

Soil Organic Carbon Factsheet 1.0

What is soil organic carbon (SOC)? SOC refers to the carbon component of organic compounds found in soil, derived primarily from decomposed plant and animal materials, root exudates, roots, and microorganisms. SOC typically makes up about 58% of soil organic matter (SOM), making it a crucial indicator of soil health, fertility, and carbon storage potential.

Components of SOC

PARTICULATE ORGANIC CARBON (POC)



LABILE

1-5 YEARS

FRESH RESIDUES
LIVING ORGANISMS

MINERAL ASSOCIATED ORGANIC CARBON (MOAC)



SLOW

20-40 YEARS

RESISTANT RESIDUES
PHYSICALLY PROTECTED

RESISTANT ORGANIC CARBON (ROC)



STABLE

500-1000 YEARS

PROTECTED HUMUS
CHARCOAL

Why is SOC important?

IMPROVES PRODUCTIVITY

More carbon-rich soils have improved soil structure, increased nutrient cycling and enhanced diversity of soil organisms, creating optimal conditions for crops and pastures.

ENHANCES RESILIENCE

Soils with high organic carbon content are less prone to erosion and better equipped to handle droughts leading to long-term health and economic return.

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