IMPROVING SOIL AND SOIL FUNCTIONS

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SOILS ARE A FINITE RESOURCE

...FROM THREATS TO FUNCTIONS
I want to grow my milk output by 50%

DEMANDS ON OUR LAND

How do we increase our productivity?
DEMANDS ON OUR LAND

We need better water regulation by our land...
DEMANDS ON OUR LAND

We need to protect our carbon resources
We need to find a home for our waste...
Soil biodiversity is the driver of many processes in soils. Protect the home of biodiversity.
WHAT CAN OUR LAND SUPPLY?

All soils / land perform all functions ...but different parts of the land(cape) are better at delivering different functions

Schulte et al., 2014

**Objective**: to quantify the supply of soil functions across the EU as determined by soil properties, land use and soil management practices.
OUR OUTCOMES FOR A SUSTAINABLE MANAGEMENT AND USE OF SOILS

Pillar 1: Farm scale: Develop an agricultural Decision Support Tool (DST) for soil management “soil navigator”

Pillar 2: Country scale: Design a monitoring scheme for Soil Functions that is applicable at regional scale, for a range of soil types, land uses and pedo-climatic zones;

Pillar 3: EU scale: Develop a policy framework for ‘Functional Land Management’ at European scale that aims to optimise the sustainable use of Europe’s soil resource

STAKEHOLDER CONSULTATION: KNOWLEDGE AND NEEDS ON SOIL AND LAND MANAGEMENT

1 year
5 countries
32 workshops
473 participants


STAKEHOLDERS LEVEL
- farmers
- regional multi-stakeholders
- national multi-stakeholders
- European multi-stakeholders

Metzger et al. 2005
PILLAR 1: LOCAL SCALE – SOIL NAVIGATOR

Permanent grasslands (cheese production) in Mediterranean North in two different fields.

Recommendations:
- Buffer strips
- Nutrient management plan
- Minimum tillage
- Lime application


October 2017, Roundtable 6, Parma, Italy. Field exercise organised by Parma University in collaboration with Emilia-Romagna Region and EIP-AGRI Operational Groups coordinators and partners (Scalabrini and Burini farms)
**PILLAR 2: REGIONAL SCALE- MONITORING**

Testing **NOW** the feasibility of the monitoring design in 100 sites, spread over 6 climatic zones, 2 land uses, 2 dominant soil types/diagnostics.

*Site n 1. Grassland in Villadose di Rovigo, Veneto region, Italy, April 2018*

PILLAR 3 – EU SCALE
A POLICY FRAMEWORK FOR FUNCTIONAL LAND MANAGEMENT


Impact of policy instruments on soil multifunctionality in the EU by Vrebos et al., 2017.

Bridging the THINK-DO-GAP by O’Sullivan et al., 2018.
EMERGING PRIORITIES FOR FURTHER RESEARCH

• Pillar 1 (local scale) – mainstreaming soil functions management into the advisory service

• Pillar 2 (national scale) – harmonisation of references for monitoring soil functions

• Pillar 3 (European) – economic assessment of soil functions at EU scale