

Effective Use of Our Natural Resources

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WHEN YOU ARE about to waste anything, stop for a moment and consider the energy needed to produce it. It has been said that half the world could exist on what the other half wastes. No commodity illustrates this statement more than the most taken for granted commodity on earth—water. It is the most wasted, overused, and the most precious natural resource in many areas of the world.

While I was attending Penn State University, in 1961, Dr. Fred Grau cited the importance of water as described in the 1955 Yearbook of Agriculture, and he emphasized its usefulness in fine turf culture. His address had a great impact on many of us at that turf conference.

Since then many others have described the role that water plays in proper management of turf for golf. For example, in some of the proceedings of golf turf conferences held over the past few years, Dr. James Watson has addressed the critical water problems

we must face. Within the last few years many have come to agree with the water use ethic of Sandy Tatum, past President of the USGA, and with the arguments presented in numerous articles by Joe Dey that have appeared in *Golf Digest* on the overuse and waste of our most precious commodity.

During the recent drought in the Northeast, articles concerning the water shortage have appeared daily within the first three pages of the *New York Times*. Restaurants have stopped providing water at tables unless requested, and motels have requested that people conserve water during showers, etc. How we respond to these conservation measures will determine whether or not we experience the crisis of a water shortage.

It is interesting to note the remarks of the people who visit clubs of the stature of the National Golf Links of America, Shinnecock Hills, Maidstone, Winged Foot, Baltusrol, Pine Valley, Saucon Valley, and other courses that play so well. They comment on the firm,

fast greens and the tight fairways that allow the clubface to come in direct contact with the ball. The golf course superintendents at these clubs all describe the same type of management philosophy — “Try to keep it as dry and close cut as possible.”

Several years ago the Monterey Peninsula and Marin County, in California, were brought to their knees for lack of water, and in the Midwest many golf courses experienced water use restrictions. This year some of the courses in New Jersey were prohibited from using water on any turf areas. On Long Island a golf course was crippled because the well on that property was turned over to the city for its use.

How can we cope with this dilemma? Grants from various turf organizations, such as the GCSAA, USGA, state and regional turf foundations and chapters of the GCSAA, provide money to develop permanent grasses for drought tolerance. Through continued research, many improved turfgrass cultivars will be developed. Through research and

Chicago Golf Club's bluegrass fairways are being replanted to an improved variety (A-34 Kentucky bluegrass) originally selected at this course. An example of natural resource use at its best.



practical experience, several valuable lessons have been learned. Avoid overstimulating turfgrasses with nitrogen early in the spring, for they will grow when they are ready. Second, irrigation should be used only to keep the grass alive and to sustain adequate growth.

FOLLOWING IS the description of an experience I had involving irrigation and turf management. When I arrived at Garden City Golf Club 15 years ago, I was confronted with maintenance problems created by the overuse of water. Bunker facings near several greens eroded after every irrigation and were eventually refaced with grass. The utmost in discomfort to any golf course superintendent comes with the realization that the course is predominantly *Poa annua*. Annual bluegrass requires more water than permanent grasses, and the more you water it, the more it requires. This results in a never-ending management problem. I felt that 85 percent of the Garden City Golf Club turf was annual bluegrass, but as a result of a pump-house failure on July 4, 1966, my estimate proved to be on the low side.

On Long Island we are compelled to submit a meter reading each month to the Water Resources Commission. When I arrived at Garden City I called the Water Commission for past reports. The water use total for 1965 had been slightly over 55 million gallons. Reports from prior years showed that water use had increased each year after 1958, when a new irrigation system had been installed. By 1978, the number of gallons used for irrigation had been cut to 12 million, and even then I felt I was overwatering.

The ability of the superintendent to coordinate golfers' demands with agronomic needs will determine the success or failure of the golf course management program. In my experience as golf course superintendent, I have observed that golfer requests and complaints significantly influence the management of golf courses and the priorities of their superintendents. Some of the members' advice and comments have included:

"The greens don't hold, so give them a good soaking."

"Annual bluegrass is indigenous to this part of the country and no one will ever get rid of it. Let's not waste our money on *Poa* controls."

"We have our own well and the water is free and unlimited, so why not use it? Doesn't more water mean greener grass?"

"We want everything green and lush to impress our guests."

"We were out this morning and we saw an area burned out on No. 7 fairway (you know, that high knoll in the drive zone), so why isn't the course being watered more? It's dying!"

"We saw the golf tournament on TV . . . what happened to our course? It just doesn't compare."

"Why do they (grounds crew) have to renovate during prime playing time in late August or early September? If they had better control of operations during the year, this wouldn't be necessary."

HOWEVER, to put all this in proper perspective, we must presume that if we overwater, the soil will often be filled to capacity and turfgrass root growth will be reduced. This will ultimately lead to soil breakdown, compaction, and annual bluegrass and weed invasion. Experiences around this country and Europe have shown me that annual bluegrass is indigenous to the fine turfgrass world, growing profusely on all continents. So why don't we just seed new courses to *Poa annua* rather than bentgrass? To do nothing about it means only disaster during hot spells of summer, not to mention the winter problems and inclement springs when *Poa annua* is the most severely injured species. Yes, for many clubs water is free, but in 1977 I calculated our electricity cost to be \$.0003 per gallon. That may seem reasonable until we consider that over 12,000,000 gallons were used. This cost more than \$3,600. Since 1977, the cost of electricity has tripled. With overwatering, we will of course need extra fertilizer, more chemicals to control disease and, naturally, more frequent mowing. Does the result of this vanity outweigh the added expense? Because of the attention given to the high dry spots on fairways, the fate of the entire course is in jeopardy. The amateur agronomist sees golf courses on television at their peak a few Sundays each year through the wonderful world of color. If equal attention is paid to the player and the quality of turf for that tournament, there is no question that our course doesn't stand up to that comparison. However, it sometimes is too bad that television doesn't come back weeks later to show the same course as it is prepared for regular membership play.

During the season we have all seen approaches to greens that are wet, soft and soggy with little grass and many

weeds. The greens are so wet that algae have turned them black, and disease, carried by surface water, has eradicated grass faster than a nonselective herbicide. When excess water has finally drowned all the turf, then out comes all machinery (the aerifiers, thatchers, slicers, spikers and, yes, even rototillers) to try to bring the golf course back. Requiring all this extra work of an already small crew, much of the normal everyday work is let go, making the course look even worse. The expense of all this unnecessary renovation, at an inconvenient time, certainly points out the folly of overwatering the course.

THERE IS an old adage which states that it is easy to put water on but it is almost impossible to take it away. A rule of thumb used by many is to try to put back the same amount of water that was taken out the day before. Many superintendents play "Russian roulette" with nature during the summer. Water is not applied until the last hope of rain has faded for that night. Then the ultimate of management weapons, the automatic irrigation system, allows the superintendent to take every day as it comes. A cloudy, overcast day results in little or no water loss. A hot, humid day results in little water loss. Rain forestalls watering that day and possibly the next. Hot, dry days and those with cool or hot breezes tend to trigger the use of the water system at times of the day that raise the ire of the golfers. This is called syringing. What this does is to slow the evaporation-transpiration rate and thereby stop the plant from wilting.

Some superintendents have found that a dew syringe cycle used every morning for five minutes on each fairway head tends to keep the fairway turf in good shape for the day. This also applies to greens and tees, but the time must be increased slightly. The critical concern is that turf managers should not go into August with an overly wet soil.

Augusts in the New York metropolitan area are generally hot and humid and just bloody uncomfortable for man and, yes, grass. So, to give the turf half a chance, all our season's watering efforts should be geared for the dreaded months of July and August.

With the improper management and wasteful consumption of water by so many people, it is no surprise that there is a severe water shortage in many areas of our nation. We all must share the burden of conservation; if we do not, we will have only ourselves to blame if and when the well runs dry!