
IRRIGATION



Hand watering the high ground around greens.

A Most Important Key On Your Success Chain

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If saccharin is to be banned by the Food and Drug Administration because large doses cause an increase in cancer rates in rats, does it follow that the golf course superintendent should ban summer irrigation because it is the root cause of most summer turf management problems? Some may think this is a strained connection, but the logical conclusion to both propositions is the same: large, excessive doses of anything may cause problems.

America's golf courses have just lived through the coldest winter in the history of the Weather Bureau. Now, summer lies ahead and with it, the irrigation requirement. It is perhaps the most important single key on your summertime chain of success.

The grass plant is comprised of approximately 85 percent water, and although it cannot be grown with water alone, it cannot be grown at all without it. The story of overly wet golf courses is not new. Every dedicated and conscientious golf course superintendent should resolve NOW to do something about it this year! Overwatering leads to trouble. It is not good for golf. It is surely not good for golf course superintendents since it leads to turfgrass disease, soil compaction, shallow root systems, *Poa annua*, nutritional problems, gray hair and high blood pressure.

The Overirrigation Syndrome

Not always should the "overirrigation syndrome" be placed at the door of the golf course superinten-



Small, low delivery sprinklers on a hose help overcome faulty automatic irrigation design.

dent. Too often the general membership complains of hard, fast greens and hard fairways. Somehow they equate "soft and green" with "soft and good." This type of golfer perpetuates the belief that any shot played to a green should hold, whether struck properly or not. When faced with this type of member request, the golf course superintendent needs help. Few members with the soft-and-green syndrome are likely to be persuaded otherwise by statements from the superintendent. He needs the vocal help and support of the Green Committee, the golf professional and all other members (regardless of handicap) familiar with, understanding and knowledgeable of the finer points and true requirements of the game.

In January, 1977, in Atlanta, Ga., at the USGA Green Section Educational Conference, Joseph C. Dey, Jr., told of the Ryder Cup Match at Muirfield, Scotland, one September several years ago. The putting greens were dry, very firm and very true. When he asked James Logan, the superintendent, when he planned to water the greens, he received the unhesitating reply, "Not at all! Last Thursday I locked up the hoses for the winter." Dey reported that it would be difficult to find better putting greens than those at Muirfield.

Roll With The Weather

There are many advantages for the golf course superintendent who will stick to an irrigation schedule of infrequent but deep irrigations. To be most successful, it should be done in the spring or early summer. Better, deeper root systems will result. As the summer progresses, roll with the weather, but strive always to avoid overwetness caused by irrigation.

Base the irrigation schedule on how little water can be applied and still keep the grass generally growing well. To put it another way, irrigate to gain optimum soil moisture levels for the average and low areas—not for the higher and drier ground. The latter can be helped with aerification and low delivery irrigation coverage if necessary. Overall overwetness will thereby be avoided. This may mean some occasional brown areas, but it will also mean a better playing golf course at a lower cost and fewer headaches for the superintendent and Green Committee.

"Rolling with the weather" also means a close check on weather reports including evaporation—transpiration rates throughout the summer. It is much more professional (and meaningful) to plan irrigation on the basis of inches or fraction of inches to be applied each night rather than the "give everything 20 minutes tonight" philosophy. Measured precipitation is **THE** basic requirement. It is not how long sprinkler heads operate, since different sprinkler heads and nozzles have different delivery capacities.

Automatic Irrigation

The importance of knowing measured, uniform precipitation rates over a given area leads one naturally to irrigation design, coverage and management. Indeed, it is the sole reason for an irrigation system. Unfortunately, new automatic irrigation systems are frequently installed with the cost factor determining the type of system and irrigation coverage. The proper approach is to install a system which will insure uniform precipitation, which will permit good turfgrass production and ultimately provide the best possible playing conditions throughout the 18 holes.

Anyone with automatic irrigation experience

knows such systems are not really automatic. They require constant attention, surveillance, repair, adjustment and daily scheduling review if they are to operate properly. This means one man should be assigned to the automatic irrigation system as his prime duty. It is a complex piece of mechanism. It requires maintenance, repair and constant tuning. Too often the system receives little or inadequate care once it has been installed. This approach is not fair to the equipment manufacturer nor to the golf course. A price tag of one-quarter million dollars does not mean one can ignore an automatic irrigation system. Rather, it is an investment in controlled irrigation and, as any investment, it needs constant overseeding.

There are many automatic irrigation systems today with more than 1,200 pop-up heads supported with the necessary backup valves, controllers, pipes, tubing, wires, etc. It stands to reason that malfunctions are going to occur. How does one best monitor such a system?

A few years ago, Superintendent Fred Bove, of Brentwood Country Club, Los Angeles, Calif., solved this problem as neatly as one might imagine. Brentwood was one of the very first golf courses in the world to install automatic irrigation as we know it today. The system has since been updated. On this particular day, as we toured the course, a hose and hand-set sprinkler was seen operating on one of the "automatic" fairways.

Bove explained that he did not hold the day irrigation man totally responsible for wet or dry areas on the golf course. Instead, their presence was primarily the responsibility of the fairway and/or rough mowmen! They covered the entire 18 holes at least three times a week and, if they were paying careful attention, should spot development of any wet or dry areas well before the crisis stage is reached. They then report the fact to the day irrigator and immediate corrective action is taken.

"Under normal operating procedures," Bove said, "the day irrigator replaces or repairs the plugged sprinkler head and that solves the problem. Right?"

"Right!," I quickly replied.

"Wrong!," says Bove. "The area under the influence of this particular sprinkler head has gone without irrigation for at least several days before the mowman is able to detect grass stress. In order to catch up with the soil moisture level of the surrounding area, supplemental irrigation is needed and that's why you see the hose and hand-set sprinkler on an automatic fairway."

It was a good lesson in automatic irrigation management.

Testing For Soil Moisture In Greens

Perhaps the most often asked question on irrigation concerns greens. "How can I judge the amount of water to schedule for greens?"

Again, the evapo-transpiration rate is an invaluable aid. So is the soil probe with just a little experience attached to it. Certainly, an irrigation judgment must be made every day for every green during the critical summer months. It seems foolhardy to do otherwise.

The best practical field test for determining the adequacy of soil moisture in greens was published in the Bulletin of the USGA Green Section in August, 1932:

"The most convenient way to determine the amount of water in the soil is to examine a small plug removed from the putting green. If water can be pressed out of the plug with the fingers several hours after watering, the green has been overwatered. It is better to keep the turf somewhat dry to encourage deep roots and thus avoid a multitude of turf problems."

A simple test but one, that will lead to better irrigation.

Golf Associations Contribute Generously to Green Section Research

During the past several years the U.S.G.A. Green Section Research and Education Fund, Inc. received great impetus from several state and regional golf associations, State Chapters of the Professional Golfers Association, and Golf Course Superintendents' Associations. We are extremely grateful and wish to recognize the following organizations for their generous contribution to turfgrass research geared to golf course management problems. Over the years most of the following have been annual contributors to the program.

Alabama Chapter P.G.A.
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Georgia Golf Course Supts. Assn.
Georgia State Golf Assn.
Michigan & Border Cities Golf Course Supts. Assn.
New England Golf Assn.
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We wish to encourage all state and regional golf associations to join us in this effort to give further impetus to golf turfgrass research for better golf. Contributions are tax deductible! Contributions in any amount are welcome. Please make checks payable to the U.S.G.A. Green Section Research and Education Fund, Inc.

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