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Compost: Potential to Be Valued in Agriculture

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Abstract

Organic wastes are an invaluable source for improving agricultural productivity. This opinion aims to highlight the importance of composts in order to substitute chemical fertilizers.

Opinion

The world in general is facing irreversible soil degradation. This degradation has a direct impact on the agricultural performance of developing countries. For yield improvement, farmers use chemical fertilizers. These synthetic products have a negative impact on human health, ecosystems ... In addition to this, they are expensive and not accessible in sufficient quantity for poor farmers. There are natural sources available in quantity and quality. Composts are therefore a plausible alternative to substituting chemical fertilizers. Compost represents decomposed organic waste. The waste is either animal or vegetable and is used for agriculture and gardening purposes. Natural decomposition takes a lot of time, so people have created a natural method to increase the rate of decomposition of organic waste, through a process called composting. This waste requires a suitable environment containing nitrogen, oxygen, carbon and water. Under these conditions, they can decompose by creating the compost necessary for the enrichment of the soil.

There are different sources of organic waste that can be composted. In general, we can mention livestock effluents, sludge from biological treatment plants; the fermentable fraction of household or collective waste (rest of meals, peelings, unsold of supermarkets, rest of collective catering, etc.); green waste (mowing lawns, garden hedges, dead leaves, etc.); paper and cardboard; waste from agri-food industries, slaughterhouses, fish; soaps, fats, lubricants; the sorting differences of the processing units. Composts are used to improve the physical, chemical and biological properties of the soil. Nevertheless, soil amendments can be mineral or organic in nature.

The mineral amendments improve certain physico-chemical properties of the soil. They allow plants to better absorb nutrients. The main mineral amendments are: lime, gypsum, wood ash, sulfur, iron sulphate, sand, clay, marl ... The most used in gardens are lime to increase the pH of a soil that is too acidic and vice versa, sulphate iron to acidify a soil too basic.

Organic amendments are mainly of plant origin, but also mixed (animal and vegetable (slurry, manure)) and more recently anthropogenic origins (sludge, compost of household waste ...). They relieve heavy land and replenish soil organic matter. By their progressive mineralization, they allow to sustainably nourish the plants without the risk of leaching while ensuring a better circulation of air and water. In fact, they “feed” the soil before feeding the plant once the organic matter decomposed into mineral substances. The main organic amendments are farm manure and compost. They improve the structure, increase the biological activity and help maintain soil humus.

In a more practical way, local waste can be valued without spending enough money. How to neglect this opportunity at the expense of chemical fertilizers? This is the place to interpret the different actors of the agricultural sector for the valorization of composts for the benefit of peasant agriculture.

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