



Importance of compost on soil fertility point of views

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Introduction: Compost is an organic fertilizer that can be made on the farm at minimal cost. It is a decomposed organic matter, such as crop residues or animal manure. Composts can improve the sustainability of agricultural systems by recycling wastes, improving productivity and preserving soil health.

Benefits of compost:

Compost as mulch: Mulch is any material put on top of the soil around plants to help keep in moisture and shade out weeds. Mulching can increase porosity, minimize weeds, enhance soil retention, warm soil temperatures and add slow release nutrients. High quality compost has been traditionally used as an excellent amendment for building soil macro and micro nutrients, abundant organic carbon and large populations of beneficial microbes. Organic mulches increases plant beneficial soil microbes which actively decompose the carbon rich products. Composted mulches contain significantly less carbon and more nitrogen resulting in lower yet more balanced C: N ratio. Compost mulches allow microbes to thrive and have sufficient nitrogen to increase plant growth.

Compost improves soil physical properties : Compost application to agricultural lands has been recognized as a reliable way to improve physical properties of soils, especially soils with poor structure and low levels of organic matter. Soil structure can be improved by the binding between soil organic matter and clay particles via cation bridges and through stimulation of microbial activity and plant root growth. It helps in increasing the water holding capacity and plant water availability, decreasing leaching of nutrients, reducing erosion and evaporation; maintain soil temperature and prevention of plant diseases.

It also makes any soil easier to work with.

Compost improves soil chemical properties : Compost buffers the soil, neutralizing both acid and alkaline soils, bringing pH levels to the optimum range for nutrient availability for plants. Compost has a high cation exchange capacity therefore it increases the soil cation exchange capacity when it is incorporated. Compost is in organic forms which released slow nutrients and are less subjected to leaching. The incorporation of compost with soil increases soil carbon and total nitrogen concentration in soil. It enriched soil retains fertilizers better and less fertilizer runs off. Thereby addition of compost on soil helps in increasing plant nutrient uptake, plant growth and microbial activity.

Compost improves soil biological properties : Incorporating compost in soil affects soil micro-organism by providing nutrients directly or indirectly by changing physical and chemical properties of the soil. It stimulates the microbial growth and activity thereby increases the abundance of soil organisms. Compost bacteria break down organics into plant available nutrients. Some bacteria convert nitrogen from the air into a plant available nutrient. Compost enriched soil have lots of beneficial insects, worms and other organisms that burrow through soil keeping it well aerated. It changes in microbial activity and community structure after application of the compost, which leads to increase the suppression of soil borne plant pathogens and thereby degradation of organic pollutants.

Conclusion: Applying compost in the soil improves overall soil-physico-chemical properties and thus maintains the ecological balance of the surroundings.

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