

Cultivating Life



By Mark Myrowich

Using biotic soil amendments to enhance plant life

Biotic soil amendments (BSAs) do more than just grow seed; they also grow life in the soil. This expands biodiversity and creates a living soil that makes the food supply for plants more sustainable and natural.

Soil amendments are not new; they have been used for thousands of years by farmers—first as recycled animal waste, then in the form of chemical fertilizers. The invention of the Haber process in 1909 allowed ammonia nitrate to be created through the liquefaction of atmospheric nitrogen into ammonia and the addition of nitric acid. This helped deliver nitrogen right to the plants without having to establish the microbial life in the soil that recycles nutrients and makes them available to the plants. This was a great innovation in helping to alleviate world hunger, but is not so good for microbial life in soil, and can affect the long-term sustainability of the sites it is used on.

Boosting Topsoil

Construction site topsoils typically are stripped and the subsoil moved and compacted to create the desired grade for what is being built. If enough topsoil is saved, this can be replaced to help vegetation grow. If topsoil is not saved or properly stored in a way that preserves microbial life, the task of growing vegetation in subsoils becomes much more difficult.

Microbial life in topsoil works together with plants to help recycle nutrients. Without the natural cycling of nutrients, plants need regular fertilizers. This constant requirement for attention and maintenance can work for farmers and residential lawns, but is not practical for construction sites.

BSAs add the pioneering species of

microbial life and initial organics into the subsoil, along with plant seeds, to kick-start nature's ability to recycle nutrients much faster than they can be reclaimed naturally. BSAs can be applied by hand or hydraulically through a hydroseeder and typically do not cost more than a higher-end erosion control mulch.

The ideal formula for BSAs combines nitrogen fixing- and shredding-type bacteria to help to release and store nitrogen with multiple mycorrhizal fungi species. These mycorrhizal fungi work symbiotically with vegetation to unlock the phosphates and micronutrients bound in the subsoil. Another often-overlooked component to a successful BSA is an organic base that has a carbon to nitrogen ratio of 30:1. This is the ideally balanced relationship to make nitrogen available to plants. If the carbon-to-nitrogen ratio is too high, the breakdown of the organic component in these products actually steals much-needed nitrogen from plants.

Lastly, a feedstock should be included to help feed the pioneering bacteria in the first year before plant biomass is shed after the first season. Without this vital addition, many of the beneficial microorganisms will have nothing to sustain them in the first season and their numbers can be drastically reduced.

Erosion Control Benefits

Using BSAs helps you sow and grow more than seed alone; it helps you sow the pioneering life that makes dirt into great soil. This in turn supports the strong vegetation required to fulfill long-term erosion control needs. **SWS**

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