

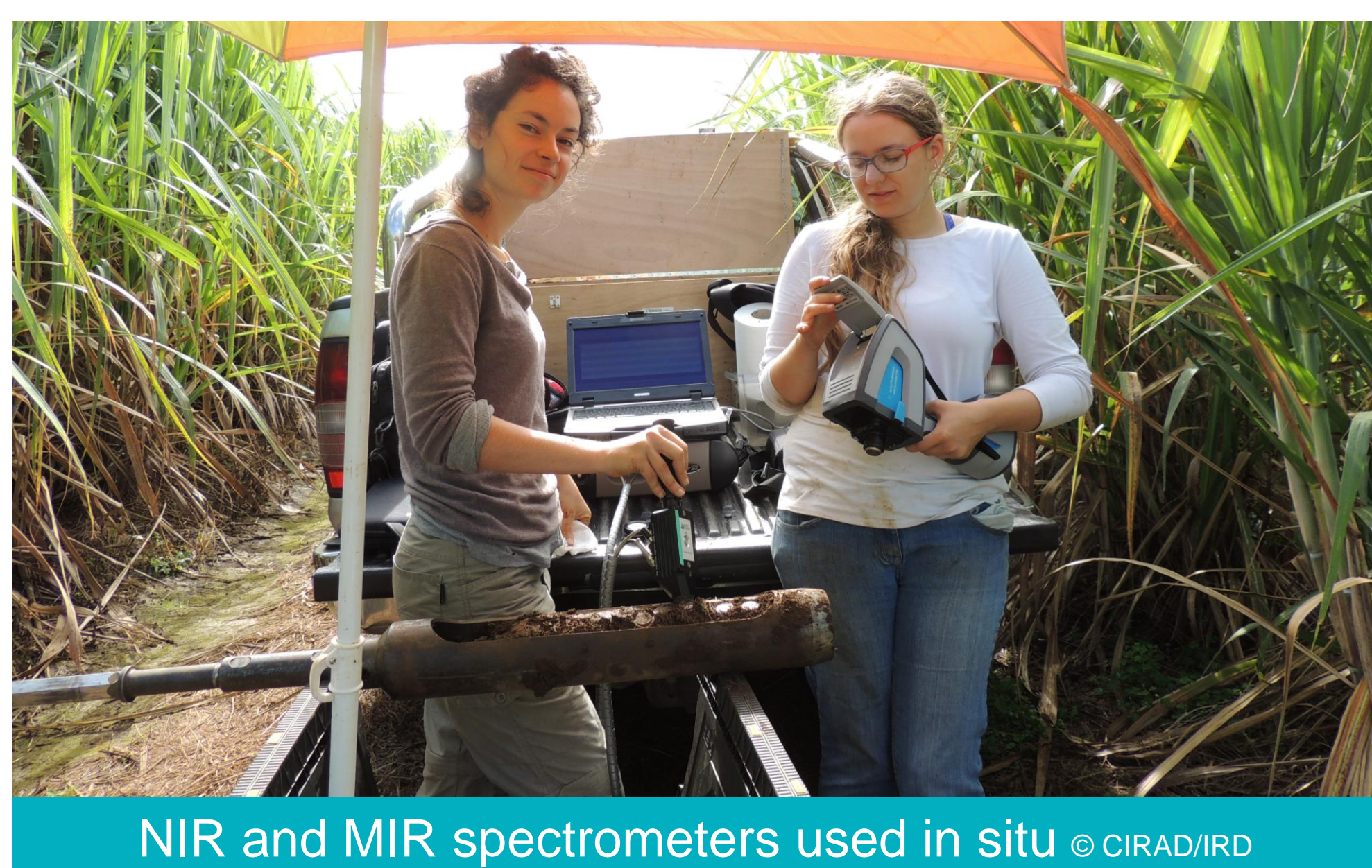
Preserve high SOC stocks in tropical volcanic soils

C@RUN, a research project about SOC sequestration in volcanic soils

As rich soil organic carbon (SOC) soils on a volcanic rock weathering gradient from Andosols to Ferralsols, tropical volcanic soils of 'La Réunion' highlight the importance of "carbon hotspots" to study soil organic carbon (SOC) sequestration in order to face the challenges of climate change and food security.

- Near- and Mid-InfraRed Spectroscopy, an innovative method
- To define soil units and to assess SOC stocks

As soil type is the main driver of SOC stocks, soil units were spatially defined by MIR spectroscopy. Prediction models were developed with NIRS and MIRS in situ and in laboratory to assess SOC stocks.

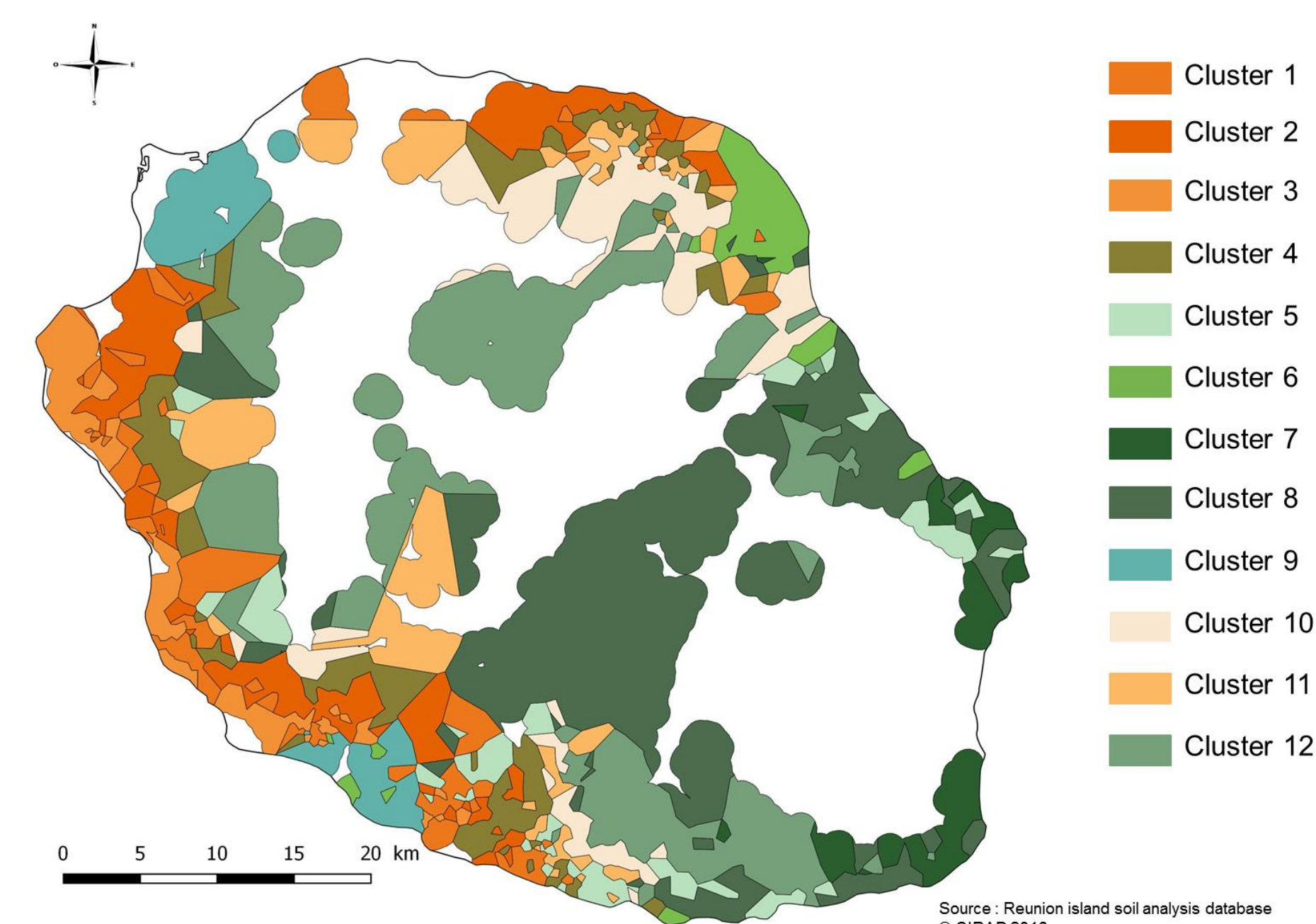
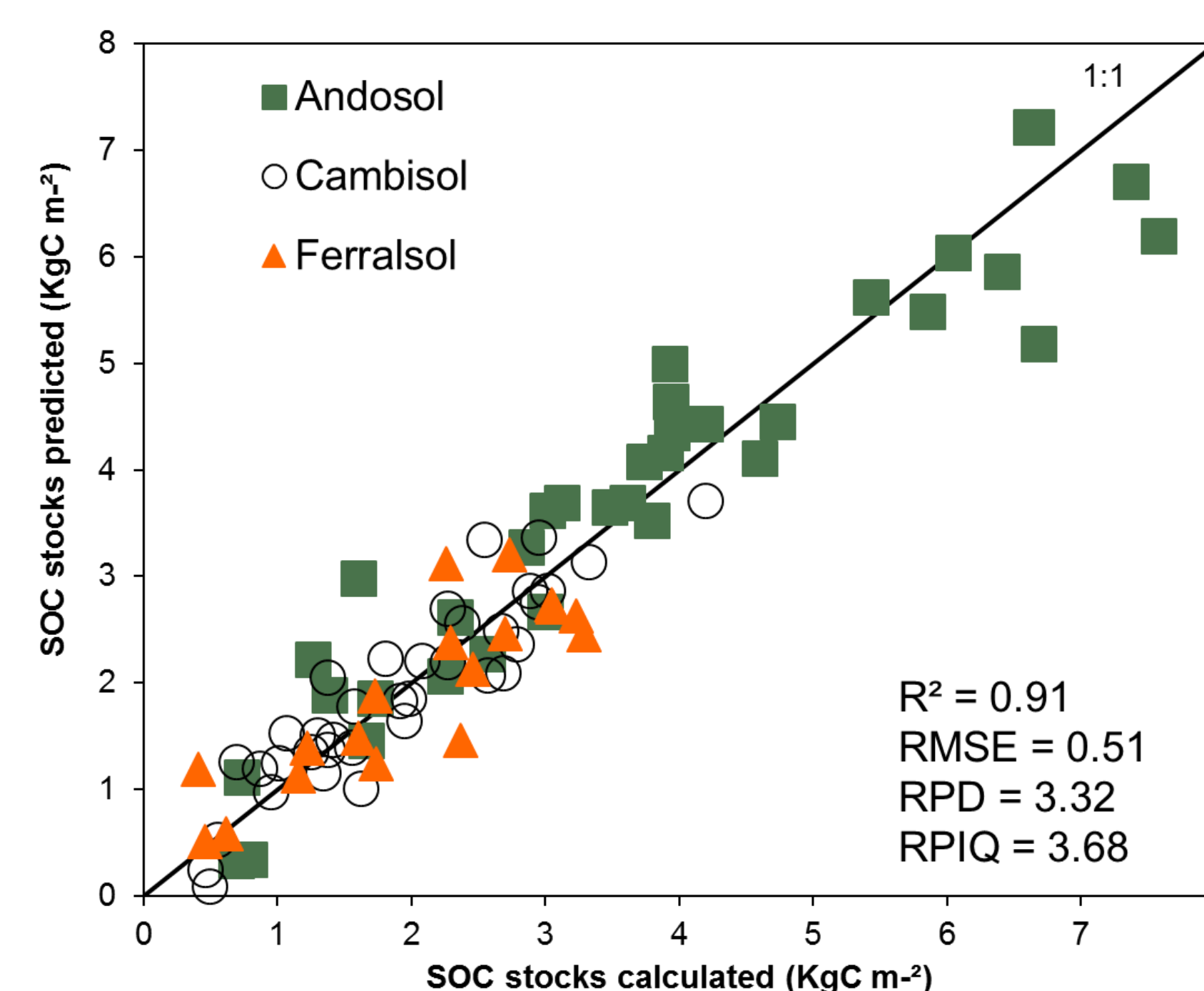


- High SOC stocks in volcanic soils
- Under sugarcane crops and pasture

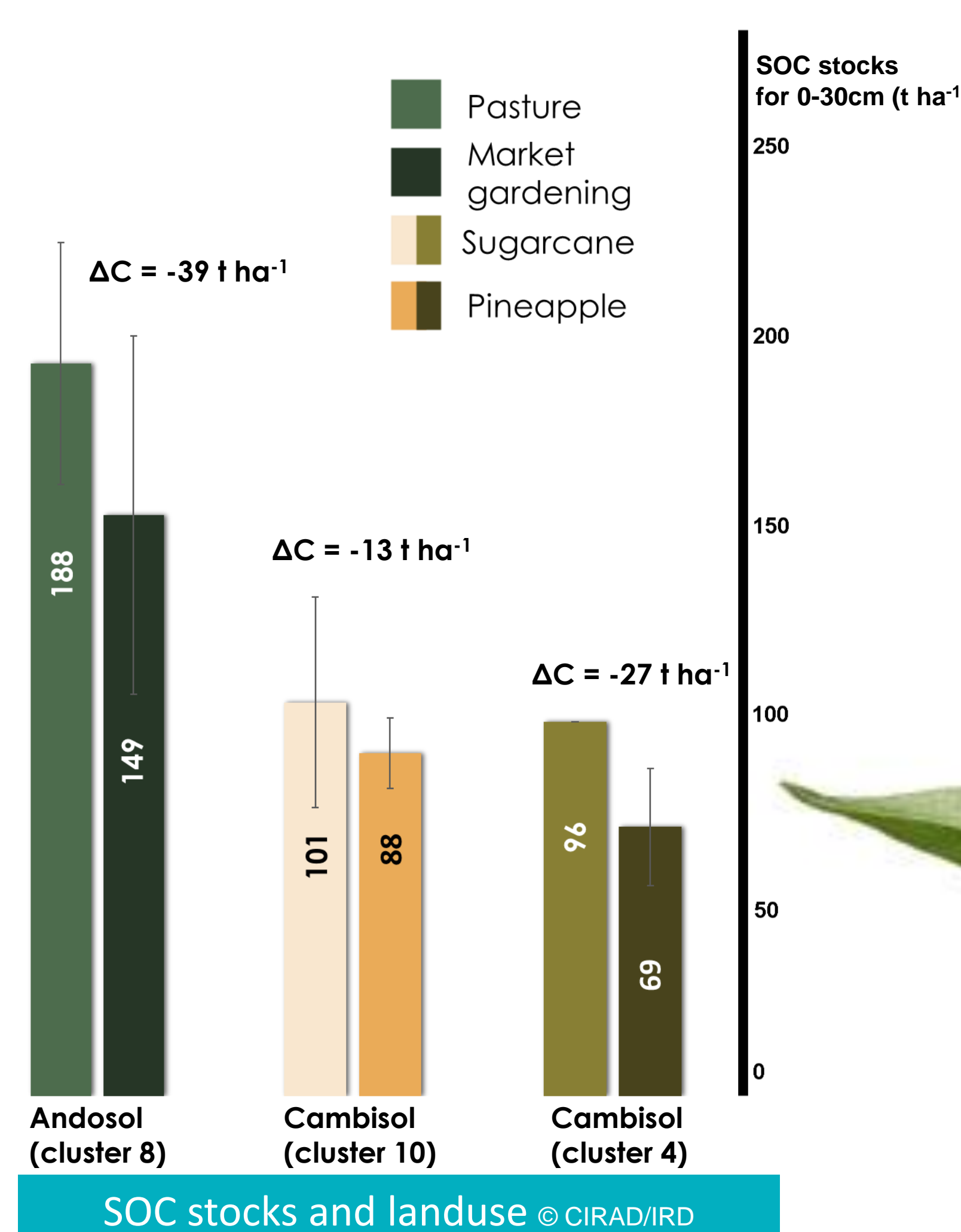
High organic carbon inputs to the soil combined with conservative agricultural practices (no burning, mulching and only one tillage every 7 years) under sugarcane crops conserve the high SOC stocks of volcanic soils.

- But still vulnerable to landuse changes

The protection of these « carbon hotspots » soils is crucial: landuse change decreased the high SOC stocks of volcanic soils in 'La Réunion'. Over 20 years of landuse changes, annual destoring rates ranged from 0.7 to 2 tC ha⁻¹ y⁻¹.



Soil type (clusters reclassified)	Mean SOC stocks (± SD) for 0-30cm depth
Andosol (8/7/5/12)	123.8 ± 33.1
Cambisol (1/10/11/4)	72.3 ± 24.9
Ferralsol (2)	58.0 ± 17.2



Références/Contact

ADEME/CIRAD/IRD
REUNION (FRANCE)
www.carun.re
myriam.allo@cirad.fr

