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1s6a A healthy soil as a basic enabling condition for the transition towards circular land management and land use

ENABLING CONDITIONS FOR CLIMATE-SMART SUSTAINABLE MANAGEMENT OF AGRICULTURAL SOILS

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Soils constitute the foundation for agricultural production, ecosystem functioning and for human well-being, but paradoxically only limited attention has been given towards sustainable soil management in most national and European policies, historically. While practitioners are concerned about the state of their fields, they are often unaware of immediate and long-term effects of their farming practice, as soil degradation risks are dynamic and difficult to observe. Further, complex tradeoffs are frequently needed where different environmental, ecological and economical concerns need to be balanced. The objective of this presentation is therefore to discuss opportunities for enabling climate-smart sustainable management of agricultural soils.

The presentation is based on the results of a stocktake regarding the availability and use of soil knowledge in 23 European countries, carried out in the context of the European Joint Programme (EJP) SOIL. Our analysis is based on interviews with 791 stakeholders, as well as a review of more than 1,800 documents identifying major knowledge gaps with respect to 1) Soil carbon stocks, 2) Soil degradation and fertility, and 3) Strategies for improved soil management. Results from the interviews indicate that i) there are a number of shortcomings in the current use and coordination of knowledge on soil management, including insufficient communication and coordination between policymakers, researchers and farmers; ii) the promotion of knowledge on sustainable soil management towards stakeholders is ineffective, challenges, for instance, arise due to a theoretical focus at universities, which is inaccessible to practitioners; and iii) current research does not support the integrated decision-making of practitioners and policymakers. Further, the reviewed documents show knowledge gaps on e.g. soil information, interactive effects of management practices and on climate change impact.

To overcome these challenges in a short-term perspective, it is important to ensure that tailored sustainable soil management strategies are developed and implemented for

specific pedo-climatic conditions and cropping systems and supported by policies and incentives at several levels of governance, taking into account the currently available knowledge on sustainable soil management. Further, in a long-term perspective, it is important to improve the coordination between policy, research, industry, advisory services and farmers. We discuss opportunities for developing such strategies in a multi-scalar context, addressing the systemic barriers for adopting strategies for climate-smart sustainable soil management, including, the adaptation of current strategies to local conditions and the identification of opportunities for advancing user-centered innovation developing new sustainable strategies.

Keywords: Sustainable Soil management, Capacity building