



# UNITED STATES GOLF ASSOCIATION GREEN SECTION

## Southern Turfletter

SOUTHEASTERN DISTRICT  
UNIVERSITY OF GEORGIA  
ATHENS, GEORGIA  
TELEPHONE: LIBERTY 8-2741

SOUTHWESTERN DISTRICT  
TEXAS A & M COLLEGE  
COLLEGE STATION, TEXAS  
TELEPHONE: VICTOR 6-5210

DR. MARVIN H. FERGUSON  
MID-CONTINENT DIRECTOR  
NATIONAL RESEARCH COORDINATOR

JAMES B. MONCRIEF  
AGRONOMIST

HOLMAN M. GRIFFIN  
AGRONOMIST

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### SOME THOUGHTS ON ORGANIC MATTER

While the percentage of organic matter in mineral soils is low, its presence and role in the soil are important for plant growth.

Early chemists defined organic compounds as those composed of carbon and hydrogen. Through usage the term now includes those compounds and their derivatives. Soil organic matter, as discussed in SOILS AND MEN, Yearbook of Agriculture, 1938, is the bodies of dead organisms and the residues of living matter deposited on and within the soil. Because it is practically impossible to separate the living micro organisms from the dead ones, the bulk of their bodies together with their residues are commonly regarded as part of the soil organic matter.

Excess organic matter can easily cause difficulties in turf. Two of the problems most commonly seen are (1) thatch on and near the surface and (2) layers of undecomposed plant material or pockets of organic matter resulting from poor on-site mixing. These problems arise as results of the management program. For the most part, it is by management that they are corrected.

Ideally, any soil in which plants grow should be a homogeneous mixture. For this reason, we should concern ourselves with the relatively small amount of organic matter in such a mixture (soil humus).

Again from the 1938 Yearbook, soil humus represents a stage in the decomposition of soil organic matter and therefore is not a stable material. "Soil humus is not a stable material. As the organic matter decomposes, new humus is continually being formed, and part of the old is being completely mineralized. The equilibrium between the two processes (formation and mineralization) determines the amount of humus present in a soil at a given time.

During the development of a young and immature soil the amount of new humus annually added is greater than the amount undergoing mineralization, and a gradual accumulation occurs. As the soil develops and approaches maturity, the absolute amounts of humus undergoing mineralization gradually increase

until they equal the amounts of newly formed humus. From that time on, the two processes--formation and mineralization--proceed at an equal rate, and the soil may be said to have reached a state of maturity or one of equilibrium with its natural environment. The average content of humus in the mature soil remains relatively constant as long as no change in natural conditions occurs. Any change in the natural conditions that upsets the equilibrium will be followed by a corresponding change in the humus content of the soil.

The significance of humus in soil is not limited to its function as a conserver of mineral plant nutrients and a regulator of their liberation. Humus modifies such physical and mechanical properties of the soil as structure, color, consistence, and moisture-holding capacity to a very great degree. For example, the formation of the granular structure most favorable for the development of crop plants is governed by the content of humus in the soil."

In summary, regardless of the amount of organic matter incorporated into a given soil at any one time, the humus content will seek a fairly uniform level which can be supported by the cropping system. If the incorporated amount is less than that level, a slight build up can be expected; if it is a greater amount, a decline should be expected.

#### WORM DAMAGE

Invasion of southern golf courses by sod webworms and cutworms has been on the increase this year. Sod webworms (Crambus spp.) are the small larva of a gray, night-flying lawn moth. The larva are brownish gray to dull gray in color and grow to 3/4 inch in length at maturity. Cutworms (Phalaenidae spp.) are also the larvae of a night-flying lawn moth and are a greenish-brown to dark-brown color, growing in size to 1 1/2 inches long.

Both of these worms produce damage to turf by eating the grass blades in a circular pattern. Webworm injury is similar in size and appearance to dollar spot disease, while the cutworm injury is more oblong in pattern and about three inches long and one inch or more wide. Usually the worms may be found in a tunnel or burrow near the center of some of the more recently injured areas, and one of their favorite hiding places is in open aerifier holes. These open holes are a "ready-made" home for the worms.

Because of their nocturnal feeding habits, the best control is received from insecticides applied in late afternoon and left on the leaves for at least 24 hours. Chlordane, dieldrin, DDT, and heptachlor are effective insecticides for webworm and cutworm control.



FIRE ANTS

Reports from Georgia and Alabama indicate an increase in the fire ant population in those states. These insects have caused concern on golf courses during the past year where mowers and other equipment scatter their mounds and encourage the formation of many new colonies. One of the most effective insecticides for controlling the fire ant is heptachlor in granular form. Many superintendents keep a small amount of this insecticides handy while making the rounds of the golf course and apply it to any new mounds which are formed.

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The only failure that is really a disgrace is the failure after the last time you try.

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COMING EVENTS

1962

- December 4-5-6.....Oklahoma Turfgrass Conf.  
Oklahoma State University  
Stillwater, Oklahoma
- December 10-11-12.....Texas Turfgrass Conference  
Texas A & M College  
College Station, Texas

1963

- January 25.....USGA Educational Meeting  
Biltmore Hotel  
New York City, N. Y.
- January 30-31.....Virginia Turfgrass Conf.  
John Marshall Hotel  
Richmond, Virginia
- February 6-15.....34th GCSAA International  
Turfgrass Conference & Show  
El Cortez Hotel  
San Diego, California

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