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

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

JAMES M. LATHAM, JR.
SOUTHEASTERN AGRONOMIST

JAMES B. MONCRIEF
SOUTHWESTERN AGRONOMIST

HERBICIDAL DAMAGE

There have been numerous reports this spring of damage to bermudagrass putting greens resulting from applications of herbicides. One material which has been marketed for the control of Poa annua in bermudagrass greens is described in advertising material as "a triazine complex." The triazine types of herbicides have been used to some extent for control of weeds in corn. They have also been used in non-cropland areas for general weed control. Very low rates will apparently control all vegetation.

Such herbicides may eventually find a place of usefulness in turf management. It is apparent, however, that there is presently some danger of turf injury associated with their use. Our readers are therefore urged to proceed cautiously with any new material and to test it for themselves on a small area before proceeding to large scale use.

SOME QUESTIONS ABOUT IRRIGATION

How frequently should irrigation be practiced?

The irrigation scientists speak of "evapo-transpiration" rates. This is a measure of the rate at which available moisture is taken from the soil by the processes of evaporation from the surface and transpiration through the plant. This rate varies with temperature, humidity, air movement, and type of vegetation. "Effective rooting depth" is another important factor in determining watering frequency. Stated simply, the "effective rooting depth" is the depth to which grass roots can extract all available moisture from the soil without wilting. Thus the scientist can determine average evapo-transpiration rates and he can determine average effective rooting depth. He can then calculate the length of time required for the plant to use up all the moisture available in the soil above the effective rooting depth. This provides him an excellent method of predicting when the plant will again need water.

Unfortunately, these refined methods are not readily usable by the golf course superintendent. He must depend upon experience to tell him the interval of time permissible between irrigations.

Does it make any difference how fast or slow water is applied so long as the correct total amount of water is provided?

The nature of the soil and the amount of slope will dictate the rate at which water may be applied. It has been observed that some workmen irrigate until the water stands on the surface. When such a practice is followed, the rapid application of water might result in standing water at the surface before the soil is thoroughly wetted. On the other hand if water were applied slowly, it is possible that a soil might become completely saturated before any water would stand at the surface. One should always be sure that he is not applying water faster than it can enter the soil. Thus runoff can be avoided and water infiltration in high and low areas will be more uniform.

How much water should be applied at one time?

Enough water should be applied to restore the soil to "field capacity." In other words, provide as much water as the soil will hold after thorough drainage. On the other hand, do not apply more water than the soil can hold against the forces of gravity, because drainage may not be adequate and "water-logging" of the soil is the result. No one can say just how much water is "enough" unless he has a great deal of experience with a given soil. Soils are capable of holding varying amounts of moisture against the pull of gravity. It is believed that the water man who depends upon a probe or small soil sampling tool will be more nearly able to judge the correct amount of moisture.

Why does turf sometimes wilt on a hot afternoon when the soil appears to be wet?

Passage of water from the soil into the roots and up through the plant to the leaves requires a little time. When water is being transpired rapidly by the leaves, there may be a lag between the demand and supply.

Overly wet soil sometimes contributes to this condition. Too much water in the soil prevents adequate diffusion of oxygen into the root zone. In a situation where oxygen is lacking roots cease to function properly and they may fail to take in water at a rate sufficient to supply the leaves of the plant.

This kind of situation is one in which "syringing" or "showering" is needed. Water applied as a fine mist will cool the turf and prevent wilting. The object is to apply some moisture to the turf but not to the soil which is already too wet. This is the basis for the statement frequently made by agronomists, "When you shower a green, the object is to wet the grass but not the soil."

What is a "shallow irrigation cycle"?

When turf is growing in a situation where roots are confined to the upper two or three inches of soil, they take all their moisture and nutrients from this shallow surface area. This necessitates frequent watering because the surface portion of the soil tends to dry rapidly. When frequent applications of water are made, they must be relatively small applications; otherwise, the soil will become too wet.

It is believed that frequent, shallow irrigation can cause roots to become shortened and confined to the surface. Thus when roots are shallow and the irrigation cycle is short, there is little opportunity to overcome the condition.

The best plan appears to be that of beginning early in the spring to follow irrigation practices designed to keep the roots deep. In spring or early summer, roots are likely to be quite deep. During this period wilting is not a serious problem and the intervals between irrigations can be increased. By practicing thorough and infrequent irrigations at this time, one can contribute to a deep rooted turf condition later in the season.

A deep rooted turf has many advantages over one with shallow roots. One of these advantages is its greater resistance to rapid and serious wilting. The person who finds himself involved in a shallow-irrigation cycle must be constantly alert during hot afternoons because of the fact that turf can wilt very quickly. Even when wilting is controlled before the grass plants die, they frequently are weakened to the extent that disease producing organisms can infect them.

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COMING EVENTS

June 18, 1959 - Turf Clinic at Fulton Country Club
Fulton, Kentucky

June 23, 1959 - Turf Clinic at Woodmont Country Club
Nashville, Tennessee

July 22, 1959 - Texas Turfgrass Association Field Day
College Station, Texas

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