



# Soil Carbon Sequestration Flagship

## Online collaborative knowledge hub

### Developing solutions

#### *Decision support toolbox*

- Maps of SCS potential (e.g. to reach the 4 per 1000 aspirational target)
- Maps of crop and pasture practices suited to reach SCS targets
- Implications of SCS practices for
  - yields,
  - drought tolerance and climate change adaptation
  - N<sub>2</sub>O and CH<sub>4</sub> emissions, energy use
- Costs and benefits of transitioning to SCS practices

### Monitoring solutions

#### *Methods to certify SCS*

- Tiered methodologies for monitoring, reporting and verifying (MRV) soil organic carbon (SOC) stocks in crop and pasture systems
- Handbooks and guidelines for project scale MRV adapted to regional contexts and agricultural systems
- Technologies for rapid SOC stock verification
- Modelling of SOC stock change in crop and pasture systems

### Adopting solutions

#### *Enabling environment*

- Regional stakeholder workshops on SCS
- Criteria for sustainable SCS projects supporting livelihoods
- Assessment of barriers to the adoption of SCS practices
- Value chains, business models and policy options
- Research funding strategy and international research cooperation

## Capacity building, knowledge transfer and training



# Soil Carbon Sequestration flagship

## Contributions received

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### **Developing** solutions

#### *Decision support toolbox*

- **Argentina:** Sugarcane and Pasture beef systems
- **Brazil:** C sequestration strategies in agriculture across biomes: low Carbon Emission Agriculture Plan of Brazil
- **France:** national assessment of solutions and implications of SCS in agriculture
- **Lithuania:** stabilization and enhancement of SOC to soil in grasslands or arable land
- **New-Zealand and Ireland:** full inversion tillage in grasslands
- **USA:** funding international collaborations on soil health, reactive N and microbial communities

### **Monitoring** solutions

#### *Methods to certify SCS*

- **Argentina:** SCS tool and databases
- **Australia:** monitor changes in soil carbon stocks (similar to Australian Emissions Reduction Fund)
- **Brazil:** MRV for SCS in grain production systems
- **France:** Digital soil map development
- **Ireland:** national soil survey and soil carbon assessment in grasslands
- **Spain:** carbon stability and modeling studies, especially with degraded marginal land
- **USA:** International soil carbon network and database hosted by Fluxnet
- **EU:** ERAGAS (PEATWISE, SCS drained peatlands; GHG-MANAGE, SCS in landscapes)

### **Adopting** solutions

#### *Enabling environment*

- **France:** identifying barriers to adoption in the national assessment of SCS
- **Spain:** studies on barriers to adoption



# Soil Carbon Sequestration flagship 2017-2019

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## **Developing** solutions

### *Decision support toolbox*

- Argentina, Australia, Brazil, France, Ireland, Lithuania, New-Zealand, USA (+ other countries?)

### REGIONAL PROJECTS

(e.g. 2 post-docs or researchers by region, supported by SCS teams)

- Regional maps of crop and pasture practices suited to reach SCS targets
- Regional implications of SCS practices for
  - yields,
  - drought tolerance and climate change adaptation
  - N<sub>2</sub>O and CH<sub>4</sub> emissions, energy use

## **Monitoring** solutions

### *Methods to certify SCS*

- Argentina, Australia, Brazil, France, Ireland, Spain, USA, EU-ERAGAS (+ other countries?)

### REGIONAL PROJECTS

(e.g. 2 post-docs/researchers + multi-author SCS team)

- Handbooks and guidelines for project scale MRV adapted to regional contexts and agricultural systems
- Modelling & remote sensing methods for SOC stock change in crop and pasture systems

## **Adopting** solutions

### *Enabling environment*

- France, Spain (+ other countries?)

### PROJECT 3

(resources from CIRCASA)

- Regional stakeholder workshops on SCS
- Criteria for sustainable SCS projects supporting livelihoods

CIRCASA: a funded Coordination and Support Action



# CIRCASA

Coordination of International Research Cooperation on soil Carbon Sequestration in Agriculture





# Goals of CIRCASA project

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The overarching goal of CIRCASA is to develop **international synergies concerning research and knowledge transfer** on agricultural soil C sequestration at European Union (EU) and global levels.

- **Strengthen the international research community** on soil carbon sequestration in relation to climate change and food security;
- **Improve our understanding** of agricultural soil carbon sequestration and its potential for climate change mitigation and adaptation and for increasing food production;
- Co-design a **strategic research agenda with stakeholders** on soil carbon sequestration in agriculture;
- **Create an International Research Consortium**





# Countries of the 24 CIRCASA partners

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▲ Additional research sites



CIRCASA benefits from the participation of:

- The **Global Research Alliance** on agricultural greenhouse gases (GRA, 47 member countries),
- The **4 per 1000 - Soils for Food Security and Climate** - initiative (33 member countries),
- The Joint Programming Initiative on Sustainable Agriculture, Food Security and Climate Change (**FACCE-JPI**, 22 member countries),
- In addition, CIRCASA will also benefit from the contribution of the Climate Change Agriculture and Food Security program (CCAFS) and the Water, Land and Ecosystems (WLE) programs of the **CGIAR**,
- And collaborate with the **Intergovernmental Technical Panel on Soils (ITPS)** of the Global Soil Partnership (GSP)



# Online collaborative research platform

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## Knowledge system

- Geo-referenced meta-data
- Soil carbon, land use, maps
- Geo-referenced ag. practices, for soil carbon, co-benefits, trade-offs, etc..
- Handbooks, guidelines

## Matchmaking

- My user profile
- Identify researchers and stakeholders
- Map collaborative networks
- Search by theme
- Search by geographical area
- Search by sequestration/ag. practice



## Communication & Outreach

- Tools: newsletters, videos, etc
- Discussion forum
- Peer to peer
- Events calendar
- Links
- Webinars

## Better structuration of international cooperation

- Strategic Research Agenda
- Research programs
- Funding and alignment opportunities
- Research policy views







# SCS Flagship: substantial opportunities for countries investments

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## What you can expect?

- **Research organizations:** be part of a large collaborative research effort (facilitated by the online collaborative platform); contribute to the International Research Consortium (IRC)
- **Research agencies:** structure national research on SCS, contribute to the IRC and to research programming (international research calls)
- **Ministries:** define national needs and support national expert teams on SCS

## Which support can you bring?

- **Research organizations:** in-kind contribution of researchers,
- **Research agencies:** funding of research calls and regional workshops
- **Ministries:** contribute to science-policy interface on SCS and national action plans, host conferences with stakeholders