UNITED STATES GOLF ASSOCIATION
GREEN SECTION
WESTERN OFFICE

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SPRING MANAGEMENT

Water

Spring is an ideal time of the year to evaluate irrigation practices. In parts of the West winter rains have replenished depleted soil moisture reserves, and the more favorable growing weather has encouraged deeper rooting. A critical part of one's ability to maintain these deep roots throughout the summer rests on water management practices. The intelligent irrigator must be familiar with (1) effective depth of rooting, (2) water holding capacity of his soil, (3) water use rate of the grass, and (4) delivery rate of his sprinklers. As mentioned in our November issue of your Western Turfletter these facts are readily obtained with a negligible amount of work. Coffee can rain gauges continue to give the most accurate measurement on delivery rate of sprinklers. In addition, the following formula devised by Dr. R. M. Hagan, Irrigation Department, University of California, Davis, will also be helpful in converting gallons of water into inches of water applied.

Conversion Formula

$$\frac{(\text{gals. water applied per day}) \times (\text{inches in one foot})}{(\#\text{ gals. in cubic foot}) \times (\text{square feet in acre}) \times (\#\text{ acres irrigated})}$$

equals: Average application depth in inches per day applied over total area irrigated.

Simplified Formula

$$\frac{(\text{gals. water applied per day}) \times (36.7 - \text{numerical factor})}{(1{,}000{,}000) \times (\#\text{ acres irrigated})}$$

Example

Club applies 900,000 gals. of water per day on a total of 60 acres.

$$\frac{900{,}000 \times 36.7}{1{,}000{,}000 \times 60} = \frac{3 \times 36.7}{10 \times 20} = \frac{110.1}{200} = 0.55 \text{ inches of water applied.}$$

Renovation

Spring also is an ideal time to carry out a few necessary renovation procedures that will make a tremendous difference in turf quality during the summer months. After the grass has started to grow vigorously, consideration should be given to the following:

Aeration - As this is the time of year when roots respond to good cultural practices, cultivation underneath the existing turfgrass cover will be most beneficial. Use of hollow tines or open spoons will further encourage root penetration through false water tables of sand and mat. Such layers limit root penetration later on when heat brings about higher oxygen requirements for the grass and microanimal life in the soil.

Raking - Excessive accumulation of organic matter caused by the partial decomposition of stems, roots, stolons and leaves is a universal problem on most Western golf courses. Now is an excellent time to remove this bodily by hand raking, del monte rakes, verti-cutting, or adapting bermuda renovators to do the job. Where accumulation is severe, it is vitally important to accomplish this before topdressing. Removal of this thatch will encourage deeper rooting, lessen disease, eliminate a great amount of localized drying, prevent excessive ball marking and discourage grain.

The beauty of doing the above jobs in the spring is related to the least possible discomfiture to the golfer. In fact, if the turf is encouraged to grow vigorously by an application of nitrogen ten days to two weeks before spring renovation takes place, most golfers will find that the greens play better following the renovation jobs.

Should I Reseed My Greens?

This question often "pops-up" during the time of the year when growing conditions are most favorable. Unfortunately, we have never been able to discern any advantage from adding additional seed to an established green. One often notices new seedlings that supposedly were the result of a recent reseeding. However, in making follow-up visits one notices that only the old bentgrass and annual bluegrass are present. This logically leads to the question - what happens to the new seed when germination was so obvious? The answer may not be so obvious, but we feel that the following factors are against success in a reseeding venture.

1. Often the young seedlings are annual bluegrass that germinated before, and thus smothered out the bent seed.

2. Good management of young seedlings is directly contrary to good management of the well established turf. Young seedlings require light frequent irrigations until they are well established. Mortality of any seedling is greatest immediately following emergence. Thus, a hot drying wind on Sunday afternoon when the labor force is off duty can wipe out the new stand of grass. Conversely, if one manages for the young seedlings by watering lightly and often, it will be detrimental to the well established grass.

Vegetatively Introduce Additional Bentgrass

Our favorite method of introducing more bentgrass into the greens is through cup replacements taken from the nursery. By this method one can also introduce improved strains of bent and a deep uniform desirable soil profile. Further, a vegetative cup replacement taken to its full depth from the nursery is virtually assured of success, and there is no need to vary established management practices.

DOES YOUR WATER BEHAVE PROPERLY?

In this age of miracles so-called electrical and catalytic water conditioners are being perpetrated on our unknowing member clubs as a "cure-all" to making their irrigation water behave differently physically without altering the water chemically. One of these simple gadgets recently came to our attention in Southern California. It appears to be nothing more than a cast iron bar enclosed in a hollow casing. This five inch long, four pound chunk of metal, made for a one inch line was not so simple in price. It lists for $80! Advertising literature claims that this water conditioner "improves texture of soil in lawns and gardens". Our informant at the club in question was led to believe by the salesman that it would rearrange the water particles in such a manner as to improve infiltration, and thus lessen the danger of saline toxicity to the bentgrass greens.

The idea of making bad water behave properly by altering it physically sounds fascinating. However, your Green Section's nature in such matters being rather quizzical, we decided to approach a recognized research agency in preference to accepting the manufacturer's testimonials. Fortunately, the Irrigation Department, University of California at Davis, had investigated this water conditioner and could report as follows:

1. A chemical change in water was not investigated as the company states that its conditioner does not change water chemically. In other words, the sodium-calcium ratio, total salts and chlorides, and effective salinity would remain the same.

2. Better water infiltration through a change in molecular arrangement of water particles was investigated along the line of a possible reduction in surface tension of the water following the use of the conditioner. Results of these tests were negative. Surface tension of the water remained the same.

3. A specially constructed water containing 5,000 parts per million of sodium chloride was used on young seedlings and well established tomato plants. The conditioner failed to prevent kill of the plants.

4. Field tests were established to determine if the conditioner would increase water penetration into a tight heavy soil. Results were again negative. Water infiltration was the same with untreated and conditioner treated water.

This information leads us to believe that the cost of water conditioners might well be channeled to more worthwhile projects. If salt accumulation is a problem it can be controlled by (1) proper construction to assure good surface, internal and subsurface drainage, (this implies natural, tile or rock sub-drainage; deep uniform soil without layers of sand, peat or different soil materials; and adequate surface drainage to prevent water from building up in the low spots), (2) periodic heavy watering to leach salts below the root zone, and (3) the use of gypsum or sulfur to promote a more favorable calcium-sodium ratio.

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