

Efficient HUMUS build-up for a healthy and successful agriculture

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Background and objective

The basis to all health is live humus in soils. This means we have to find the way and the means to save the humus we have and to build up live humus in soils as quickly as possible. This is our only chance to turn around the worldwide decline of agriculture.

Humus management offers practical concepts and individual possibilities to efficient humus build-up within a short period of time. This is a result of more than 30 years of research by the Lübke-Hildebrandt family.

We are helping farmers and scientists worldwide to understand the natural cycles from the building of humus to human health.

Humusmanagement is a concept that can be understood by anyone and can be realized on any scale, on any soil, in every climate

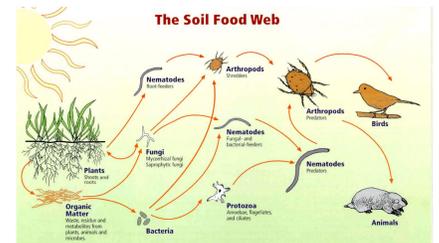
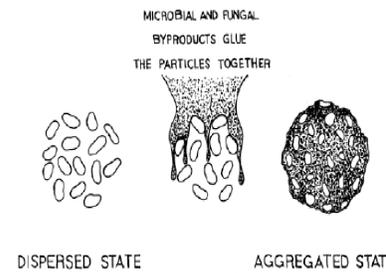
Humusmanagement is a possibility for agriculture to regain its independence.



Objective of Humusmanagement

Basic to Humusmanagement is an appreciation for the vital role of micro-organisms in soils and composts. Microbes are essential to breakdown of raw organic matter, mineralization of organic matter and subsequent release of plant nutrients, disease suppression, enzyme reactions and a host of other biochemical functions, including formation of soil humus and clay-humus crumb.

The goal of humusmanagement is to arrive at an active, high-quality humus that is insoluble in water and therefore resists leaching of nutrients.



Humus formation and the role of soil microbes

Preparation of high quality humified compost

Humus is the end result of organic matter decomposition and recomposition by microbes. When fresh, undecomposed organic matter (green manures, animal manures, crop residues) is added to soil or placed in a compost pile, a rapid multiplication of soil microorganisms takes place. Certain microbes (bacteria, fungi and actinomycetes) break this raw organic material down into smaller particles and simple organic compounds that are water soluble. Following the **breakdown phase**, a second group of microbes bind these materials together into more stable humic substances in the **buildup phase**.

The physical, chemical and biological transformation of raw material into a complex humic substance is known as humification.

When conditions are optimal, microbes attach these long-chain humic compounds to the clay-fraction, resulting in clay-humus crumb. These crumbs provide shelter for soil microorganisms.

The high quality compost is built in layers and laid out in windrows for mechanical turning. The base layer should be a dry, high carbon material like leaves and shredded tree trimmings or dried hay or straw. A fresh, high-nitrogen material like green chop or animal manure is laid down next, and so on, in repeating layers. Added at last to the window: clay loam (10% by volume), finished compost (10% by volume) and Pfeiffer starter, a microbial inoculant.



Pfeiffer starter

Dr Pfeiffer (1899-1961) promoted microbial inoculation of green manures and compost to help regulate the humification process. The Pfeiffer Starter is a mixture culture of 55 different types of microbes. The family Lübke-Hildebrandt observed enhanced humus crumb formation in comparison to fields managed with non-inoculated green manures.

Compost aeration

One of the unique characteristics of high quality compost is the careful and frequent turning or aeration of the compost windrow. This compost takes 6-8 weeks to prepare.

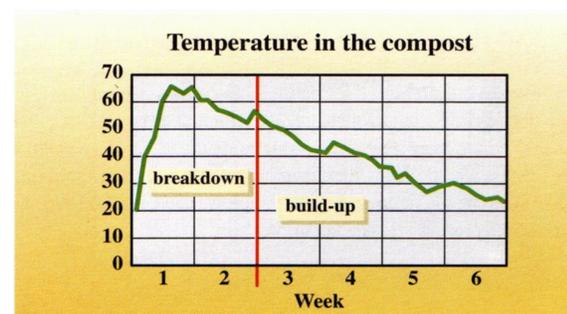
Other items essential to high quality compost include:

- ✓ Use of Gujer Compost turner with a water application system
- ✓ Use of compost fleece
- ✓ Proper and timely aeration or turning
- ✓ Monitoring temperature and oxygen levels
- ✓ Testing finished compost for organic matter, humus value, potential pH, nitrates, nitrites, sulfides and ammonium.

Composttea

Composttea, prepared from high quality compost and brewed with a microbial food source.

Composttea augments soil biological activity, promoting soil aggregation and improving soil infiltration, drainage and waterholding capacity. Composttea reduces the need for fertilizers and pesticides by enabling plants to access and utilize nutrients more efficiently and by fortifying their immune system to better resistance against disease and pest pressure.



CO2 in the compost

