

UNITED STATES GOLF ASSOCIATION
GREEN SECTION
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DROUTH EFFECTS ON GOLF COURSES

Throughout the Southwest, the sixth successive abnormally dry year has caused many golf courses to suffer. In a good many instances water quality rather than quantity has been an important consideration.

Dallas is the center of many golf course troubles that may be blamed on water. Most of the clubs have lakes or wells that have permitted major turf areas such as greens and tees to be kept alive even in the face of restricted water resources. High pH and a considerable amount of salt in the Lake Dallas water are the main reasons for concern.

There is one essential requirement for growing good turf when water quality is poor. That requirement is good drainage.

When the pH of soil rises much above 8.0, there is a very strong possibility that sodium is contributing to that high alkalinity. Often sodium in appreciable amounts is present in water in the Southwest during periods of drouth. Sodium is an enemy of soil aggregation and, therefore, of soil structure. Sodium causes soil particles to disperse and the soil "runs together." This condition impedes drainage and contributes to still further accumulation of salts.

On the other hand, when soils are of such a nature that water can percolate through them readily, some of the salts are leached out and these salts therefore do not accumulate sufficiently to be detrimental to the soil structure.

How does one assure good drainage? The most satisfactory method is to build it into the green during construction. A good subsurface drainage system and a suitable soil mixture (high in sand) will provide good growing conditions unless water is extremely bad.

The improvement of drainage in greens which are already in existence and which are not properly built is much more difficult. Gypsum (calcium sulfate), is a material that has been used in agriculture to improve drainage and to maintain soil structure. Iron sulfate has a tendency to produce an acid reaction and its use may be beneficial in counteracting iron chlorosis which is frequently associated with high alkalinity.

Recently it has been suggested that wetting agents may be helpful in dealing with situations where there is danger of salt accumulation because of poor drainage. Wetting agents reduce the surface tension of water and allow it to move through the soil more freely. Soluble salts are therefore more likely to be carried out of the root zone by this leaching action.

This year's experience has helped to strengthen the conviction of many golf course superintendents that proper construction and a good soil mixture will help to eliminate the majority of difficulties encountered in maintaining turf.

DICHLONE FOR CONTROL OF ALGAE

Dichlone is the official generic name for 2,3-dichloro-1,4-naphthoquinone. This material is presently being marketed under a trade name which will be furnished upon request.

Dichlone has been found to be effective against bloom producing blue-green algae at very low rates (30-50 parts per billion), and against green algae and pond weeds at higher rates. Early experimental work has been reported by Fitzgerald and Skoog in Sewage and Industrial Wastes, Vol. 26, No. 9, September 1954. In a paper presented before the Weed Society of America in January 1956, O'Brien reports the results of further investigations in the use of dichlone as an algicide. The following statements are quoted from O'Brien's paper:

"Dichlone has been tested under a wide range of conditions in farm ponds, large recreational lakes, irrigation reservoirs, rice fields, fish hatchery ponds, swimming pools and industrial water recirculation systems. In the testing program results have varied greatly. This variability is due to several factors which should be recognized and taken into account in order to use the material most effectively.

(1) Dosage is of prime importance. Thirty to 50 parts per billion seem to be enough to control certain blue-green forms while four to five times this amount is required to control most species of green algae.

(2) Apparently the chemical is consumed in the process of killing algae, and heavy growths require a proportionately heavier dosage to give effective control. Partial control will release nutrients from the affected algae which may actually stimulate the growth of the remaining algae. It may be necessary to make a repeat application within 2 or 3 days where heavy growths are present to prevent rapid regrowth.

(3) Temperature of the water has an influence on performance. At temperatures below 65°F. dichlone appears to be less active. This is probably due to a slowdown in growth rate under cool temperature conditions resulting in a slower rate of absorption of the toxicant.

(4) Sunlight appears to have a stimulating effect on the activity of the chemical.

(5) The chemical content of the water may at times be responsible for a reduction in activity. For example, salt water lowers the rate of solubility of dichlone while waters high in sulphides will gradually decompose the material.

(6) Studies thus far indicate that dichlone is most active at a pH of 8.5 or below."

Apparently, dichlone has not been found generally harmful to fish under test conditions.

GRADUATE STUDENTS IN TURF AT TEXAS A. & M.

Increasing interest in turf is reflected in the increase of graduate students who are preparing themselves for positions of leadership in this field.

H. L. Howard resumed his graduate study in July following a two year period of military service. Mr. Howard's work will deal with physical properties of soils with emphasis on putting green requirements.

Eugene Bockholt plans to complete the requirements for a Master's degree in June 1957. His thesis is based upon research aimed at the chemical control of Dallisgrass in turf.

John Long has accepted a position with the Agronomy Department where he will spend a considerable portion of his time in turf research. Mr. Long has been associated with the New Mexico Agricultural and Mechanical College in weed control work. He plans to do some additional graduate work which will serve as a basis for his completion of work for the Ph.D. degree.

T. H. Filer, a 1956 graduate at Texas A. & M., has been employed during the past summer at the Houston Country Club. He begins studies for the Master's degree this month.

RAYMOND KUNZE TO IOWA STATE

Mr. Raymond Kunze has just finished the requirements for the Master's degree and he has moved to Iowa State College where he will pursue studies leading to the Ph.D. degree. Mr. Kunze has done an excellent piece of fundamental work dealing with the physical properties of putting green soils. An account of this work will be published in the near future.

Mr. Kunze's scholastic record, together with the quality of his research, earned for him a valuable fellowship at Iowa State College.

YOUR OPPORTUNITIES FOR LEARNING

Several Field Days and Turf Conferences have been scheduled for the next few weeks. One of these will be near enough for you to attend.

- September 25.....St. Louis Field Day
Westwood Country Club, Clayton, Missouri.
Leo Bauman.
- October 4 & 5.....New Mexico Turfgrass Conference
New Mexico A. & M. College, Las Cruces, N. M.
Clarence Watson.
- October 17, 18 & 19.....Central Plains Turfgrass Conference
Kansas State College, Manhattan, Kansas.
Ray A. Keen.

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