2014 State Report Card

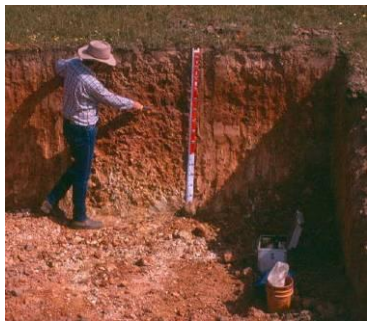
How much carbon is stored in our soils?

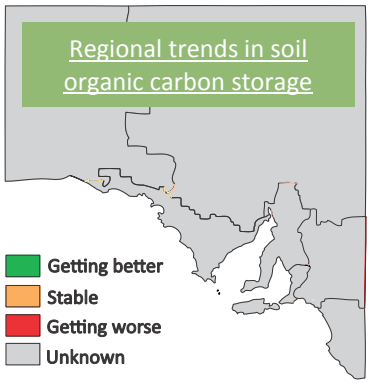
Organic matter in soil, commonly called soil organic matter or SOM by soil scientists, is important for agricultural productivity and the health of native plants due to its role in physical, chemical and biological functions within soil. Organic matter improves the quality of soil by providing more favourable conditions for plant growth and increasing resilience to drought. Soil organic carbon is an important component of the organic matter in soil, and is a recognised indicator of soil quality.

Increasing the amount of organic carbon stored in soils is also receiving attention as a way to reduce carbon dioxide in the atmosphere to help combat global warming.

The amount of organic carbon in soil is influenced by rainfall, soil characteristics and land uses. Expert opinion suggests that historic agricultural practices have caused the general decline of soil organic carbon stocks, and, in many situations, current 'best management practices' may only be able to slow further declines. Hence there is a need for further research and the development of innovative 'carbon farming' approaches that can increase organic carbon in soils.

Carbon is also stored in native vegetation, as reported here.





State target

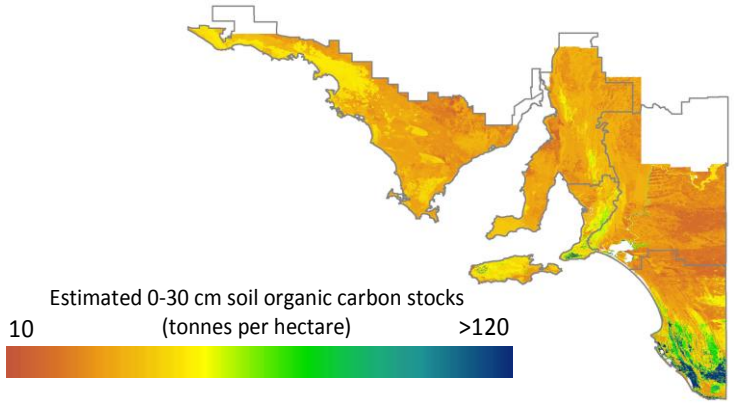
Maintain the productive capacity of our natural resources

Trend	Unknown	The information presented is a baseline estimate of soil organic carbon levels; the trends are unknown

To date, only a baseline estimate of soil organic carbon is available (map on right), so it is not possible to calculate a trend.

Monitoring soil organic carbon is important for tracking carbon storage and assessing soil quality. However, building soil carbon is a slow process and it can take 5–10 years to detect change. Sampling costs are high because of the need to account for high levels of spatial variability.

New predictive methods may be used in the future to provide more cost effective assessments of changes in soil organic carbon.

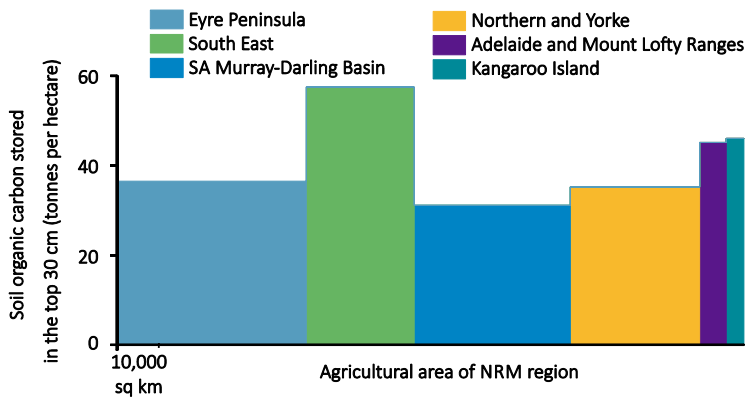


Where we are at (2014)	Unknown	About 600 million tonnes of soil organic carbon are stored in South Australia's agricultural areas

Estimates of our soil organic carbon stocks are limited to the state's agricultural areas where about 600 million tonnes of soil organic carbon are stored (map above). This amount of carbon is equivalent to over 70 years of South Australia's carbon emissions.

The South East region on average stores the most soil organic carbon per hectare, followed by the Kangaroo Island and Adelaide and Mount Lofty Ranges NRM regions.

Eyre Peninsula, as the NRM region with the largest agricultural area, has the greatest total soil organic carbon stocks (indicated by area of graph on right).



Reliability of information	★★☆☆☆	Fair

Further information: Technical information for this report card, Soil carbon in South Australia

This report is a work in progress. As resource monitoring improves, so too will our ability to describe trends in condition.

Government of South Australia