

The Importance of Soil Microbes



Living soil organisms have an important role in supporting all plants in their ecosystems. Soil itself can be viewed as a living organism and is home to thousands of different species of bacteria. One cubic foot can contain over 10,000 species of bacteria, 100 species of protozoa, 10,000 nematodes, 100s of species of algae and over 5000 individual insects. Not only does the soil contain beneficial bacteria but also contains microscopic fungi, algae, cyanobacteria as well as earthworms and other burrowing animals. These living beings amongst the soil are a key ingredient in keeping soil healthy and maintaining good soil structure (good drainage and gas exchange).

The buildup of organic matter in the soil profile over time can become a problem. Too much organic matter (primarily thatch) can start to reduce the efficacy of fertilizer applications, weed control as well as irrigation events. Thatch is also known to be a haven for unwanted pests and grubs. Healthy populations of soil microorganisms can help increase and speed up the breakdown of this organic matter and release helpful nutrients back into the soil in the form of nitrogen, phosphorous, potassium, hydrogen and various carbons (more on that shortly).

Speaking on conversion it is also important to note that a healthy population of soil microbes can help increase the speed at which applied fertilizer becomes available to the plant. Not all forms of each element are easily taken up by the plant. Soil microbes can help with the speed of which mineralization takes place and the nutrients are made available for plant uptake.

Earlier we touched a bit on carbon being added back to the soil when the microbes break down some of the organic matter in the soil. Not only is carbon one of the 17 essential nutrients to plant growth it is also one of the more versatile elements that can be added to the soil profile. Carbons are what promote the populations of soil microbes. One of the carbon sources that is created is humus (humic acid). Humic acid plays many roles in the soil profile, one of the roles is that it helps plants take up some of the more difficult elements for the plant to obtain (primarily metals), it does this through a natural chelation process. Humus can also help with moisture management on sandy soils, a good level of humus in the soil will help to retain soil moisture as well as improve the soil structure (drainage/pore space).

These are just some of the benefits a healthy soil microbial population can provide. In order to build a healthy population of these soil microbes you must provide them with an environment that favours their growth. Carbon/Organic based fertilizers are an excellent way to help provide them with an environment that they can thrive in.

To conclude and make a short and sweet statement:

“If you build it, they will come.”