

Executing irrigation inspections

Spring maintenance for summer performance

BY LUKE FRANK

For many turf managers, spring is simply the best opportunity to prepare for summer. As most of us migrate outdoors this season, we'll be trampling, thrashing, slicing and skidding across all manners of turfgrass.

Irrigation plays a critical role in the health and resilience of turf facilities everywhere. Good coverage and accurate irrigation scheduling prevent transgressions in irrigation over- and under-watering—a great opportunity for people and equipment to absolutely shred plant material; or for the turf to assume a hardpan, hydrophobic existence that can lead to irrigation runoff, or worse, increased injuries.

With the exponential increase of turf users spilling outdoors, there's a lot of territory to cover in the spring. You've likely made the initial rounds at your areas of responsibility and cautiously, very gradually recharged the irrigation system(s). After a few weeks of irrigation in the new season, it's a good idea in the course of your work to assess system performance before the peak-demand months arrive.

Recharge reminders

It never hurts to re-emphasize proper system start-up procedures in the spring to help ensure a relatively trouble-free irrigation season. The greatest threat to your irrigation system during start-up is water hammer, particularly after a long, cold winter.

More than likely, the weather was not placing too many demands on your turfgrass. Therefore, you didn't get overly anxious and fill your system too early or too quickly. Hopefully you charged the piping very slowly, with plenty of air-relief valves open or sprinkler heads pulled at the high points in the system.

So you've successfully got through the recharge process without discovering any major damage to the system and you've quickly observed each zone running and programmed a light but sufficient irrigation schedule before you moved on to the next controller. Now it's time to revisit each zone or site and go beyond a quick observation. It's time to inspect, detect, and correct your irrigation operations.



It's important that conditions for good irrigation system performance are in place, including proper pressure, head spacing and nozzle selection, and appropriate sprinkler alignment.

A careful and thorough inspection of your irrigation system operating under normal operating conditions is necessary to ensure good system performance throughout the growing season. However, your turfgrass also will tell you a lot about system performance.

Observe the site. Before you begin activating zones, perform a fairly quick yet comprehensive walk-through. Rebuild any basins around trees, shrubs, and planting beds and redirect any down spouts to help the site's "incidental" landscape better retain and use sprinkler water and natural precipitation.

Check the turf for stress and that includes hot spots and standing water alike. It may be beneficial to observe any pathways, walls, or structures for new or excessive water stains. And check the ground around each head for pooling (or worse), particularly low heads.

Handle the pressure

Now it's time to activate sprinkler zones and check the operation of specific components. It is at about this point that remote control becomes a wonderful time-saver. If not, use the bleed screw on the top of each valve to open a zone, and step into the fracas.

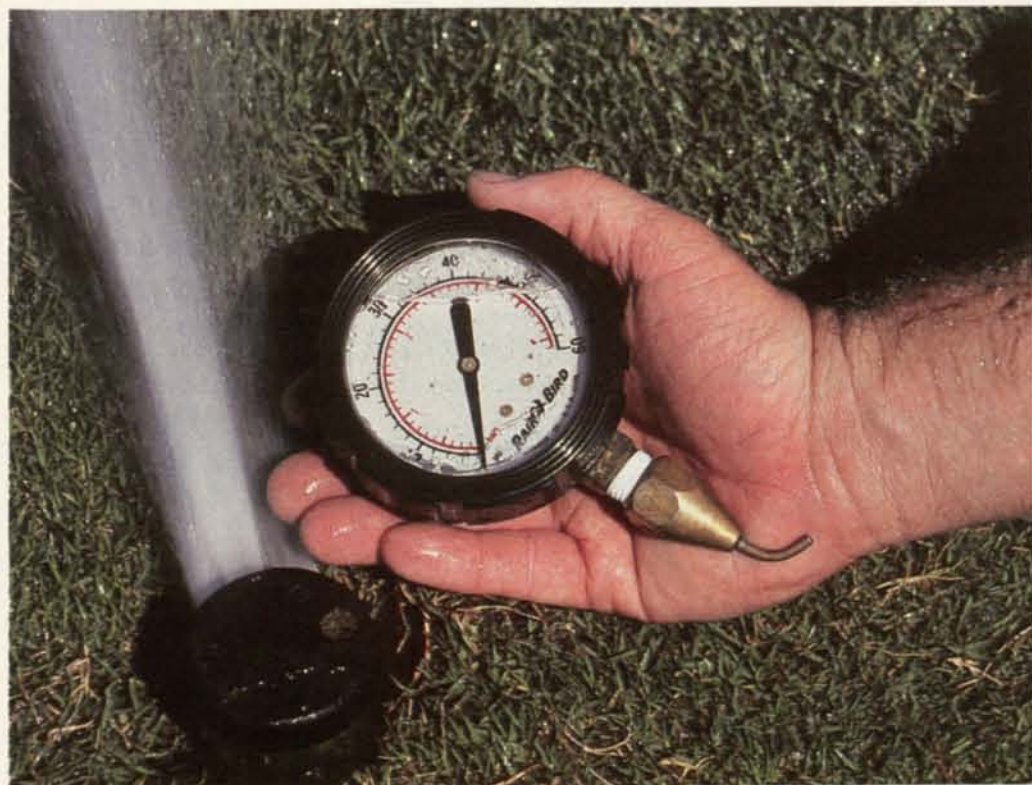
Pressure at the nozzle is important to sprinkler performance. Check the manufacturer's specifications for the appropriate operating range. A pitot tube and gauge at the nozzle will measure actual operating pressure.

If pressure is either excessive or inadequate, make the necessary changes to bring it within the specified operating range. This may entail moving or removing heads from overburdened zones, or installing pressure regulation.

Installing a pressure regulator is simple and relatively non-invasive, and can dramatically improve the performance of individual sprinklers, and subsequently the overall system. By accommodating the proper pressure range of a sprinkler head, water is appropriately dispensed and dispersed out from the head.

While you're at the sprinkler head, gently apply pressure to the ground around the sprinkler with your foot. Feel spongy? You may have a weeping valve or some low-head drainage. Also ensure each head is flush to grade (or at the safest level for your constituency) and perpendicular to the surface it will irrigate.

Sprinklers should be observed and problems corrected as quickly as they surface, to prevent any real damage to the turf, the system or the end-user. Watch the sprinklers operate on each zone. For rotor heads, the rotation time of sprinklers should closely match one another because you've already ensured that each head on that zone is of the same make and model, and operating with identical nozzles that are neither damaged nor worn.



While you're there, check that the head is flush with grade. Heads too low invite plant interference, pooling, and sediment in the sprinkler housing. Sprinklers too high are almost certain to incur damage from end-users and equipment, and risers are equally at risk. Again, while making any height adjustments ensure that all sprinkler heads lay perpendicular to the surface, otherwise radial uniformity will suffer.

Check the coverage of all rotor and spray heads, ensuring that the sprinkler is adjusted to cover the turf area and not structures, sidewalks, cart paths, or parking areas. Observe how water discharges from the nozzle. You may discover an obstruction or irregular wear that is affecting the flow rate and uniformity of the sprinkler. If you notice water draining from low heads, install check valves to prevent low-head drainage.

Ensure that all sprinkler nozzles have matched precipitation rates, pressures are within operating specifications, all heads are perpendicular to and even with grade, and no runoff occurs by using multiple irrigation cycles.

Validating valves

Your irrigation systems' gatekeepers, the valves, too are worthy of a spring inspection. Start at the valve box, ensuring that the valves are protected and accessible. Pop the top and check for standing water in the bottom of the box. Look for leaks around each valve's bonnet and around any fittings visible in the box.

Check the flow controls and all of the wire connections. It may be a good idea to re-splice some of the connections if they appear worn, frayed or improperly installed in the first place.

Open and close the valves manually with the bleed screw and at the controller to confirm proper operation. If there appears to be a sticking or weeping valve, replace the diaphragm. Finally, proceed to the management component of spring irrigation—scheduling.

As a manager of resources, it's important that your irrigation scheduling reflect the seasonal needs of the plant material as imposed by plant maturity, soils, topography, and microclimates. Evapotranspiration (ET) factors including temperature, wind speed and direction, humidity, precipitation, and so forth also should be a part of the equation.

There are very specific and effective formulas in determining your irrigation schedules that weigh in on precipitation rates, ET data and plant needs. For most of us, spring ET demands range from one-third to one-half of peak ET demands in the hot summer months.

There's always the turf manager's buddy, the soil probe. Shove that thing down past the rootzone and take a look at the soil moisture content. If it's dry, irrigate. If it's saturated, don't. It may sound simple, but too many turf managers are grossly over-irrigating and a quick probe can tell you that. Runoff of sprinkler water in the shoulder seasons is ugly. If you're applying more than the landscape can absorb in April, what's going to happen in August?

Always schedule around specific weather conditions, like high heat, wind, and rain. Weather can be all over the map in the spring, and you should be prepared to respond to it. Snow overnight can give way to 60-degree temperatures the following afternoon.

Get in the habit of NOT watering in the middle of the day, unless you must. Generally, early mornings or late evenings will enable applications to land and stay longer on their intended targets. If you have to water in the wind, run zones with rotor heads before any zones with spray heads and consider using low-trajectory sprinklers. Rain sensors are no-brainers for not watering during a rain or snow event.

Don't forget to use the water budget feature on your controller, which saves you from reprogramming every zone each time a change is required. That percent dial should be adjusted monthly according to historical ET, then daily adjustments should be effected according to real-time weather conditions.

Let nature do the watering in the spring whenever possible. Generally spring rains provide good watering depth. Help the turfgrass make beneficial use of precipitation. Spring is a great time of year in the sports turf business. Use the excitement, energy, and a competitive spirit to drive your work. **ST**

Luke Frank is irrigation editor for Landscape & Irrigation magazine, a sister publication of SPORTSTURF. He has more than 25 years of experience working with and writing about irrigation for landscapes, turf, golf and agriculture.



AERATORS & FOUNTAINS

Scott Aerator manufactures aerators and fountains, all of which have oil-free motors for environmental protection. Instead, the products feature water-lubricated carbon bearing systems, which have 5-yr. warranties.

Aerators and fountains can facilitate the natural breakdown of decaying vegetation; inhibit mosquito breeding; prevent surface and bottom growth; keep water clean; and promote healthy wildlife environments. Light kits are available.

Scott Aerator/800-928-3745
For information, circle 167

LONG-RANGE REMOTE CONTROL

Hunter Industries has available its ICR, a long-range remote control unit that allows operational access to irrigation systems within a 2-mile radius. It is designed to interface with all Hunter controllers with a SmartPro connection, including Hunter ICC, Pro-C, and SRC.

In areas obstructed by buildings, walls, or trees, the ICR can communicate within a 1/2-mile range. The ICR accepts up to 128 different programmable security codes, so that any number of ICR receivers can be installed in the same area.

You can eliminate the need to travel back and forth to a controller to activate a system with this product, which features a large LCD display and push-button operation. It also offers variable remote activated station run time, which allows a one-time change in the watering schedule without affecting your regular program.

Hunter Industries/800-733-2823
For information, circle 075



LEASE YOUR PUMPING SYSTEM

Flowtronex is offering up to 60-month financing on its pumping systems. The company says leasing means flexible payments that can conserve operating capital, and that it takes typically 1 week to approve deals. You may get tax advantages from a business operating deduction as well.

Flowtronex/800-786-7480
For information, circle 165



FOLIAR-ABSORBED PHOSPHORUS FERTILIZER

Sipcam Agro USA, Inc. has obtained exclusive marketing rights to Phyto-Fos foliar fertilizer. Containing the only form of phosphorus that can be absorbed through both leaves and roots, this plant nutrient product offers numerous advantages over traditional phosphorus fertilizers, they say.

Applied as a foliar spray, the fertilizer is a quickly absorbed systemic that is highly mobile within the plant. It provides a nearly immediate surge of phosphorus where the plant needs it most. While traditional phosphorus products can only be absorbed in the phosphate (PO₄) form and only through plant roots, Phyto-Fos is in the phosphite (PO₃) form and can be taken up by both leaves and roots.

The product encourages root and shoot formation and improves the plant's ability to withstand and recover from stress caused by excessive traffic, low mowing, heat, drought, cool temperatures and wet conditions, as well as stress associated with disease and insect activity.

Sipcam Agro USA/800-295-0733
For information, circle 162

PREVENTATIVE FUNGICIDE

PolarKote is a preventative fungicide that has proven effectiveness in controlling gray snow mold (*Typhula* spp.) and pink snow mold (*Microdochium nivale*), and it provides economical insurance to protect turf from winter disease activity. The new PolarKote products are available in 10G, a 10% granular formulation, and 4F, a liquid sprayable formulation. The granular product is available in 50-lb. bags and contains 5 lbs. of PCNB per bag. The flowable product is available in both 2.5-gal. containers and 30-gal. drums, and each contains 4 lbs. of PCNB per gal.

JR Simplot/800-552-8873
For information, circle 161

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ROOT ZONE AMENDMENTS

Base Organics is expanding distribution of its "Base" product line throughout North America. "Each of our organic products is a blend of organic fertilizer designed specifically to address the agronomic problems associated with construction and maintenance of high-sand content golf greens, tees, and athletic fields," says Chris Papada, former golf course superintendent and president of the company.

Besides granular products, the company offers hydrolyzed fish and kelp extract-based liquid products, as well as individual ingredients including kelp meal, rock phosphate, and Jersey greensand.

Base Organics, Inc./610-927-1942
For information, circle 171



PORTABLE DRAIN

Athletic field managers will appreciate the simplicity and dependability of this light, portable drain.

The Port-A-Drain siphons water in slowly around its edge leaving playing surfaces undisturbed. The siphon effect works by attaching a garden hose to the Port-A-Drain's outlet and running a hose into the nearest drain. The end of the garden hose must be extended a minimum of 18 in. lower than the elevation of the Port-A-Drain. With several pumps of the foot-operated primer on top of the unit, the natural siphoning effect takes over and makes quick work of large puddles in turf or on soil. There are no seals or gaskets to worry about ruining from any grit pulled in by the siphon.

Beacon Ballfields/800-747-5985
For information, circle 164



GEAR DRIVE SPRINKLERS

Nelson Pro 6500, Pro 7000, and Pro 7500 series gear drives deliver high performance coverage to medium and large turf areas. The long-throw units have an anti-drain valve and heavy-duty spring that help prevent erosion and puddling.

All Nelson gear drives are built with exclusive Click-Set Disks that adjust the same on all gear drive models, allowing you to quickly adjust patterns. And they offer stainless steel sleeves for added durability in sandy soils. Their tall pop-up height assures clearance over high turf and won't disrupt new seed or mat existing turf.

LR Nelson/888-NELSON-8
For information, circle 174

HYBRID BERMUDAGRASS FROM SEED

Pennington Seed & Seeds West are now producing Princess 77, the fine-textured hybrid bermudagrass from seed, in commercial quantities. Unlike other varieties, Princess 77 seed production fields had to be established vegetatively from the parental clones, and field purity had to be strictly maintained, says Pennington.

Pennington Seed/800-277-1412
For information, circle 166



PRINCESS 77



IRRIGATION SYSTEM RETROFIT

A new retrofit kit that converts electro-mechanical golf course irrigation systems to solid-state central control is available from Toro.

The OSMAC RDR kit can be installed without removing your current system; it requires no trenching or underground wiring, and won't disrupt play. Installation is easier because it uses the existing power supply. The availability of up to 48 electric station outputs in one cabinet allows for expanded control. The product is available in 16- to 48-station counts and can operate multiple stations simultaneously.

The Toro Company/909-688-9221
For information, circle 168

SPRAY TO STIMULATE ROOT GROWTH

VigaROOT is a dry soluble combination of chelated iron, chelated manganese, chelated zinc, natural humic substance, seaweed extract, yucca, and proprietary blend of natural sugars, vitamins, amino acids, and beneficial bacteria. It is used in spray application programs to reduce stress and stimulate root growth through enhanced water and nutrient uptake and correct micronutrient deficiencies.

Becker-Underwood says the product has the ability to get the plant root system back into production when stressed; improve soils by stimulating the energy system for soil microorganisms; correct iron deficiencies through foliar and root uptake; and can be used on established turf with pesticides and fertilizers to aid in stress recovery.

Becker-Underwood/800-232-5907
For information, circle 170



SOIL MOISTURE PROBE

Turf managers can get a better fix on soil moisture conditions anywhere, anytime with the new Field Scout TDR 300 probe from Spectrum

Technologies. Unlike conventional site-specific measurement tools, the Field Scout is full portable. The product features an LCD display of soil moisture in two different modes. The volumetric water content mode indicates the percentage of water in the soil at the sampling depth; the relative water content mode, used for irrigation scheduling, does the same but reports the result relative to user-defined wet and dry soil set points.

Spectrum Technologies/800-248-8873
For information, circle 172



WIRELESS SOIL MOISTURE SENSOR

Golf course irrigation has always been a time-consuming and difficult job, requiring you to rely solely on your judgment. Now Adcon Telemetry is introducing Aquaflex, a wireless soil moisture sensor that monitors greens and provides specific data for optimal water management.

Aquaflex is specifically designed for turf and is easy to install. It is the first product to measure soil conditions over an extensive diameter range as opposed to an extensive range of levels. Because the technology is wireless, golf course disruption is minimal during installation and usage. Companies already using Adcon's technology typically save up to 20% in irrigation costs. Adcon's system provides continuous records of the conditions in the root zone. By sampling and reading conditions up to 2 ft. into the soil, and 10 ft. in diameter, Aquaflex overcomes the problems associated with measuring soil moisture at one point only.

Adcon Telemetry/800-360-5309
For information, circle 175





DRAG MAT FIELD GROOMER

Drag Lites from Newstripe have adjustable scarifier blades that break up hard-packed surfaces; the attached mat then grooms the surface to a "ready to play" condition, all for the price of standard steel link mats, says the company.

Both the 3- and 6-ft. models feature structural steel lead bar and blade; industrial grade fasteners; industrial rubber mat section; and extra length pull chains.

Newstripe, Inc./800-624-6706

For information, circle 173



WETTING AGENT & FERTILIZER COMBO

Precision Laboratories has Cascade Plus fertilizer, a wetting agent and fertilizer combination product specifically designed for the golf course, landscape, and specialty turf market.

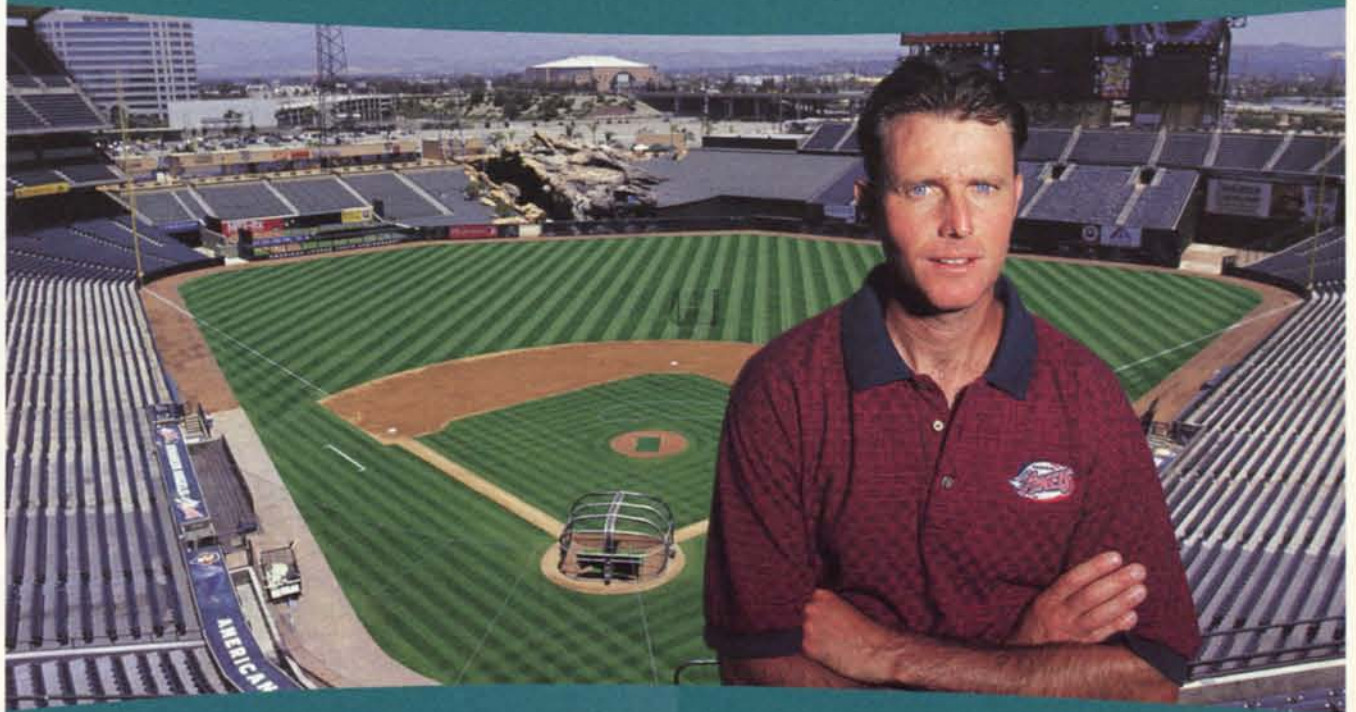
The new product combines the proven wetting agent technology of Cascade Plus with a fertilizer blend to provide turf managers with a single application of enhanced water infiltration chemistry and turfgrass nutrients.

Cascade Plus is a wetting agent that has been scientifically proven to control localized dry spots and to significantly decrease soil hydrophobicity. The product offers a synchronized release technology that has been shown to improve turfgrass quality and water infiltration. In both university tests and on-site golf course testing throughout the summer of 2001, the product was found to be a water management tool, controlling localized dry spot, increasing water infiltration, and more efficiently managing water use.

Precision Laboratories/
800-323-6280

For information, circle 163

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Field Manager
Edison International Field,
home of the Anaheim Angels
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