

Soil

A biological resource worth managing

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FOR SOME turfgrass managers, soil is simply the "dirt" that holds plants in the Earth and keeps them from falling over. For the more advanced turfgrass manager, soil is usually held in higher esteem than dirt. Soil is considered by these turfgrass managers as the life-supporting matrix of the higher plant, since everyone knows that dirt is simply the "stuff" that accumulates under fingernails after a hard day's work.



Turfgrass managers who acknowledge that plants are anchored in soil, instead of in dirt, might generally admit that, for the most part, their understanding of soil is poor at best. Everyone knows what soil looks like, but they are not quite sure where it actually comes from or why it is sometimes black, sometimes brown, and sometimes red. Even though most people would admit that soil has a pleasant and somewhat fragrant odor, most are really not sure why soil smells as it does. They may think that soil is a nutrient-holding material important in the health of plants, although the exact manner in which this can be is sometimes obscure.

Certainly, most know that living things, such as worms and insects, can also reside in the soil, but they're just not quite sure where in the soil they live or what they live on. In fact,

I might be safe in assuming that few turfgrass managers consider soil as something that should be managed as prudently as the turf growing on top. However, it is becoming clear that the management of the soil, in particular its biological components, is perhaps as important as the management of the plant itself—for the long-term productivity of a turfgrass stand.

So, how can we manage the biological components of soil? To a large degree, turfgrass managers already manage certain biological components of the soil. Pathogens and some insect pests are routinely managed, since their activities are readily observed, and they are generally harmful to a turfgrass stand. However, it is the group of organisms whose activities are not readily apparent that we must learn to manage. These include the microorganisms that affect nutrient availability to the plants, those that directly enhance plant growth through the production of plant hormones, those that suppress the activities of pathogens and reduce disease development, and those that reduce the build-up of thatch. Additionally, there are organisms that affect the efficacy and mobility of pesticides in turfgrass soils, as well as many organisms whose activities are not clearly defined, but are an important part of the turfgrass ecosystem.

In coming issues of *TurfGrass Trends*, I plan to explore some of the important attributes and activities of soil microorganisms—in the hope that our readers will gain a renewed awareness of soil and the importance of proper soil and microbial management to the health of a turfgrass planting. ■

Next month: *What is soil anyway?*

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