

FROM THE FAIRWAY

ing a very dangerous game and could seriously wound the golf industry. I wonder if they thought about that.

Major firms such as Mercedes-Benz, the National Multiple Sclerosis Society, some leading golf manufacturers, golf resorts and golf communities are beginning to believe it. The danger is in the fact that they are making huge capital investments to meet the demands of those projections. What happens if there is no such growth? Take the extravagant claim of 23 million golfers in America today. Where does the NGF get these figures? Simple arithmetic will show you it's impossible!

To illustrate my point, let's use the NGF figures of 23 million (using round numbers) and 13,000 golf courses in America. By dividing 13,000 into 23 million each course would have an average membership of 1,770. When you consider the fact that almost 50% of America's golf courses are nine-holers, and that the average membership of a fine private country club is approximately 400, then simple arithmetic makes a figure of 23 million golfers in America hard to digest.

A key factor is the definition of a golfer. To me, a golfer is someone who plays at least 16 rounds per year. That would be one round each warm weekend in the cold belt. Executive Golfer is a member of the BGF and I hope this column will not lead to its expulsion. The NGF is important to the golf industry and is blessed with a high-skilled Board of Directors. The Board approves research funding and then can only listen to the results. But, after almost a year of hype, someone has to blow the whistle on those wild projections.

Dr. Joseph Beditz is the NGF President and we'll gladly offer all the space he needs in Executive Golfer to clarify and justify his projections to our readers. 23 million? 30 million? C'mon!"

Dear Sir,

It was with great interest that I read the exchange on irrigation between Peter Wisbey and Jim Arthur in the September issue. Being at the back end of Africa we only get our 'Golf Course' two to three months later. As we are close to the equator in Zimbabwe with seasonal rainfall (Nov/March) and high average temperatures (28°C Summer/21°C Winter) with our relative humidity depending on rainfall varying from 18% to 98%, this means that the 'Rolls-Royce' mixtures of Fescues/Bents etc we read about don't do

well and we have to rely on Bermuda grass (*Cynodon* sp) for our greens. With only 5 months of rainfall we must irrigate to keep any sort of green going. Therefore, irrigation management is critical if a decent green is required for the whole year. Bermuda grass greens grow well but can give a very hard surface under dry conditions. They putt true but hold like polished concrete. Unlike the greens mentioned in the Wisbey/Arthur exchange, drainage is seldom if ever a problem, water deficit rather than water excess characterizes our situation. Even though our situation is diametrically opposite to that experienced by the majority of your readers, often lessons can be learnt from basic principles that apply to all. I therefore offer my comments from the standpoint. We have the whole range of sprinklers for irrigation over greens, from the most up to date state of the art 'pop-ups' to hand held hose with rose. In general we have found that most sprinkler systems tend to apply water at a faster rate than the green surface can absorb them.

With low humidities and high winds, if our pumping pressures are too high and nozzles too small we get excessive atomization and 'perfect' evaporation. We have measured up to 50% of the moisture not reaching the green surface on a hot dry day if pressures are too high. Our surface evaporation is extremely high in spring and early summer with open Type 'A' evaporation pans giving a surface evaporation of 10-12 mm of water per day. Therefore, we need a lot of water but at the same time we have to put it in effectively, while still allowing time for play and not keeping the surface too wet to encourage fungus diseases (*Drechslera poae* and Dollar spot being the worst). High winds especially in August and September also play havoc with distribution over the surface of the green. We have found daily watering promotes fungal growth and yet we require sufficient time to get the water on. Less waterings per week are unpopular because the surface dries out too quickly and players complain that the greens don't hold.

Most courses with heavy traffic have come to a local compromise. Water is only applied at night, early morning or late evening at a maximum of 3 times per week with a 5mm spurt on the morning of major competitions to keep the players happy. On new greens we've had excellent results, even in our hottest months, with two

irrigations per week, but the players complain about hard greens on non-irrigation days. With the large amount of water required in the hot months 84-90mm/week to offset the very dry conditions it has therefore, been essential to develop a scheduling system especially where water supply is limited, bearing in mind that both over and under watering causes problems).

Scheduling is based on calculations of the evapotranspiration rate against the evaporation from an open surface of water (E_t/E_o) and the relation of this to the moisture extraction depth of the roots and the stage of growth of the grass. Added to this is a conversion factor for the efficiency of the watering system. This net amount is then measured during watering by using strategically placed rain gauges, especially on windy days. We have found that in our 'dry' regime as opposed to the 'wet' regime most of your readers experience, efficient water application makes the difference between a very good green and a poorly grown hard green. The principles we adhere to rigorously are:-

1. A weekly determination of the amount of water required based on an irrigation schedule related to growing conditions.
2. Adequate supervision to make sure that the irrigation systems are being used under optimum conditions.
3. Constant measuring of exactly how much water is actually put on each green. Manufacturers specifications or the rating of the equipment is used only as a guide and not relied on particularly because of variations in Relative Humidity, Temperature and Windspeed.
4. Continual checking of application rate to prevent run off. A useful guide we have found is that as soon as a green starts to shed water it is time for a verticut.
5. With fixed sprinkler positions under very adverse conditions supplementation with hand watering is also practised.
6. Not relying on programmed irrigations willy-nilly despite all the fancy computer programmes etc. that comes with them. The criteria on which these are based are too generalized and nothing makes up for basic good 'on the ground' management especially if problems occur.

I would certainly be interested in other people's comments as you can always learn from others.

Dr. D.S. McClymont
Royal Harare Golf Club