

Microbes Are a Plant's Best Friend

Quality compost is a valuable and versatile soil amendment for today's horticultural industry and turfgrass industries. Compost contains two elements necessary for healthy plant growth: organic matter and diverse beneficial microbial populations.

Microbes are an integral link in the food chain and natural defense system of plant material. A lack of microbes in the soil profile reduces the efficient uptake of nutrients by the plant and allows soil borne pathogens access to the root system. A teaspoon of healthy soil or compost can have millions of bacteria, miles of fungi and hundreds of thousand of protozoa and hundreds of beneficial nematodes. Each of these living organisms is also comprised of multiple species creating a diversity of life in the soil. Each group serves a function in metabolizing nutrients and suppressing soil borne pathogens.

Plant material is designed to feed the microbes in the soil developing a diverse biomass to metabolize nutrients and defend the root system from pathogens. Over sixty percent of photosynthate produced in a plant is transferred to the root system and fifty percent of that total is released to the soil in the form of sugars and carbohydrates. The sugars and carbohydrates feed beneficial microbes present in the surrounding soil. This "food" allows the microbial population to grow and surround the root system producing a nutrient production facility and police force defending the roots from pathogens.

A soil without a necessary volume of organic matter does not supply an environment or "home" for beneficial microbes. These soils become quickly dependent on multiple fertilizer applications and pesticides to maintain lush growth. Today's society expects all turfgrass to look like the US Open and plant material to look like a painting while limiting use of pesticides. The people left in charge of maintenance bear the brunt of most soil deficiencies.

The use of poor quality soils, microbe destroying pesticides and chemical fertilizers reduces the necessary populations of microbes and their home, organic matter. By incorporating compost during installation and cultural practices it is possible to add life and organic matter into the soil. Adding life to the soil will replicate native soil systems where shrubs, trees and grasslands thrived without fertilizer or pesticides.