THE EFFECTS OF IRRIGATION AND MOWING PRACTICES ON THE QUALITY OF FAIRWAY TURF

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Investigations were started at Michigan State College in the fall of 1948 to study the effects of irrigation and mowing practices on the growth of Kentucky bluegrass and creeping red fescue.

The ultimate aim of the investigation was to determine the desirable practices, that is, the practices which will produce a thick, dense turf that will: (1) resist invasion of weeds, (2) hold golf balls at uniform and suitable heights above the soil, (3) afford the golfer a firm stance and (4) present a pleasing landscape all season long.

Experimental

Two adjacent, parallel strips, each 18 feet by 180 feet, were planted in the fall of 1948. One was seeded with Kentucky bluegrass, one with creeping red fescue. The area was divided into 10 plots for irrigation purposes. The irrigation practices were designed to maintain the soil moisture at five levels, very low to very high.

Time of watering and amount of water used were controlled by the use of Bouyoucos soil-moisture blocks and soil-moisture meter. A soil-moisture block was placed at a depth of 4 inches in each plot 6 feet by 18 feet, so that the moisture available to the turf could be determined throughout the season. The photo on page 31 shows the relative position of the blocks and the meter used in reading them.

The parallel strips of Kentucky bluegrass and creeping red fescue were divided into three strips, 6 feet by 180 feet, for mowing practices. One strip of each was mowed with the cutter-bar set at a height of ½ inch, one at 1 inch and one at 1½ inch. The watering and mowing practices are at right angles to each other.

The very high range of soil moisture was maintained by additions of water every other day by irrigation or rainfall. Water applied during three months totaled 28.6 inches, but rapid internal drainage prevented the development of poor aeration on this Hillside sandy loam soil. Meanwhile, turf plots maintained in the high and medium ranges received only four inches of supplemental irrigation, which provided sufficient soil moisture for good growth throughout the season. The non-irrigated plots, very low soil-moisture range conditions, averaged only 11 per cent available soil moisture during August.

Conclusions

The inter-relationship of different grasses, height of cut and irrigation are of extreme importance in growing better fairway turf. Changes in management of fairways cause cumulative effects, which may not be noticed during the first year.

Soil-moisture blocks buried four inches in the soil gave good indications of the moisture available to the turf and aided in maintaining the five soil-moisture ranges by varying supplemental irrigation. Few irrigations were required when they were applied in medium amounts at the time the blocks indicated that the soil was dry. Turf that became dormant recovered very slowly and gave a poor playing surface longer than just during the dry period.

The use of soil-moisture blocks is recommended for fairways to reduce the possibility of excess watering and to indicate further the proper time and rate of application for greatest conservation of water and labor.

The turf in the medium soil-moisture range plots had less yield, equal ratings and gave approximately the same ball support as that of the excessively watered plots.

EDITOR'S NOTE: The matter of water management is extremely important. The section on discussion of yields, ratings, etc., has been omitted in the interests of brevity.

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