What's trending in sports turf irrigation: Q&A with Jeff Bruce

IF YOU BELIEVE IRRIGATION CONSULTANTS just know sprinkler systems, you're way off the mark. The American Society of Irrigation Consultants (ASIC) has spent the past 40-plus years training and supporting irrigation professionals in the industry in emerging water codes and regulations, water resource development and quality, turf management, soil science, chemistry, agronomy, horticulture, business development, marketing—you get the idea.

We caught up with Jeff Bruce, ASIC immediate past president, and principal of Jeffrey L. Bruce & Company (JLB) in North Kansas City, MO. Bruce founded JLB in 1986, and has rocketed to the top of the sports turf industry since, completing about 600 professional and NCAA sports complexes in the past 10 years alone, including Alex Box Baseball Stadium at LSU, Carolina Panthers Stadium, University of Kentucky Commonwealth Stadium, and Notre Dame Athletic Complex.

We asked Bruce what's trending in sports turf irrigation. His vision of the future might surprise you—it did us.

ASIC: Tell me about the role of an irrigation consultant in overall design and management of sports fields. How has that evolved over the past decade?

▲ **ALEX BOX BASEBALL STADIUM** at LSU. Photo credit Jeffrey L. Bruce & Company.

JLB: Our perspective is probably a little different because we don't just consider the playing field; we profile the entire sports complex as an integrated system. These enterprises should be completely interconnected from the bottom up; drainage, catchment, soil profile, irrigation, turf type, and so forth. Then we consider usage, safety, longevity, resilience, budget, and maintenance and management needs and capabilities. Then we look at the surrounding grounds, the plant material, the water sources, the practice facilities, the parking facilities. It's all interrelated.

Remember that for every stadium venue there are several practice fields that are used much more intensively. Typically there are more business opportunities for those than the stadiums so we like to tie them all together.

This has evolved into a business model for us that requires a lot of specialty expertise. I'm not sure anyone else does it, but clients like managing an entire project through a single consultant.

Is it a good representation of an irrigation consultant's role? Maybe down the road. As we see more slippage of the mar-

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◀ **JEFFREY L. BRUCE, FASLA**

ket—more design-build and other solutions that don't involve just irrigation—the irrigation consultant's role might have to expand significantly into more than effectively developing and managing water resources.

ASIC: Any new design or business trends in athletic fields that appear to be emerging?

JLB: A couple of things. We've seen a shift from high-performance turf and irrigation systems to more modest projects, mostly due to restrictive budgets in this slower economy. With the popularity of artificial turf, our primary business has fallen off a bit.

Artificial turf became pretty popular in the professional ranks, and now is becoming more popular at the high school and park & rec level. More recently, however, we're seeing an inkling of a movement back to real grass. I think it's related to the current generation of artificial turf products. There's really not much history or background on the performance of these newer products, and decision-makers really have to evaluate claims by manufacturers with no ability to validate them.

We're seeing quite a few second surface replacements in fields, about every 8-10 years. Because the artificial turf safety issue is still up for debate, and certain artificial fields promote higher injury incidents, there's a prevailing feeling that artificial turf is okay, but grass is re-emerging as the preferred surface.

There's also been a movement to large pay-for-play facilities, like big joint county-city projects of 15-20 soccer fields where fees are charged for use. We're starting to see the higher end of those facilities coming back to turf, as well.

So those are trends we're experiencing. What's to come? I absolutely believe there will be intensive new regulations in water sourcing very soon. I further expect this trend to be a great opportunity for the irrigation and sports turf industries to be a huge part of an integrated green infrastructure paradigm.

When we look toward the development of unknown irrigation technology, we see stadiums and facilities using their fields as water harvesting and water polishing enterprises, so stadium and grounds rainwater, storm water and wastewater will be collected below the sports fields, then polished in a system and reused in the facility. We've been looking at this for awhile.

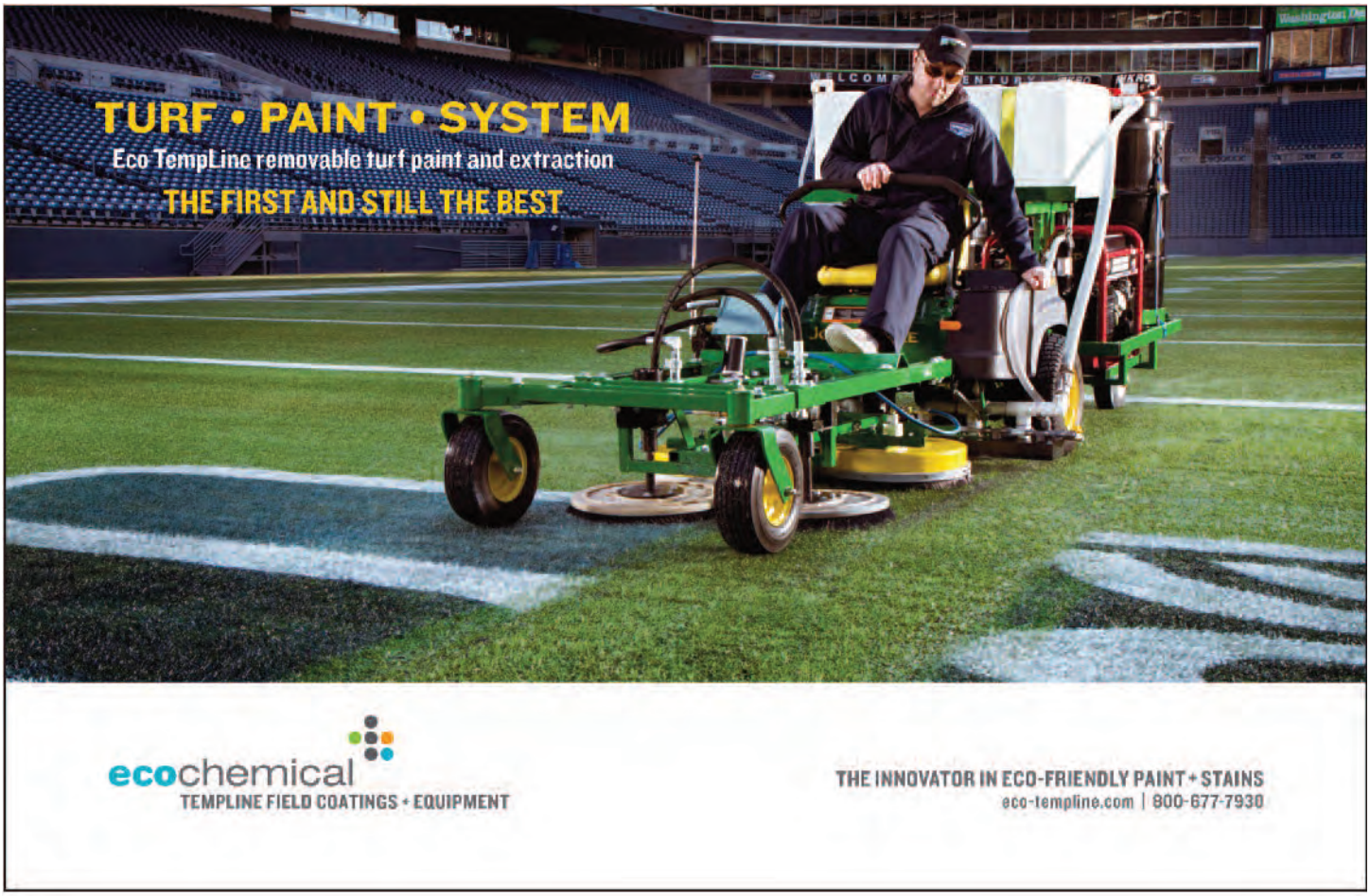
The challenge sports turf managers have is that they're in control of very little. Few get to decide the field or facilities they have to work with. They have to become empowered to be in position to make a difference. They certainly have the knowledge and aspirations.

These things are coming, and sports turf managers should position themselves for more control over their professional destiny.

ASIC: What about water sources? How has that evolved over the last decade? Should we be moving away from using potable water for irrigation?

JLB: Clearly, water is being subsidized; its cost still is nowhere near the cost of supplying it. There's only one way to generate enough water for the population. Higher water rates are coming, and we'll see dramatic increases in cost.

There remains a myopic assumption in the industry that turf man-



agers always will have the water they'll need. But increasingly we're seeing big park & rec facilities that are spending a lot of money on water starting to explore developing and using alternative sources.

The high-end collegiate and professional venues don't really think much about the cost of water; they use potable water almost exclusively. It's cheap. But they're starting to have storm water regulation issues, so we're designing drainage in the fields as storage and detention basins to meet storm water requirements. There's not a big leap of faith to move from storm water detention to harvesting water for reuse.

In the future, a prominent part of any irrigation system is going to be subsurface cisterns to secure water for irrigation, and filtration systems to render that water usable. We'll be off the municipal water and sewer systems; off the grid entirely. I think the Green Industry is starting to understand that, as green codes continue to trend toward net-zero water. Unless the industry gets ahead of this, we'll be walking the plank and the plank will be cutoff. We need to get off the public systems and intercept water before it gets offsite.

▲ **UNIVERSITY OF KENTUCKY FOOTBALL PRACTICE FACILITY.**
Photo credit Jeffrey L. Bruce & Company.

ASIC: What irrigation system devices most determine performance and durability in sports venues?

JLB: Sports facilities definitely offer a different perspective. We have to ensure the safety of the athletes using the facility. That absolutely affects our irrigation equipment choices.

One of the sports turf industry's biggest challenges is that irrigation systems are falling apart because to keep costs down at the design-installation phases, piping is being undersized resulting in over-pressurized systems. We get it—irrigation is judged by upfront costs; not longer-term costs. But by small-sizing the piping, a system's life expectancy can be cut by as much as half, and certainly opportunities for efficient water use go down.

These systems lose a lot water and turf when they fail, plus too much pressure simply deteriorates efficiency. So we're balancing two things: throwing water a long way to keep irrigation equipment off the field, which requires higher pressures; but keeping operating pressures as low as possible to minimize physical wear on equipment. We specify larger pipe and head sizes so velocities are reduced, and wear and tear are minimized. That's one key to extending the irrigation system's life. It absolutely requires some salesmanship.

Another component for consideration, particularly in sports fields, is controller systems. They're almost too sophisticated. Oftentimes the features the average controller provides are way overdone.

We like to keep it simple. Today's groundskeepers need more diagnostic tools than features. For example, moisture content is incredibly valuable information. There's an opportunity for turf managers to employ more moisture sensing technology in their management toolbox. Fixed or portable, they provide a quantitative measure of soil moisture content for more effective water management.

ASIC: What are your best design components, from irrigation control systems to sprinkler heads to piping and quick-couplers to pressure regulation to soil prep?

JLB: We find a full range of equipment in manufacturers' catalogues to solve most any specific problem. If you have high pressure, then pressure regulation is important at every stage, from mains to laterals. Using pressure gauges helps you identify spikes and better understand your system.

Isolation valves reign king. Although considered a luxury by some, the ability to isolate sections of a loop system in the event of a breach saves time, turf and equipment. Strategically placed isolation valves can be a manager's best friend in a crisis. It's important.

And then there are the smaller details, like accessing quick couplers for spot watering or syringing; or using quality swing joints instead of funny pipe. Not every solution is a big, impressive piece of equipment. High-performance systems should include all arrows in your quill to maintain a performance-tuned operation. Certainly stainless steel risers are important on sand-based facilities.

Use the irrigation manufacturers' catalogue for distinct benefits that address system or site idiosyncrasies. There truly is a piece of equipment for every potential problem.

When you look at big sports complexes, the upfront cost of irrigation equipment is really pretty small compared to the cost of maintaining the fields themselves. It seems short-sighted to save $100 on a cheaper controller, but pay someone $25 an hour to adjust the run-times. You might save that hundred bucks up front, but shell out $30,000 over a 20-year period. We need to be more sophisticated in our cost evaluations.

ASIC: Do you work off a template you've developed over the years or is every ball field project so unique that you start from scratch?

JLB: For years we would design irrigation for a stadium thinking it looked like the previous stadium. So we'd pull out our old project plans and specifications, and tweak them. We realized at some point that each facility just became its own project. There's ample uniqueness to sports fields and facilities that we have to start from scratch with each one. And it's not just the quirkiness of the sites; turf managers also are unique in their management needs and preferences.

Most fields are used a number of different ways, so the parameters change with each project. There are different needs for lacrosse, than football, than soccer, than rugby, than concerts, than car shows. Different uses are going to affect the overall design. ■

Luke Frank is a free lance writer who submitted this article on behalf of the American Society of Irrigation Consultants, www.asic.org.