

Commentary

Importance of soil organic matter in plants

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ABOUT THE STUDY

Soil organic matter content is critical to improving our outcomes and ensuring sustainable growth. Conservation agriculture is also the most environmentally friendly. Soil organic matter is the soil's organic component. It is made up of organic material derived from plants and animals, as well as material that have been transformed by microorganisms. A soil microorganism at various phases in terms of breakdown Organic matter in soil has a direct impact. Soils that are healthy have steady quantities of soil organic matter is better prepared to prevent and combat soil-borne pathogens. Organic matter in the soil is important. On the one hand, plays a critical role in improving soil fertility and quality, on the other three sources;

Chemical source

Soil organic matter enhances the soil's ability to store and deliver vital nutrients (such as nitrogen, phosphate, potassium, calcium, and magnesium), as well as retain harmful substances. It enables the soil to adapt to variations in soil acidity and aids in the decomposition of soil minerals.

Physical source

Organic matter in the soil promotes soil structure. This in turn, serves to limit soil erosion and enhances water infiltration and holding capacity, providing better living standards for plant roots and soil organisms.

Biological source

Organic material in soil is a primary source of carbon, which provides energy and nutrients to soil associations. This enhances soil functioning by increasing the activity of microorganisms in the soil and can increase biodiversity. Capturing carbon in the soil also reduces CO₂ emissions into the atmosphere, which helps to combat climate change.

Long-term advantages of soil quality and soil health

Farmers frequently focus on the chemical constituents of the soil and the use of chemical fertilizers to promote soil fertility. However, enhancing soil fertility may not always be a viable long-term aim. On many vine-growing regions for example, the greatest quality vines are produced from vines grown in poor soil. If the goal is to increase the amount of carbon in the soil (C sequestration), measures that promote a slow breakdown rate of soil organic matter are the most successful. A sluggish or decreased decomposition rate on the other hand, may limit the availability of nutrients to crops. The ideal option may be to maintain a consistent amount of soil organic matter, which will have long-term yield and financial benefits, as well as benefits for soil health and disease prevention.

Strategy of disease prevention for soil health

- Soil-borne infections can be more readily avoided and reduced if a farm-level soil health policy is developed. The EIP-AGRI Focus Group on Integrated Pest Management (IPM) for soil-borne illnesses presented recommendations for disease control, practical research, and increasing the cost-benefit ratio of IPM systems.
- Cover crops and green manures can boost microbial activity and aid in the battle against soil-borne illnesses.
- When certain Brassica plants (most notably mustards) are incorporated into the soil, gases are generated that can aid in the suppression of soil borne diseases.
- Several studies revealed that utilizing compost can aid in the control of pests and diseases.

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