



Soil research at the JRC

DG AGRI Conference on Agriculture and Innovation
Pre-Event on International Soil Research

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Joint
Research
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2015
International
Year of Soils



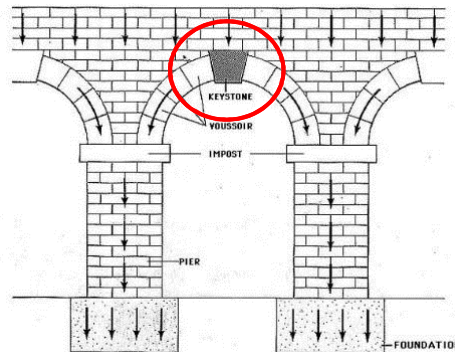
Soil is the 'keystone' of
environmental, economic,
climate, social processes...

SOIL - WHAT IS IT GOOD FOR?

Soil functions: keeping the Earth alive



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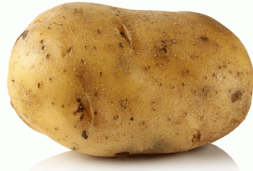


When soil fails...



Phytophthora infestans

Irish exodus



Sahel famine 1980s



US Dustbowl 1930's

Warming Arctic and thawing permafrost

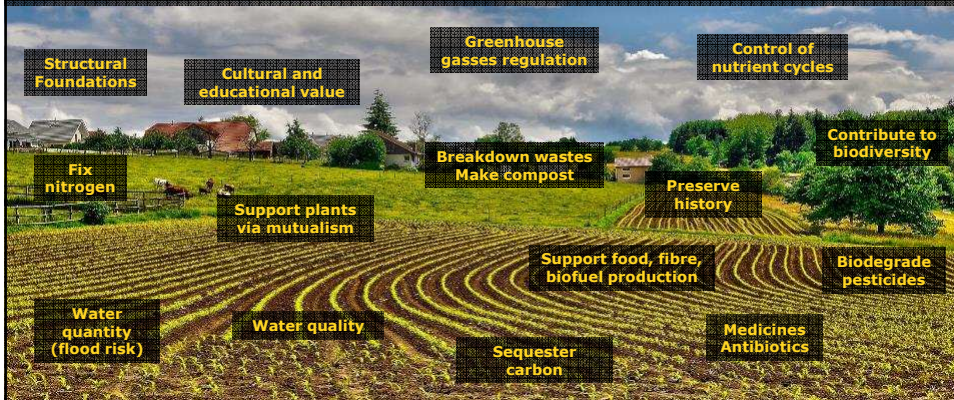


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Competition for land and soil



Ecosystem services (keeping us alive) provided by soil

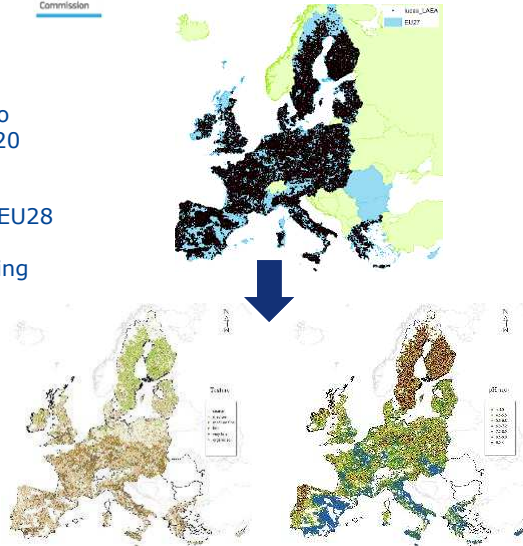


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LUCAS Topsoil

- JRC coordinates LUCAS Soil Survey
- Standardised sampling procedure to collect around 0.5 kg of topsoil (0-20 cm).
- LUCAS 2009/2012 - 20,000 points EU28
- LUCAS 2015 - 27,000 points including 5,000 new sites EU28+CH+WB



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2: Research - Mitigation



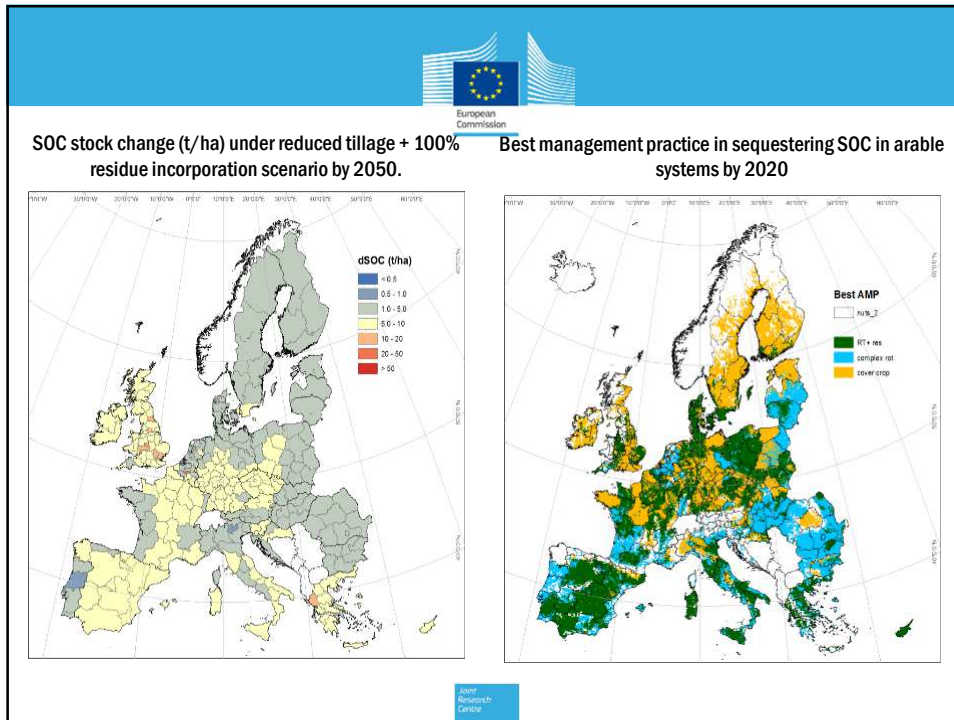
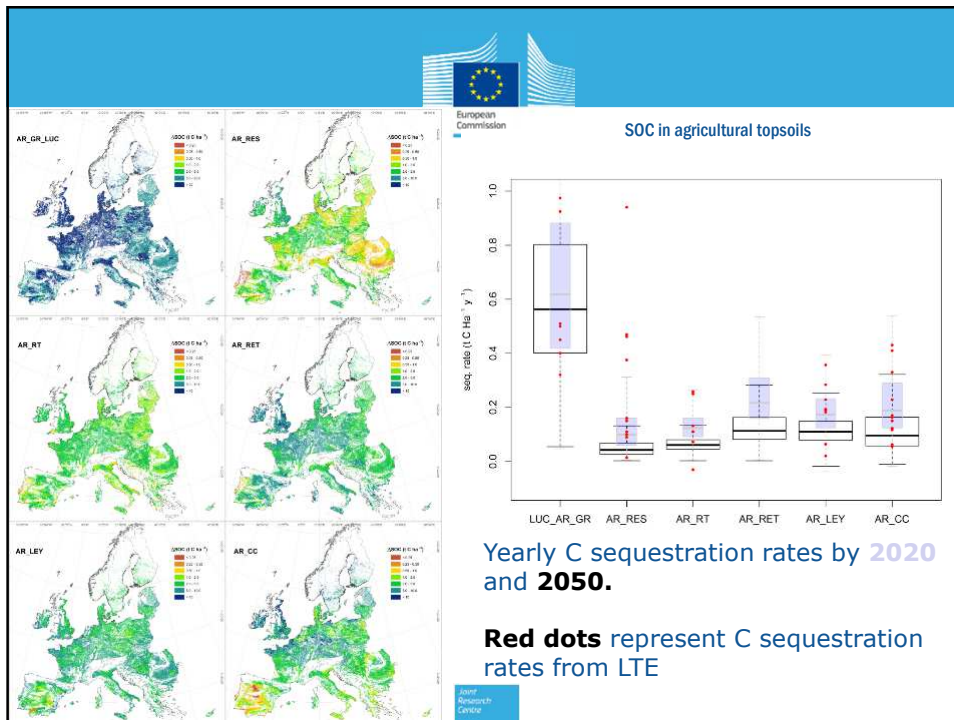
Assess the potential of land management practices to preserve or sequester C in agricultural soils

Land management has a notable impact on the fluxes of greenhouse gases, especially CO₂. Several agricultural activities have been shown in scientific literature to sequester carbon in soil



Managed soils contain a SOC pool, which is below their potential. Such soils are potentially a sink for C through adoption of appropriate land use and sustainable management practices.

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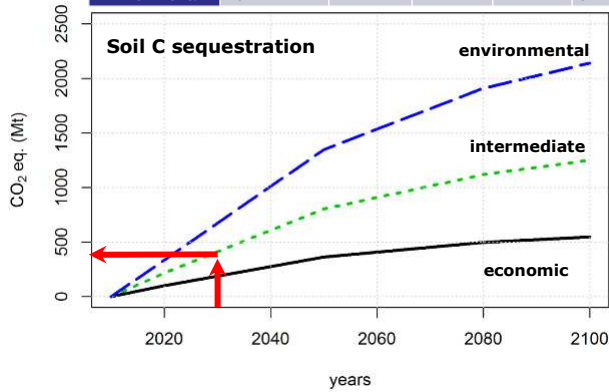




Policy-oriented scenarios

Arable land allocated to AMP (%)

Scenario	AR_GR_LUC	AR_RES	AR_RT	AR_RET	AR_LEY	AR_CC	Total
Economic	2	2	2	2	2	2	12
Intermediate	5	5	5	5	2	2	24
Environmental	10	2	2	2	5	7	28



EU emissions (Mt CO₂ eq.) and reduction targets

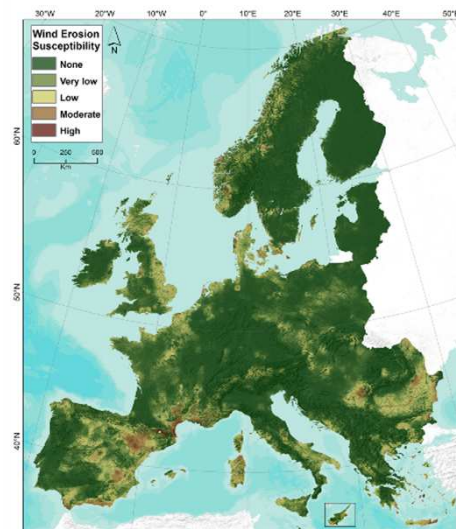
2020: 4502 (20% target)
2020: 3940 (30% target)
2030: 3377 (40% targets)
2030 = 450 Mt CO₂ eq. = 13%

✓ 4 pour 1000

2: Research - Pressure on soils



Soil erosion by water

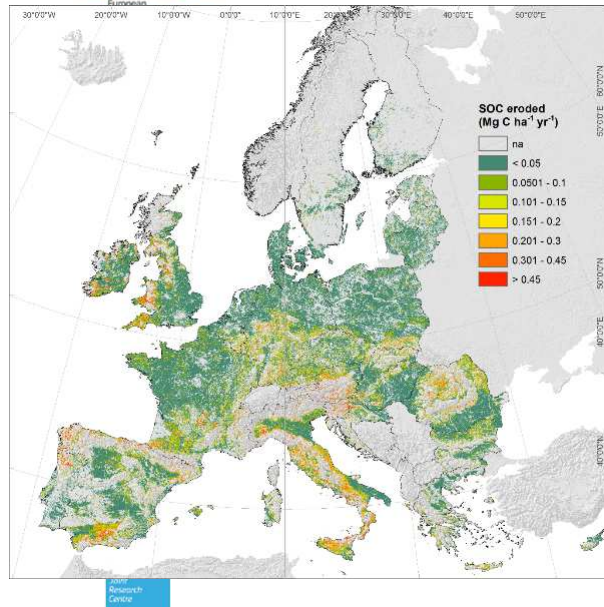


Soil erosion by wind

2: Research - Integration



SOC and soil erosion

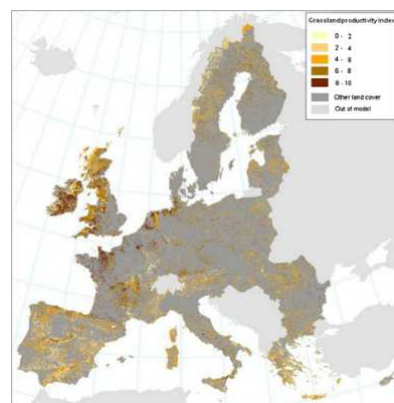
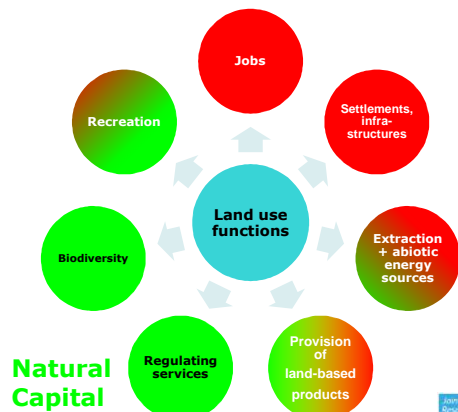
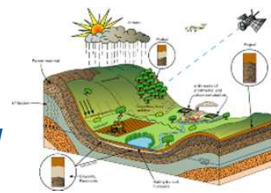


3. Research challenges



Efficient use of natural capital... Valorising soil functions...

Land use functions Driven by soil





Sustainable Development Goals (SDGs)

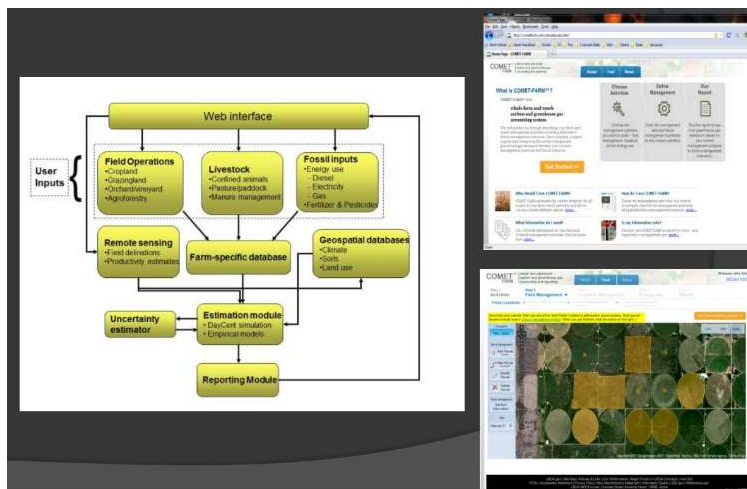
- The European Commission together with other stakeholders have been very active in promoting a soil and land degradation neutral world in the Post-2015 agenda
- Next step: implement such a SDG in the EU, in particular through establishing a robust set of indicators for land/soil efficiency, land take and land/soil degradation, looking at past trends and future land-use scenarios.



4. Soil Management



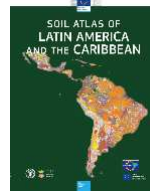
COMET-Mondiale: EU farm-level GHG accounting



5. Raising awareness



Completed in 2015

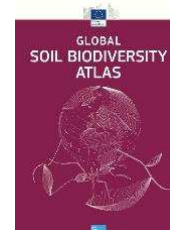
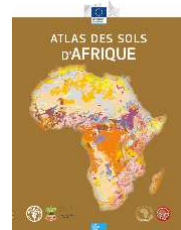


Presented at EU-LAC Summit



Launched Dec 4th

In press



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