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SUSTAINABLE IRRIGATION: DIFFERENT SOAKS FOR DIFFERENT FOLKS

Many people, especially in the regulatory arena, would consider "sustainable irrigation" to be an oxymoron.

Basically they believe irrigation in no way can be considered sustainable because it uses water irresponsibility. So, is sustainable irrigation on a golf course actually possible? And if so, what does it look like?

Sustainability is one of this decade's big buzz words and it has different meanings to different people. If you were to Google the word "sustainability" you would find approximately 115 million results. There are many different definitions, but one of the more recognized definitions – and the one I prefer – is "developments that meet the needs of the present without compromising the ability of future generations to meet their own needs." With this definition you can pretty much replace the word "development" with other applicable words such as: operations, actions, procedures, or practices.

For my purposes and this column's, I will define it as irrigation practices that meet the needs of the present without compromising the ability of future generations to meet their own needs. Basically, don't do something today that will screw up somebody or something tomorrow.

Sustainability has three aspects to it; economy, environment and social. These all overlap (see the inset image) to show how each affects the other, whether it be variable, bearable or equitable. When practicing sustainability, weigh how your decisions will impact society, the environment and your economics and will the results be bearable, equitable and viable.

For instance, you decide to increase your pump station capacity. Is it economically viable and environmentally bearable while being efficient enough to be equitable to society?

In irrigation, this mostly comes down to water use (everything seems to these days), but it also involves proper equipment selection, proper maintenance, proper installation and efficient use of energy. Some sustainable irrigation practices are simple and very straight forward and you should be practicing them already.

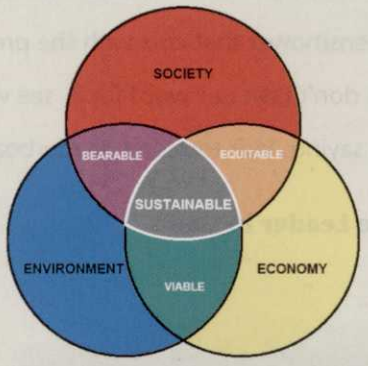
Here are a few examples:

For instance, you decide to increase your pump station capacity. Is it economically viable and environmentally bearable while being efficient enough to be equitable to society?

• Properly matching the sprinkler model and nozzle with the required pressure and the proper spacing.

• Adjusting irrigation schedules daily to use only the amount of water necessary.

• Using some sort of ET or soil moisture measurement device as a tool to help you in determining the amount of water to apply.



• Check your central control databases so that they are accurate. Theoretical water use from the database and actual water use from the pump station should be within 10% of each other.

• Using the station, area and global adjusts to fine tune each individual sprinkler's needs.

• Investing in preventive maintenance for your pump system on a regular basis so it is as energy efficient as possible.

• Keeping sprinklers level and set to grade to maximize uniformity.

• Eliminating nutrient migration through proper watering.

Other sustainable irrigation practices require time, planning, thinking and money. A few to think about:

• Investing in technology that helps you use less resources, such as hardware and software that integrates the pump system and irrigation systems or a tablet or smart phone to more precisely fine tune your irrigation scheduling.

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One product he likes is sand, and he has increased top-dressing programs for tees, fairways, and putting greens. A lot of sand has been used to get the course dry and firm. Matt thinks this also has allowed him to cut back the use of pre-emergent herbicides, as there's been less weed germination.

Of course, too much sand can lead to leaf surface abrasion and disease, which would require spraying. So Matt doesn't top-dress any playing feature when it's hot because when the turf isn't growing it's more susceptible to injury and sand is abrasive.

Here are a few other sustainable practices in use at Merion:

Cultivation. Solid tine aeration is preferred over hollow core cultivations.

Fertilizer. Once again, less is more, since a fat, happy plant invites disease. Matt monitors growth habits, clipping rates, temperature, soil moisture content, and humidity before deciding to fertilize, apply pesticide, and irrigate.

Tees. Increased top-dressing makes tees firm, which means fewer divots and less over-seeding. Tees are mown with a solid front roller on the mower, not grooved rollers that can waste seed from divot mix by throwing it back into the mower bucket. This practice also preserves seed already on the tee.

Approaches. The greatest increase in top-dressing has been in approaches. Firming up the turf in front of greens enhances Merion's signature bump-and-run shots, but just as important, the golf course is drier and healthier, and the use of chemicals reduced. Using Tri-plex riding mowers reduces labor and the heavier equipment helps keep the approaches firm.

Bunkers. Merion's bunkers are all hand-raked. The crew does very little edging and does not mow bunker edges. They simply trim the seed heads.

Fairways. Starting this past winter, members were asked to hit off little green artificial mats, similar to those used on the Old Course at St. Andrews. Using mats, which attach to members' bags, reduced the number of fairway divots at a time of year when nothing was growing. The mats also helped preserve the turf within specified Open landing zones, which were roped off. The mats were a big success and will likely become club policy for winter play going forward.

Greens. Roll more, mow less. And to promote smoothness and better grooming, the club uses imported (and expensive) yak-hair brooms.

Matt Shaffer is doing some fascinating things at Merion, and I agree with him that most of his practices – except perhaps for the yaks – can succeed at courses throughout the U.S.

Superintendents should tell their green committees and other members to watch this year's U.S. Open very carefully. Besides the stellar play we've all come to expect at our national championship, they will see a great old course in prime condition thanks to a sincere and all-in commitment to sustainability. **GCI**

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- Doing long range and capital planning for replacing irrigation components and doing preventive maintenance to keep pace with technology enhancements that better utilize limited resources.
- Investing in more sprinklers to provide more control. More control gives you the opportunity to use less water and provide better conditions with fewer inputs.
- Installing a green roof on your pump house or other out buildings.
- Scheduling your pump station on a daily basis just like you schedule your irrigation system by selecting what pumps can come on, how much energy can be used and what the discharge pressure should be at each hour of the day.
- The list could go on and on, but the general gist is to maintain your irrigation and pump systems while maximizing their abilities and efficiencies.

The term "sustainability" is being way over used in today's society, but it is not going away. You need to understand what it involves in terms of your overall golf course operations and not just the irrigation system. You also need to be able to tout your sustainable initiatives and to recognize where you are not being sustainable. Good luck! **GCI**