledgebase
- Agrochem
- Clear messages

EUROPEAN MISSION SOIL WEEK

096

Based on your own experiences, what do you think are the three most important hindrances or bottlenecks to improve soil health in society?

(9/9)

- Lack of awareness
- Lack of knowledge
- Lack of interest in science
- Maintain agricultural yields
- Awareness

What measures would you suggest to address these hindrances or bottlenecks?

(1 / 2)

- Use of videos, social media. More implication in educational programs
- Putting environmental issues first
- Training of educators and teachers
- Prepare material for teachers in bational language
- Communication and education
- Schools, education
- Education at early age
- Make community economies the norm
- Soil microscopy
- Coherence in public speech
- Tô teach children about soil
- include soil topic in school curriculum
- Education
- Start with food
- Combine
- Stop agrochem lobby
- Communicate better to the broader audience
- Continued inclusion of society in projects
- Training and education
- Demonstration

What measures would you suggest to address these hindrances or bottlenecks?

(2/2)

- Effective communication among stakeholders
- Reform CAP
- Education
- Incentives
- Make soil visible
- Carrying for others
- Direct contact with soil
- education
- Training, education, awareness raisimg
- Education
- Education
- Change legal system
- of land ownership
- Education
- Legislation
- Educational
- Raising awareness
- Education

EUROPEAN MISSION SOIL WEEK

What kind of organisation do you work at

120

Policymakers and governances

22 %

Research communities

54

Land owners and users

3 %

Industries and private sectors, Services providers, consultancy

16 %

NGOs

3 %

Other

3 %