

Drought Resilient Pasture Landscapes Project

Soil texture and organic carbon results

In early 2023 and 2024, soil samples were taken to a depth of 10 cm from two paddocks on each of 35 properties participating in the Drought Resilient Pasture Landscapes project. The properties were located from Deepwater to the south of Walcha. Soil samples were sent to Nutrient Advantage for analysis with texture and colour determined from the Northcote field technique and organic carbon from Walkley and Black method.

The average soil organic carbon (SOC) across 70 paddocks was 3.5% (Table 1) with variation across texture class.

Table 1: Number of soil samples, average and range of soil organic carbon results for each soil texture. Soil test depth 0-10cm.

	Number of samples	Average soil organic carbon (%)	Range of soil organic carbon (%)
Clay	42	4.1	2.0 - 6.2
Clay loam	51	3.7	1.6 - 6.7
Sandy loam	47	2.9	1.5 - 4.8
All samples	140	3.5	1.5 - 6.7

Please note that soil organic matter percent can be calculated by multiplying the soil organic carbon percent by 1.72.

Clay soils are often expected to have higher SOC due to many soil chemistry factors. Soil organic matter often binds to clay structures, which makes it difficult for the soil organisms to access and degrade. This slows the break down and cycling processes, retaining more SOC for longer. Soils with less clay (eg. sand or sandy loam) have larger soil particles and different soil chemistry, allowing soil organisms to more readily break down and cycle the soil organic matter, retaining less SOC than a soil with higher clay content (eg. clay or clay loam).

SOC percentage will change over time. While there are other factors that influence SOC in soils, especially climate, management practices especially for pasture and ground cover, are factors that landholders can manage. These practices will often directly impact whether there is an increase or decrease in SOC and the rate of change.

Farmers in the Northern Tablelands of New South Wales may find Figure 1 useful for comparing their soil test results for SOC with others in the same region. If your SOC is above the top of the vertical line for your soil texture, the SOC may be classed as high. If your SOC is within the vertical band, representing 68% of the samples from this project, for your soil texture, the SOC may be classed as typical. If your SOC is below the bottom of the vertical

line, your SOC may be classed as low. The horizontal line indicates the average SOC for each texture class.

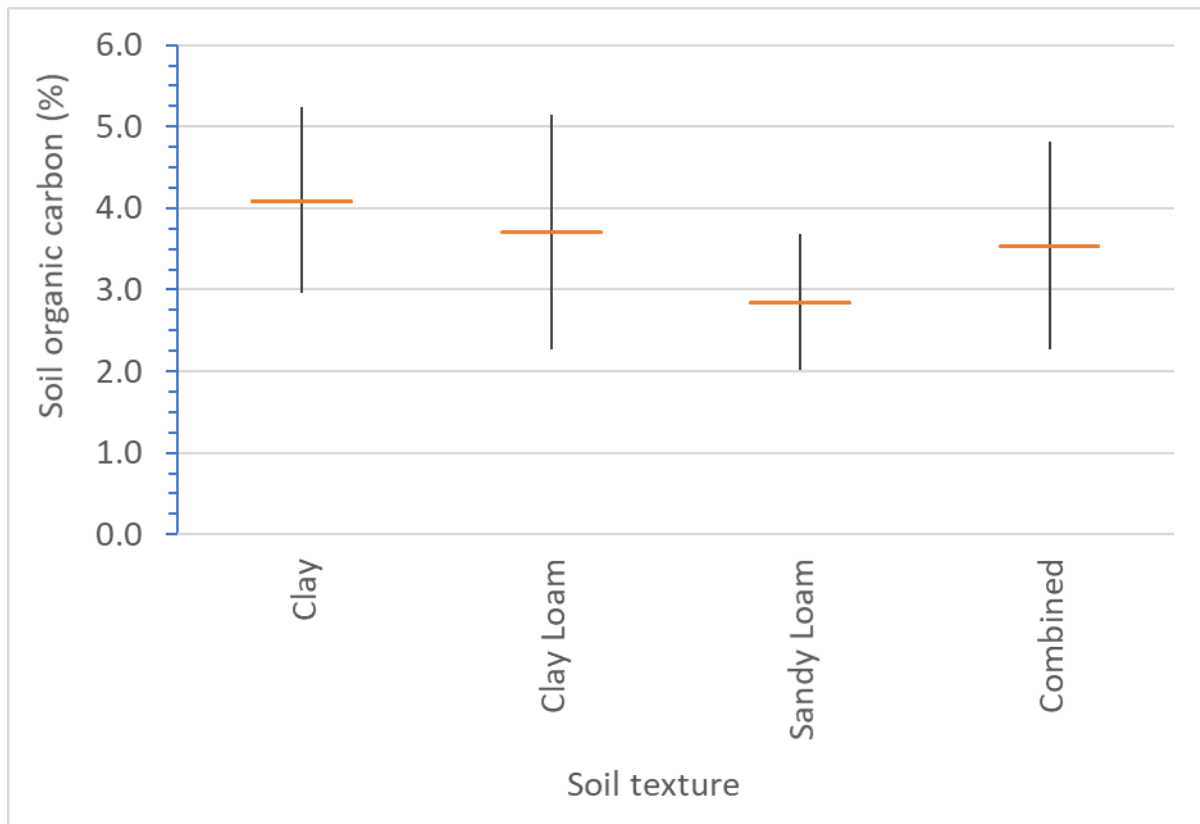


Figure 1: Average soil organic carbon percent (horizontal line) for different soil textures with \pm one standard deviation (vertical line) reflecting 68% of the samples. Soil test depth 0-10cm.