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Perspective

Fundamentals and phases of composting manure

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DESCRIPTION

Compost is a mixture of ingredients used to fertilize and improve the soil. It is generally made by breaking down plants and food waste and recycling organic matter. The resulting mixture is rich in plant nutrients and beneficial organisms such as worms and mycelium. Compost improves soil fertility in gardens, landscaping, horticulture, urban agriculture and organic farming. The benefits of compost are beneficial to provide nutrients to plants as fertilizers, to act as soil conditioners, to increase the humic acid or humic acid content of the soil, and to help control pathogens in the soil, includes the introduction of microbial colonies. It also reduces the cost of commercial fertilizers for recreational gardeners and commercial farmers as well. Compost can also be used to reclaim land and streams, build wetlands, and cover landfills.

At the simplest level, composting involves the collection of a mixture of "green" and "brown". Vegetables are nitrogen-rich materials such as leaves, grass and leftovers. Browns tend to be carbon-rich wood-based materials such as stems, paper and wood chips. Moisten the material of and decompose it into humus soil. This process will take several months. However, composting can also occur as a multi-step, closely monitored process using measured inputs of water, air, and carbon and nitrogen-rich materials. The decomposition process is assisted by crushing the plant, adding water, and providing proper ventilation by periodically rotating the mixture in a process that uses an open heap or "windrow". Fungi, earthworms and other detritivores further decompose organic matter. Aerobic bacteria and fungi control chemical processes by converting inputs into heat, carbon dioxide, and ammonium. Composting is an important part of waste management, as food and other compostable materials make up about 20% of landfill waste and these materials take time to biodegrade in landfills. Composting provides an environmentally superior alternative to using organic matter in landfills as it reduces methane production and provides additional economic and environmental benefits.

Fundamentals

Composting is an aerobic (i.e., air-requiring) method of breaking down organic solid waste.

Therefore, it can be used for recycling organic matter. It involves breaking down organic matter into humus-like substances called compost. This is a good fertilizer for plants. Composting organisms require four equally important elements to function effectively. Microbial oxidation of carbon produces the heat needed for other parts of the composting process.

High carbon materials tend to be brown and dry. Nitrogen-Propagate and breed more organisms to oxidize carbon. The high nitrogen material is green and tends to be wet. You can also put colourful fruits and vegetables and oxygen for oxidizing the carbon, the decomposition process. Aerobic bacteria needs oxygen levels >5% to perform the processes needed for composting, water in the right amounts to maintain activity without causing anaerobic conditions.

Phases of composting

Under ideal conditions, composting proceeds through three major phases:

Mesophilic phase: An initial, mesophilic phase, in which the decomposition is carried out under moderate temperatures by mesophilic microorganisms.

Thermophilic phase: As the temperature rises, a second, thermophilic phase starts, in which various thermophilic bacteria carry out the decomposition under higher temperatures (50˚C to 60˚C) (122˚F to 140˚F).

Maturation phase: As the supply of high-energy compounds dwindles, the temperature starts to decrease, and the mesophilic bacteria once again predominate in the maturation phase.

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