

COMPOST 101

Healthy topsoil is a naturally produced micro-ecological system that performs a number of crucial macro-ecological functions, including “partitioning rainfall between surface runoff, infiltration, [and] storage in soil and groundwater; releasing water and air that does not contain excessive levels of sediments, nutrients, [and] other chemicals or pathogens; absorbing or degrading environmentally hazardous chemicals; ...suppressing plant, animal and human pathogens;” and, “[providing] the essentials for plant growth: physical support and a supply of water, air and nutrients.”¹ These four essentials for plant growth are supplied by the mineral content, water, air, and organic matter, including microbial life forms such as bacteria and fungi, naturally contained in topsoil. The approximate ideal combination of these essentials are 45% mineral content, 25% water, 25% air, and 5% organic matter.

Unfortunately, during the construction process, topsoil is frequently intentionally removed, washed away by stormwater, or destroyed by heavy traffic. Often what remains is highly compacted “dirt,” void of any air, water, organic matter, nutrients, or microbials, and, as a result, unable to perform the vital ecological functions of healthy topsoil. This barren highly-compacted surface is unable to support plant life and largely impermeable, which further increases run-off and erosion when it rains.

Traditionally, following construction, the affected areas will be re-vegetated in an attempt to “restore” the site. However, traditional seeding methods attempt to re-vegetate areas disturbed by construction without addressing the underlying problem. For instance, the hydromulching, or hydroseeding, process typically applies 1500-1600 pounds of material per acre, which includes seed, some type of covering material, a glue, and a water-soluble nutrient. Since the ground remains compacted and largely impermeable, when it rains, the water-soluble nutrient is re-absorbed and washed away, as well as the seed much of the time. This leads to repeat applications of hydromulch, seed, or liquid or granular inorganic fertilizers in an attempt to gain vegetation establishment before the next rainfall event. However, even if an establishment of vegetation is achieved, it does nothing to restore the underlying soil so that it may once again perform its crucial ecological functions. In the meantime, both sediment and fertilizer have been washed away into our water system.

Enter compost. Quality compost contains 30-50% organic matter and is teeming with microbials and nutritional value. Compost revitalizes the “dirt” by restoring the essential elements vital to vegetational growth that the construction process took away. Not only does compost restore organic matter and microbials to the soil, but its ability to absorb a surprisingly large amount of water relative to its weight also improves the infiltration of moisture back into the ground, effectively reducing stormwater run-off. Furthermore, compost “works” its way into the soil, effectively aerating the soil, reversing the compaction from construction and further increasing the ground’s ability to absorb water. Hence, the term “compost manufactured topsoil” – it is the compost that has naturally manufactured topsoil from the highly-compacted barren dirt left by the construction process.

Compared to traditional methods of re-vegetation, compost seeding applies approximately 134,000 pounds of material per acre when applied at a 1” depth. In addition, the rich organic nutrients the compost contains are not water-soluble, so they do not wash away over time. Furthermore, the nutrients are slowly-released over a long-period of time, so that the vegetation does not simply receive a sugar rush (as with hydroseeding or fertilizing), but rather a steady nutritional diet.

In conclusion, compost is more than just an organic fertilizer. It not only provides nutrients to plant life, but also restores, rehabilitates, and revitalizes the underlying soil, effectively recreating the ecological system known as topsoil the old-fashioned way, naturally.

¹ Stehouwer, Richard. “Soil Quality Fundamentals.” *BioCycle*. October 2003, Vol. 44, No. 10, p.44.