

# The importance of Soil Organic Carbon



It is widely accepted that soils are an effective sink for atmospheric carbon. What other benefits can soil organic carbon have for you?

## **Soil organic carbon is fundamental to soil fertility. Chemical, physical and biological.<sup>1</sup>**

Decomposition of soil organic matter facilitates nutrient availability. Plant growth is nourished by the release of nitrogen, phosphorus and other nutrients.

## **Soil organic carbon improves soil structure.<sup>2</sup>**

The water holding capacity and rainfall infiltration properties of organic carbon soils creates better landscape moisture availability. Root development and rainfall variation tolerance is also significantly enhanced in soils with improved aggregation from carbon. These are strong indicators of the soils biological health.

## **Ecological soil function utilises carbon as the initial food source.<sup>3</sup>**

The type and function of soil microbes is impacted by the availability of organic carbon. A healthy soil system supports pasture nutrient uptake, assisting root growth and crop disease suppression has also been associated.

## **Soil organic carbon is the basis of sustainable agriculture.<sup>4</sup>**

In addition to the atmospheric benefits of carbon capture in soils, the ecology and function of agricultural systems are improved. Resulting physically cohesive soil resists soil losses by wind or water erosion. By maintaining adequate pasture and endemic flora levels the carbon cycle is sustained, promoting more pasture.<sup>5</sup>

1 Milne E, Banwart SA, Noellemeyer E, Abson DJ, Ballabio C, Bampa F, et al. Soil carbon, multiple benefits. *Environmental Development*. 2015;13:33-8.

2 Hartemink, Alfred E., 1964- editor, McSweeney K, editor, International Union of Soil Sciences. *Soil carbon*. Cham: Springer; 2014.

3 Lal R, Soil Science Society of America. *Soil carbon sequestration and the greenhouse effect*. 2nd ed. Madison, WI: Soil Science Society of America; 2009.

4 Kimble, J. M. (John M.). *Soil carbon management: economic, environmental and societal benefits*. Boca Raton, FL: CRC Press; 2007.

5 Brown A. Biogeochemistry: Soil carbon trends. *Nature Climate Change*. 2015;5(9):803

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