

DOES ORGANIC MATTER MATTER?

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Soil organic matter comprises a small part, usually less than 5%, of a given soil by weight. Its influence on biological, chemical and physical properties of soil is far greater than you would expect, considering the small amounts present in most soils. In earlier times the depletion of soil organic matter often resulted in a “worn out” soil. Within the last 70 years, the development of inexpensive fertilizer, large machinery, pesticides and irrigation have produced a set of agronomic practices that largely ignores soil organic matter and considers it irrelevant in modern crop production. One of the difficulties with this way of thinking is that as soil organic matter levels decrease, it is taking larger and larger amounts of more expensive inputs to “fix” the problems of fertility, disease, compaction, water availability and erosion.

Farmers and agronomists need a new way of thinking about soil. They need to consider soil as being alive, as having a life of its own. Organic matter is what keeps a soil alive. Those producers that are striving for very high crop yields have long since realized that more nutrients and larger pieces of tillage equipment are not going to guarantee the yields they want. They realize that modification of the soil through organic matter management is the key to sustainable high yields over many years.

Soil organic matter can be thought of as the living, the recently dead and the long-time dead. The organisms that live in soil recycle nutrients, assist plants in obtaining needed nutrients, control levels of disease organisms, and produce chemicals that “glue” soil particles into aggregates. The recently dead provide a food source for all the organisms that live in the soil as well as nutrients to be used by plants. The long-time dead organic material, often called humus, holds plant nutrients and prevents them from leaching out of the soil.

Soil organic matter profoundly affects the biological, chemical and physical properties of soil. Soil physical properties such as amount and strength of aggregation, water infiltration rate, porosity and water holding capacity can be increased through management of soil organic matter. We can create a soil that is easier for roots to penetrate, has a greater rooting zone, has a source of slow release nutrients, is drought resistant and is resistive to erosion. We can do this by continually adding organic material to our soils and by eliminating as much tillage as possible.

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