

By Lesley Wilson www.landwise.org.nz

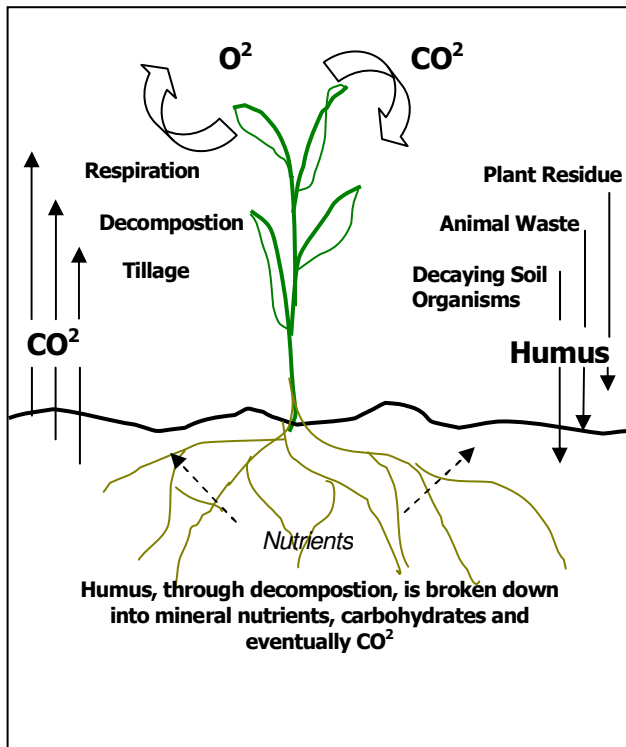
Soil Organic Matter

What is Soil Organic Matter?

The widest definition of soil organic matter (OM) includes all the organic materials present in the soil, even soil dwelling animals. When speaking about soil health the term organic matter usually includes only the plant, fungal and microbial fraction of the total organic matter present. This can include residue, bacteria, fungi roots and animal waste products, all of which contain carbon. This is termed Soil Organic Matter.

Where does Soil Organic Matter come from?

Soil organic matter is broken down via the Carbon Cycle. This is the process where by humus (residue, dead micro-organisms plus other decaying matter) is converted from 'plant-unavailable' products to 'plant-available' products, with the carbon fraction eventually released as CO₂.



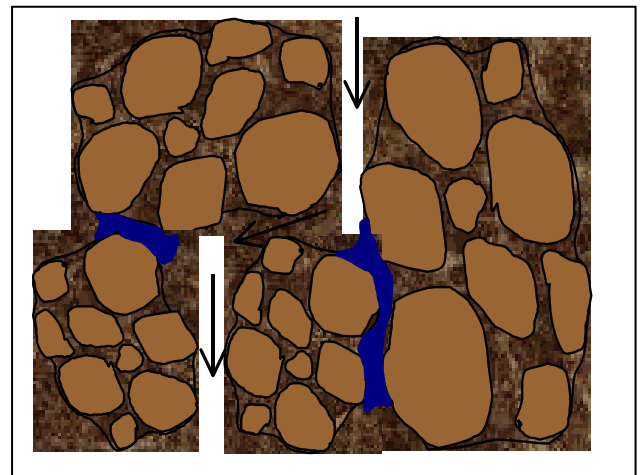
What are the benefits of Organic Matter?

Organic matter is the lifeblood of your soil. Many soil scientists say that without organic matter your soil is just dirt.

- o OM is the energy supply, providing food for earthworms, bacteria, fungi and many other living organisms. These living elements contribute to the health of your soil.

- o OM is a nutrient source. All growing crops 'mine' the soil for its nutrients. These can be supplemented but constant cropping without maintaining organic matter will quickly lead to the degradation of your soils.
- o OM aids in the retention/formation of soil structure. SOM provides the glue, in the form of carbohydrates, that holds the soil particles together. These 'glued' soil particles form **peds**. Peds are round or nut shaped conglomerations which provide your soil with
 - Strength i.e. greater load bearing capacity
 - Increased water holding capacity and better drainage
 - Increased ability to retain nutrients i.e. decreased risk of leaching.

Ped formation and functions.



- Soil Particles
- Organic Matter "Glues" (Carbohydrates) and Nutrients
- Micropore for water storage (Water holding capacity)
- Macropore for drainage

For Further Information read LandWISE Notes

"How do I maintain and measure my soil organic matter"
"Residues and their management"