Irrigation System Choices for Athletic Fields

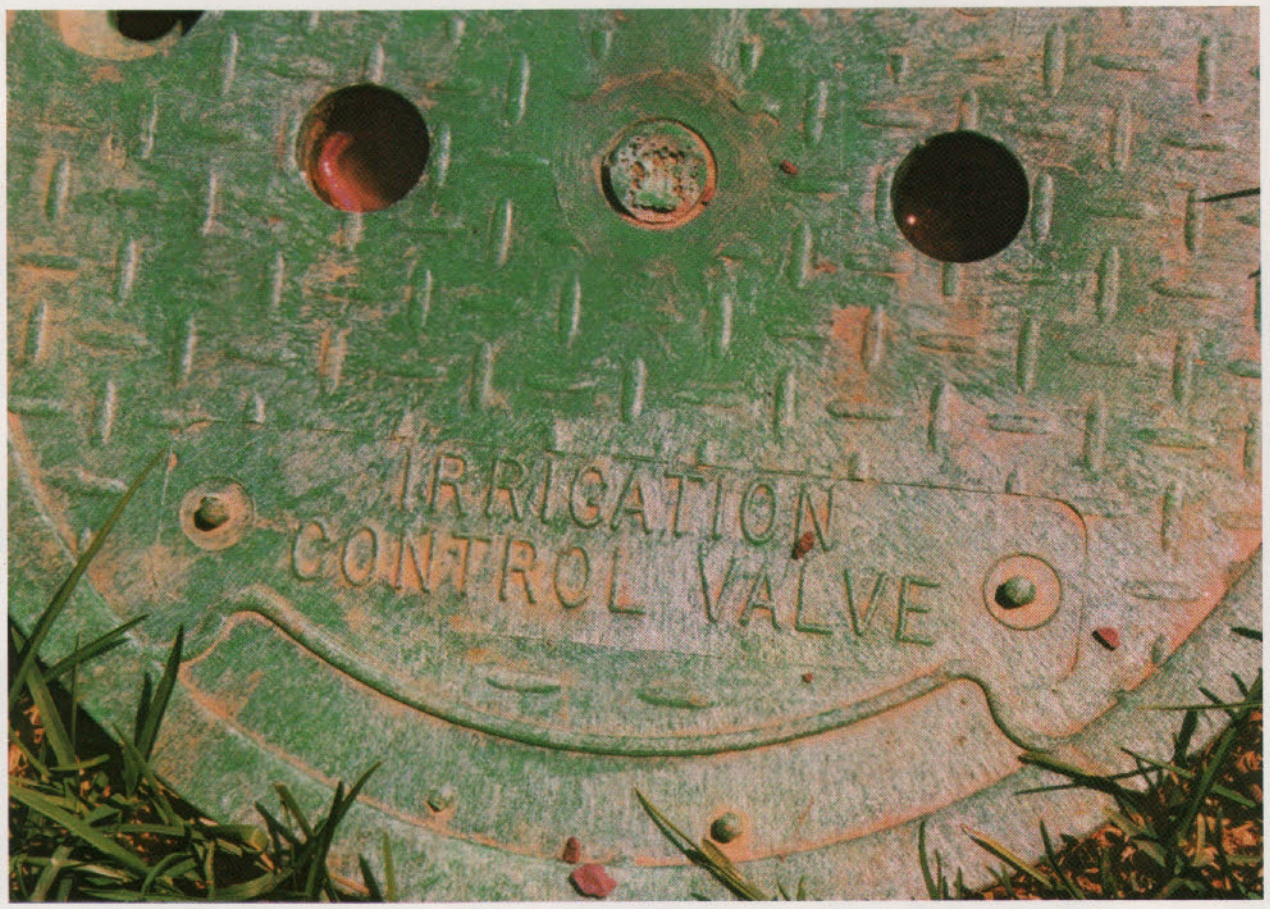
BY **LUKE FRANK**

For irrigators, discussions on efficient water management oftentimes start with sprinkler equipment and gradually work their way out the actual beneficiaries, turf and plant material. Perhaps an equally valuable approach is to start from the periphery and work our way in.

After all, what is it that we design irrigation for? Turf. Each and every turf cultivar has a unique and distinctive water requirement based on plant physiology, soil conditions, climate, height of cut, exposure, traffic, and so forth.

Well-designed and operated irrigation systems will take into consideration all of these variables and create the control to distribute water to each area or zone individually. Adjustable, part-circle heads, either rotor or spray, help isolate and control irrigation applications for turf types, baselines, end zones, pedestrian and player areas, etc. Head-to-head sprinkler spacing with uniform precipitation rates are a must. Let the turf demands configure your irrigation equipment requirements.

By targeting these zones based on their individual watering requirements, we not only conserve water, but prevent pests, turf damage, soil degradation, system wear and tear, and more. So, let it be said that not all irrigation system choices are founded on equipment and capital—there are other equally important choices.



Mix in a little soil

So, we've lightly touched on the plant material, now let's proceed to soil conditions, which can vary depending on the composition, age, use and cultural practices of your facility. Generally, athletic fields present an opportunity to improve overall management efficiency through a relatively level, uniform soil profile that more evenly distributes water and nutrients to the turf.

Consistent verticutting, aerifying, topdressing, seeding, and if necessary leaching programs can create and maintain that soil uniformity throughout the profile. Irrigation designed around soil percolation and water holding characteristics (and incorporating the standard of matched precipitation rates) will cultivate a healthier, more durable and resilient playing surface.

Treat acute and chronic issues of sun and wind exposure, run-off and drainage, soil and water pH, and high traffic areas individually. Ideally, these conditions will be incorporated into the irrigation system design and scheduling regimens. Areas with more sun or wind exposure should be zoned separately, as should areas that receive more runoff from structures, challenged drainage and/or punishing traffic.

For many, the first instinct in treating stressed turf is to bump the irrigation schedule. And frequently that will do the trick. But chronic problems are serious and should be dealt with swiftly and holistically. Don't hesitate to rehabilitate poor soil or water quality.

You have options. Tying in an injector system into the irrigation system might be a sound investment. Ensure that you purchase a reputable product with a long-established track record, a legitimate warranty, and good customer service.

Note that equipment alone won't take your facility to the next level. That requires a commitment to learning how to gather and use information, with your target always being the plant material. You have to really dive in.

Collecting info

Start with a lab(s) that can analyze soil type and pH, water pH and composition, and plant tissue for nutrient deficiencies. You may learn that you are applying the appropriate blend of nutrients, but they're bound in the soil so there's limited uptake by the plant.

Once your strengths and weaknesses are identified and logged on a spreadsheet, blend yourself a custom solution. Determine your goals: aggressive root growth; prolific shoot growth; quick regeneration and so forth.

With the agronomy resolved and recorded, learn the equipment: pump, tanks, filtration, backflow prevention. Also learn and understand the desired nutrient concentration in your irrigation water, the frequency of application, liability issues (e.g., kids playing in the sprinklers or fertigating near a storage pond or ornamental fountain).

Re-familiarize yourself with your irrigation system. Measure the distance between sprinklers, the pressure at each head, and rotation times. Replace worn or damaged nozzles and ensure each sprinkler head is of the same make and model

installed flush and perpendicular to grade.

Finally, if so motivated, run a catch can test to determine sprinkler uniformity and actual precipitation rates, and make all appropriate, practical adjustments. I generally recommend during this process that you replace all rigid or flexible risers with swing joints, to protect against breaks and leaks.

Irrigation controller selection is another important piece of the puzzle. To take full advantage of the information you've gathered up to this point, consider irrigating from a central computer. You don't have to buy a Cadillac, but you do need a few extra capabilities to tie everything together.

Central programs enable you to collect and archive the essential data, perform the necessary calculations, and program the irrigation schedule with accuracy and precision. Other helpful features include system alerts (like flow sensors), expandability (adding zones, etc.), remote control capabilities, and any real-time weather or moisture monitoring devices.

Because of the grade, soil, and turf uniformity of athletic fields, there may be an additional opportunity to employ tensiometers (soil moisture sensing devices) in your irrigation practices.

Installed in the appropriate areas and at the proper depth, these increasingly improved products hardwire to a zone valve and activate and de-active irrigation sets according to the desired soil moisture level in that zone. Many turf managers initially program a 50-percent soil moisture depletion level and adjust from there, according to individual turf needs.

Tensiometers, gypsum blocks, and other soil moisture measuring devices have been used in agriculture for decades. The products are more affordable and reliable that ever. Some are more expensive, last longer and offer more accuracy than others. Do some research and talk to colleagues before implementing such a program.

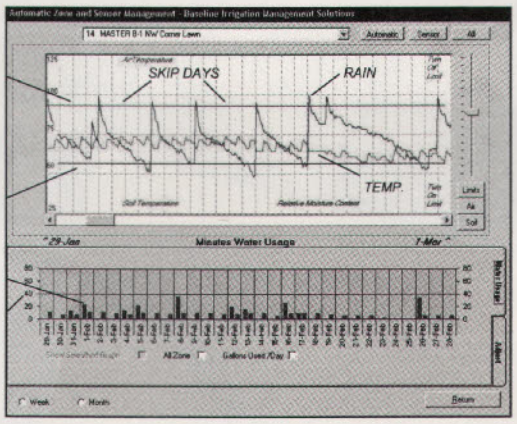
Recipe for success

These are but a few tips. Nobody knows your facility better than you do. By improving the science with which you manage your turfgrass, and implementing the proper equipment to deliver that science to the playing surface, you can take your facility to the next level.

All irrigation equipment, old and new, needs regular inspection and maintenance schedules, and swift repairs. Maintain an inventory of equipment: matching sprinkler heads, nozzles, pipe, swing joints, wire, dry splices, primer and wet/dry cement, valve diaphragms, etc.

Finally, map out your turf management upgrade plan with specific goals and timelines and involve your crew(s). Track your information. Track your progress and data diligently and enjoy the fruits of your labor. **ST**

Luke Frank is a veteran irrigation writer and editor. He can be reached at lukefrank@earthlink.net.



THE BASELINE SYSTEM

Automatically adjusting for weather and climate changes, Baseline controllers get moisture feedback directly from the soil and water just enough to keep soil moisture within the "health zone" of the plant in varying micro climates. Baseline offers professionals flexibility with controllers that can accommodate light to medium commercial sites (with 10-200 valves), and large commercial sites (between 100-2000 valves).

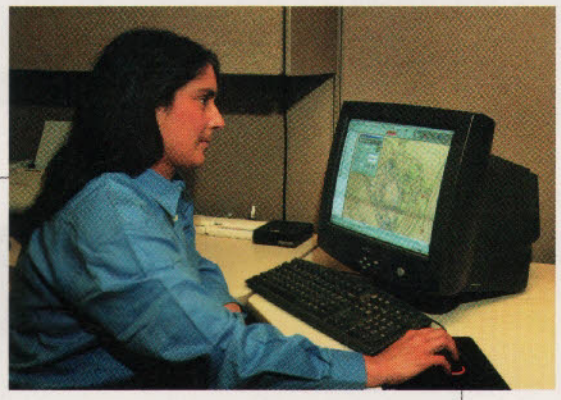
Ewing Irrigation/602-437-9530
For information, circle 098 or
see http://www.oners.ims.ca/2914-098

NEW PRODUCT!

SWIVEL JOINT

The new Four Elbow Turf Swivel Joint from LASCO adds a fourth elbow, allowing convenient installment in a variety of positions, as in saddle installation. Designed for open discharge systems, these swivel joints can be used for bottom or side inlet sprinklers. However, they are not to be used for valve-in-head applications or quick coupler valves.

LASCO Fittings, Inc/731-772-3180
For information, circle 099 or
see http://www.oners.ims.ca/2914-099

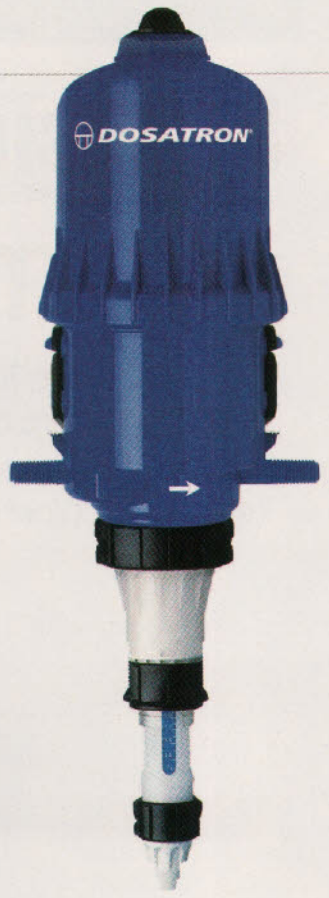


SITECONTROL

SiteControl is an easy to use, interactive central control system. It allows you to control your irrigation system with more precision than ever before using satellites via a 2-wire path or wireless communication (LINK) and/or decoders via a 2-wire path. This multi-management central control system for single site applications uses a Windows environment with advanced graphics and 32-bit architecture.

RainBird/800-724-6247
For information, circle 100 or
see http://www.oners.ims.ca/2914-100

FERTILIZER INJECTORS



Dosatron technology is now available for commercial fertigation. Dosatron fertilizer injectors have been used at commercial greenhouses and nurseries for 18 years in the U.S. This water-driven system is installed directly into new or existing irrigation lines. Water flowing through the system activates the volumetric piston, lifting an internal plunger and drawing the exact preset amount of liquid fertilizer to inject into the water stream. The solution is blended in the unit's internal mixing chamber just before flowing out of the unit. Variations in water flow or pressure do not affect the chemical injection accuracy.

Dosatron International, Inc/800-523-8499
For information, circle 104 or
see http://www.oners.ims.ca/2914-104

mizer™ WATER CONSERVER

WETTING AGENT TECHNOLOGY

Verdicon, Inc. has the latest upgrades to it proprietary wetting agent product line. The two products, Respond 3 and MiZer, are specifically designed to battle localized dry spot, compaction and other management issues such as water optimization.

Respond 3 now has re-wetters that provide effects that last up to 25 percent longer than the previous formulation. MiZer Water Conserver is a brand new product specifically designed for use in irrigation systems covering large turf areas.

Verdicon/970-347-1325
For information, circle 106 or
see http://www.oners.ims.ca/2914-106

LEIT CONTROLLERS

Powered by internal, ultrahigh efficiency photovoltaic module and microelectronic energy management system fueled by ambient light, the LEIT controller can automate your irrigation system in any region under any weather condition, day or night using only ambient light as the source of energy. LEIT 4000 available in 4, 6, and 8-station models. LEIT X and XR in 10 to 28 stations.

DIG Corp/760-727-0914
For information, circle 105 or
see http://www.oners.ims.ca/2914-105

NEW PRODUCT!

NELSON CONTROLLER

Nelson introduces the EZ Pro Jr. Series (8300 Series) of irrigation controllers for light commercial applications. The 8300 series has been designed with an emphasis on easy and flexible programming; additional features like "Event Days" per program or "Percent Water Budget" per month provide the capability to improve watering efficiency while promoting water conservation.

LR Nelson/888-NELSON8
For information, circle 102 or
see http://www.oners.ims.ca/2914-102

NEW PRODUCT!

HOSE ON-THE-GO

Reelcraft's new hose reel trailer easily attaches to most off-road work vehicles or carts with clevis pin hitch. Large 40 x 40-in. steel bed is pre-drilled for 12- and 18-in. Series 30000 hose reels. The trailer bed offers space for tool trays, larger reels, or other accessories.

Reelcraft/800-444-3134
For information, circle 101 or
see http://www.oners.ims.ca/2914-101