

UNITED STATES GOLF ASSOCIATION
GREEN SECTION
WESTERN OFFICE



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• **Western Turfletter** •

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S O I L H U M U S & O R G A N I C M A T T E R - - -

T H E R E ' S N O T H I N G Q U I T E L I K E I T !

Even in this age of science and technology, some things are hard to improve on. Soil humus or organic matter is one of them.

Within recent years a rash of new soil amendments have appeared on the market - all claiming some superiority to natural organics for our soils. The calcine clays, exploded mica products, cinders and certain mineral soil products (with or without nutrient value) illustrate the point. Although still untested over a long period of time, some of these may prove worthwhile. It is too early to say. However, we do know the benefit and function of natural organic sources (such as peat moss) and must conclude that there is nothing quite like them - yet!

What is organic matter? Where does it come from and what does it do for our soils? - Minute organisms (bacteria, fungi and actinomyces) are constantly at work on bark, roots, manures, peats, worms, insects, leaves and similar materials. These organisms break down the raw organic materials into a product we know as "humus." It is difficult to accurately define humus for it has no definite chemical composition. It does, however, have uniform physical characteristics and is generally dark in color. Humus is also colloidal in nature (i.e. made up of flat, slate-like particles) and this colloidal property is an important one. It acts as a "buffering agent" in the soil and reduces injury to plants by toxic substances and soluble salts.

Humus, when mixed with the soil, improves structure by causing greater granulation and thus better aeration and drainage. Humus also acts as a soil reservoir for moisture. Plant nutrients such as carbon, hydrogen, oxygen, nitrogen, sulfur, phosphorus and others are stored by it as well. Carbonic acid is generated by the decay process and this liberates insoluble soil nutrients. Thus, humus is often referred to as a great "mobilizer" of soil nutrients.

Recent work suggests certain beneficial antibiotic effects may be attributed to decomposition of organic materials in soils. Humus is also a source of energy for soil micro-organisms that bring about the important nitrification processes and other life functions within a soil. And of course, a good humus content increases surface resiliency which is so important on our greens.

"Organic Materials" - "Organic Fertilizers"; There's A Difference Between Them!

Frequently we hear of someone offering to sell manures or sludges to golf courses for fairway or even putting green fertilization. In most such instances, you will not get your money's worth in plant nutrition. Organic materials as manure, mushroom soil, sludge, compost, sawdust and rice hulls have little or no nutrient value for turfgrass production. - They may be good "organic materials" but they are not good "organic fertilizers."

On the other hand, such "organic fertilizers" as treated activated sludge, castor bean pomace, guano and certain processed manures do carry higher percentages of plant food. Their use will be beneficial.

The chemical fertilizer "Urea" is frequently sold as an "organic fertilizer." This is unfortunate. Urea is actually a synthetic organic material and is "organic" only in the eyes of a chemist. It is a good nitrogen source however, comparable to other chemical fertilizers.

True or False: "In Soils, All Organic Materials Are of Equal Value"

If your answer was an emphatic "false", you know organic matter. Rates of decay of various organic materials and their general character within a soil will vary. Therefore, these differences must be considered in placing a value on them. - For example, manures frequently contain from 70 to 80% moisture with only 20 to 30% dry matter. They decay rapidly and in a short time only two or three percent of the original weight remains as humus. Sludges and most other organic by-products are of the same general character. There is a rapid breakdown and little resulting humus for permanent improvement.

What About The Peats?

Peats are the most desirable form of organic material for our purposes. But these too vary in structure, state of decomposition, capacity to absorb water, organic content and pH reaction. Peats generally fall into three categories: sedimentary peats, fibrous peats and woody peats.

Sedimentary peat is composed of a mixture of water lilies, pond weed, pollen, plankton, etc. These very fine particles mix with silt and clay deposited in shallow lakes and ponds. They are sticky, plastic and of little value for soil conditioning. They are of no value for turfgrass production - regardless of price.

Fibrous peat is a mixture of sedges, mosses, reeds, grasses, cattails, etc. These are the best for turfgrass use. They have been preserved under water and this type decomposition left them highly resistant to further decay. Long range benefit is derived from their use. The Pennsylvania Experiment Station has found that over 70% of organic matter from fibrous peat remained in the soil after a ten year period.

Fibrous peat comes in several different forms. The "raw peat" is sold just as it comes from the bog. "Cultivated peat" is nothing more than raw peat that has been tilled and broken up to somewhat hasten decay. "Moss peat" is usually from sphagnum moss and is equally suitable for soil conditioning.

The woody peats result from ages of breakdown of deciduous and coniferous trees and their associated undergrowth. This is not a bad source of organic matter but it does have lower water holding capacity and is less desirable for turfgrass purposes. Sawdust might be referred to as a woody peat and has the advantages of being inexpensive and easy to handle. However, before use in turfgrass soils, it should be well composted and well rotted in order to reduce nitrogen tie-up.

"When You Build That Green - - "

The role of organic matter in present day 'sandy soil mixtures' cannot be overemphasized. Important too is the composting of soil mixtures for many months whenever possible before their use. - - - So, choose the best source of natural organic matter available to you when you build that new green in 1963. "There's nothing quite like it" for good soil development!

" T R A F F I C O N T H E G O L F C O U R S E "

USGA GREEN SECTION EDUCATIONAL PROGRAMS - 1963

What to do about the mounting problems created by ever-increasing traffic on golf courses? This is the subject to be explored during the USGA Green Section's Educational Programs throughout the country in early 1963. The all day programs will treat the kinds and extent of course traffic, both pedestrian and vehicular; problems brought about by it; and suggestions for solution. "Traffic On The Golf Course" is one of our major turf management problems today. Plan now to attend the meeting nearest you.

January 25, 1963 - New York City - Biltmore Hotel

Details and reservation forms have been sent to all USGA Member Clubs.

March 18, 1963 - Seattle, Washington

March 20, 1963 - Dallas, Texas

March 22, 1963 - Atlanta, Georgia

Reservation forms for the last three meetings will be issued at a later date.

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"The toughest thing about success is that you've got to keep on being a success. Talent is only a starting point in business. You've got to keep working that talent."

Irving Berlin

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