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IRRIGATION & DRAINAGE

Controllers merge technology and resources

he evolution of irrigation system controls that began 20 years ago has been astounding, especially considering that lots of you used to drag hoses and manually open valves or punch heads into quick-coupler systems, and then checking your watch.

Gone are the days of pins and dials used to ballpark irrigation programs. "The advent of solid-state electronics finally enabled folks to schedule sprinkler sets precisely and reliably," says Dave Davis, an irrigation consultant in Crestline, CA, and president of the American Society of Irrigation Consultants.

Which brings us to the technology of today. What would the ultimate irrigation control system look like? "In the best of all worlds, an irrigation manager would have access from anywhere to technology capable of simple tasks, like manual starts and rain overrides all the way to downloading automated irrigation programs based on real-time, weather inputs from on-site weather stations or service providers," says Norm Bartlett, ASIC executive director. "The state-of-the-art system would be capable of running multiple irrigation sets for individual sprinklers to make adjustments for various exposures, slopes infiltration rates or soil types, or getting away from timed irrigation schedules altogether and programming irrigation sets based on need as measured by ET devices or moisture sensors.

"The ultimate control system is programmed with hydraulic data and water source information. It learns flow rates for individual zones or sprinklers, and schedules the watering window to the shortest runtime or maximum pump efficiency. These control systems also manipulate master valves, control valves and isolation valves and can automatically bypass a zone or de-active the entire system when there is a swing in flow, and alert the water manager via a pager, cell phone or e-mail.

"Central control systems now are mobile," Bartlett says. "Anywhere you can take a laptop and access the Internet, you can update irrigation programming."

Take it a step further, and the water manager can program applications of customized element and nutrient blends through individual heads or zones to address plant, soil and water quality imbalances as they arise.

Control system communications challenges? Take your choice of hardwire, trunked radio, radio, cell phone, radio remote control, or combinations therein.

"There's some remarkable technology out there," says Davis. "It's evolving so fast that there aren't many water delivery system problems that can't be addressed by available technology. I think that's the key to really effective controller selection—you have to know your site like you know your own home—its limitations and opportunities. Then you select the controller with the optimum features and capabilities based on all available products, not single product lines."

Consider the following parameters:

Soil/Plant/Water Relationships

Know your water quality, soil type and quality (throughout the site), and the diversity and health needs of your turfgrass and other plant material.

Climate/Exposures

Research annual precipitation, seasonal fluctuation, maximum ET days, average temperatures, as well as specific zones that are exposed to elevation, sun, wind, pedestrian and vehicle traffic, and so forth.

Resources, Natural/Human

Be aware of existing and potential water resources and quantities available; your annual and monthly irrigation consumption; power and energy options and requirements; and also your human resources; how large and capable your crews are; full-timers versus seasonal, and so forth.

Watering Windows

This incorporates a lot if detailed info on flow rates, available and dynamic pressure, pumping capabilities, scheduled games and events, cultural practices and the like.

Administrative Demands

Recent, current and projected budgets; how much protection they expect or demand regarding potential liability issues; their expectations of system reliability and turf appearance; and so forth

System Performance

Determine your needs in terms of system longevity; water application precision; system flexibility and safeguards; ongoing maintenance demands; and so forth. Also consider potential future needs.

Your fundamental controller capabilities should include:

Independent Programs, which enable the turfgrass manager to group stations into hydrozones, irrigating each hydrozone at different intervals and durations, according to plant needs.

Solid-State Operation that gives operators very precise station cycling (to the minute). This feature is especially useful on sites that have irrigation systems with high precipitation rates.

Water Budget Features that permit weather-related schedule changes. Consider control systems that offer budgeting to a single percent, rather than 10- or 25% increments.

Multiple Start-Time Capabilities, which are important in preventing runoff and liability issues, particularly on sites with severe slopes, claybased soils or high precipitation rates.

IRRIGATION & DRAINAGE

IT'S BEEN ESTABLISHED THAT A MONSTROUS RESERVOIR OF EVOLVING SYSTEM TECHNOLOGY IS AVAILABLE TO YOU, SO TAKE THE TIME TO INVESTIGATE LOCAL DEALERS AND DISTRIBUTORS.

Rain Delay Programs that can automatically reactivate the control system after the programmed number of days.

Electrical and Flow Diagnostic/Alert Functions, which can be invaluable on larger sites, as they warn operators of faulty or interrupted wiring or a breach in the system.

It's been established that a monstrous reservoir of evolving system technology is available to you, so take the time to investigate local dealers and distributors. Ask about training, programming, warranties and callbacks—these are essential services with today's advancing controller technology. In addition, inquire about the following:

Design/installation features

What is the life expectancy of the controller?

What safety features are included or available as part of the control system?

What are the options for future upgrades?

Does the control system meet all applicable local codes?

What about lightning and other power surge protection issues?

What water-conservation features are available?

Specific design/operating parameters

Does the system provide rain override capabilities?

What about rain sensor, wind sensor or moisture sensor capabilities?

What is the recommended programming for the controller?

What are the specific programming capabilities of the system?

How (and how long) are programs saved in the event of a power outage?

Are their customer "support groups" with whom the operator(s) can consult (and console)?

How does the control system link and communicate with other system components (pump controls, weather stations, moisture sensors, etc.)?

Warranties

Who, if anyone, provides start-up and adjustment services?

What are the warranties on individual components of the control system, and control system design performance?

Are the providers (manufacturers and distributors) financially capable of standing behind the warranties?

What is the availability of replacement parts?

We've always had irrigation control technology at our fingertips - but now those fingertips are dancing across a computer keyword, not wrapping around a cold, dripping sprinkler in the dead of night.

This article was contributed by the American Society of Irrigation Consultants (ASIC), www.asic.org. ■



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Buying basics and leasing lessons By Jim Langston

t the heart of keeping your field playable for the team and attractive for the fans is maintenance equipment and of course the dollars that help provide it. Because your needs, use, and budget vary for every field, there is no single guide to choosing and financing equipment, but here are some basic concerns to examine before acquiring your next piece of equipment.

Before you shop, there are a couple of fundamentals about your facility you need to know. What funds are available (annual, seasonal, monthly)? How much acreage under your care? And, frequency of task performed, i.e., reel mowing 2 hours per day or aerating 4 times a year, etc.

Understanding your organization's needs, desires, and funds will help you and any equipment dealer ensure that an appropriate match is created. You'll end up with the equipment you need at prices you can afford.

Understanding the characteristics of buying and leasing is important. When you buy, the equipment is yours entirely of course. With leasing, there are two options: a finance lease (leasing to own) or a true lease (you keep the equipment for the life of the lease, then return it). Some key characteristics to remember include:

Buying

- * full price up front or financing loan
- * owner is responsible for all regular maintenance and repair
- * recommended for fields with short seasons or light use
- * recommended for equipment that retains high resale value (low depreciation)
- * owner is responsible for insuring the equipment

Leasing

True lease or operating lease:

* lowest monthly payment with greatest flexibility at end of lease term



Long-lived equipment is often purchased rather than leased because it retains high resale value.

- * low upfront costs (typically just one or two advance payments)
- * might have beneficial tax implications; ask your tax advisor
- * leasing company retains ownership for tax purposes
- * increased warranty coverage (new warranty each time equipment is replaced)
- * well-suited for heavy daily use applications
- * customer is responsible for maintenance, insurance, taxes

Finance lease:

- * designed to provide ownership at lease maturity
- * avoid large down payment
- * customer is responsible for maintenance, insurance, taxes
 - * recommended for medium-use scenarios

When considering any purchase or lease, the secret is to find a balance between price and value. Price is how many dollars it costs, whether those costs are upfront or each month. Value is what you receive for the price you pay. Factors that contribute to value include insurance, tax, and maintenance costs per month or per year; depreciation and trade-in or resale price; durability; warranty coverage; and service and parts support. Since many of these factors may be difficult to quantify, determining value can be challenging. Research, peer opinions, and a good dealer should all contribute to a measure of equipment value.

Dealers should work to ensure you're getting the most appropriate equipment and financing plan for your unique situation. Dealer Jonathan Moorman of Georgia Turf & Tractor notes that three-quarters of his dealership's business is from leasing rather than purchases. "Customers want the advantages of both reliable service and customized financing," says Moorman. "At our dealership, we can tailor payment plans to the budgets of each individual customer.

"Sports turf customers often have very distinct seasons and may only have certain months where revenue is coming in," says Moorman. "We can structure payments to match the revenue season. If your field is active from April to October, you can arrange to make payments only from April to October.

"Particularly for schools and recreation departments, some customers may be constrained by their fiscal year," notes Moorman. "If these customers encounter a situation where they need a piece of equipment and can't wait a few more months, we work with them to set up a deferred payment until the start of their financial year. That way, they get the equipment they need, and everybody wins."

Moorman notes that annual payments can be advantageous for some lease customers. Since the initial payment is paid in advance, less interest is generated over the life of the loan, resulting in decreased overall costs.

"You can also save money on purchases by buying a lease-returned piece of equipment," reminds Moorman, an option that might otherwise be overlooked.

There's also a third option when reviewing your equipment options: renting or contracting special services. If you're planning some heavy renovations, renting construction equipment is the best option, as it is expensive to buy and only required for a very short term (usually less than a year). For specialty equipment that is used perhaps only a few times a year, you could either rent the equipment for a day or so, or bring in a contractor to perform the work.

Waldo Terrell, grounds foreman for the University of Georgia, uses a mix of leasing and purchasing for the equipment he needs to manage 17 acres of sports fields and approximately 100 acres of landscape and hardscape. His full time staff of eight is supplemented by a handful of students studying turf management.

"We don't have a full-time mechanic, so keeping our mowers on 3 or 4 year leases allows us to not only stay on top of technology but also avoid most major maintenance issues," says Terrell.

Terrell also feels that such short-term arrangements enhance his relationship with his dealer. "We stay in their sights," says Terrell, "so I always feel like I'm getting good

A buyer's profile:

- * a single investment
- * long-term need
- * frequent or less severe use schedule

A leaser's profile:

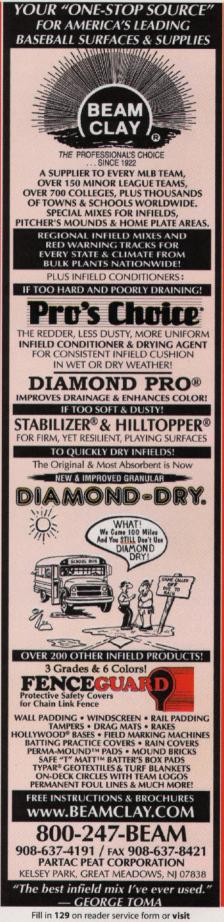
- * recurring annual budget
- * desire for most up-to-date technology
- * heavy use schedule for equipment (multiple hours daily, year-round; tough conditions)
- mix of equipment needs, use schedules, and acquisition plans

customer service, and they're taking the time to give me the best they have to offer."

For this university's nine football, soccer, baseball, and softball fields, long-lived equipment is purchased. "We purchase utility vehicles, tractors and aerators since the finance loan payments are only slightly higher than lease payments," notes Terrell.

So before jumping on the leasing bandwagon or trying to match a peer's "discount purchase deal," evaluate your program, fields, and needs to determine the most appropriate finance tools for your facility. With the right financing plan, your fields will reflect the highest standards of care without having paid the highest prices.

Jim Langston is National Sales Manager, John Deere Golf & Turf.



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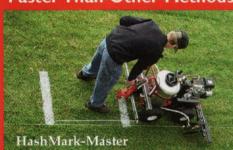
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TOOLS & EQUIPMENT

Pop Quiz: the Aerator

t's always a balancing act when trying to decide on a financing option. Try testing your knowledge with the following example. Your field generally uses an aerator four times a year. What considerations should you take into account when deciding whether to buy, lease, rent or contract out aeration services?

To answer, examine the advantages and disadvantages of each choice:

Buying

Advantages:

- * own the equipment
- * have it on hand in case of additional service dates
- * flexible use schedule in case of delays
- * low maintenance with infrequent use
- * depreciation counts as tax write-off

Disadvantages:

- * higher up-front costs
- * regular maintenance and storage needs
- * depreciation
- * as aerator ages, increased maintenance
- * may be difficult to justify acquiring updated technology if recent purchase was made

Leasing

Advantages:

- * equipment is always on hand in case of additional service dates
- * flexible use schedule in case of delays
- * warranty timeframe starts over each time equipment is replaced
- * spread use costs over the use period
- * flexible payment options (i.e.: seasonal, monthly, annual, etc.)
- * tax benefit may be available (consult your tax advisor)
- * payments may be expensed without impact to your balance sheet
- * predictable for budget forecast purposes

Disadvantages:

* monthly costs

- * regular maintenance and storage needs
- * costs may not be justified for low-use or long-lived equipment

Renting

Advantages:

- * one-time fee
- * choose the model that best fits the needs of the moment (i.e. as needs change, a different model can be rented)
- * best suited for short-term equipment needs

Disadvantages:

- * must expend time and money on training operator in use or hire additional personnel
- * if weather or use needs disrupt schedule, costs increase with additional rental times
- * desired model may be unavailable when needed
- * pickup/drop-off or delivery may require additional costs or resources

Contracting Services

Advantages:

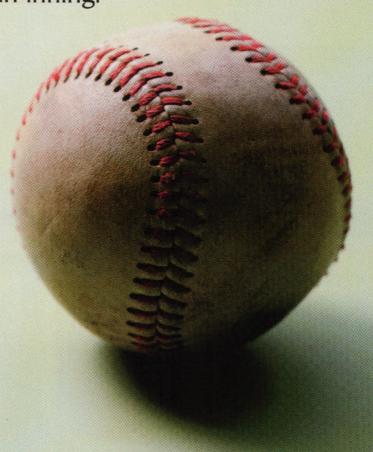
- * one-time fee
- * no maintenance costs or efforts
- * no need to spend time or money on training operators

Disadvantages:

- * contractor may not be nearby, increasing costs
- * contractor may be unavailable when required (scheduling conflicts)
- * if additional, unexpected contracting dates are required, costs may outweigh costs of leasing or ownership

Did you pass? The test above has no "correct" answer. The answer will vary depending on your facility's unique needs, which are apt to change over the course of the years. While no one can predict the future, examining the past 10 years of your facility's history may help you recognize any economic or other patterns and select a financing model with the best fit.

Some people change the history of baseball without ever playing an inning.



And coming this December, you can learn how.



Roger Bossard Head Groundskeeper, Director of Grounds Chicago White Sox



Alan Sigwardt and Engineering, Dolphin Stadium



Dr. Hank Wilkinson Mark Razum Professor of Turfgrass Diseases, University of Illinois



Head Groundskeeper, Colorado Rockies

If professional field design and maintenance were a competitive sport, Roger Bossard would be one of its reigning champions. And now, in partnership with the Professional Sportsfield Institute, he's teaming up with other sportsfield pros to offer a three-day training camp that will teach you how to turn your ballfield into a major league venue. The registration deadline is November 10, and space is limited to 75 individuals. So don't miss this rare opportunity to learn the finer points of making and perfecting a ballfield from those who continue to rewrite history one groundskeeping innovation at a time.

Attend Roger Bossard's 2006 Groundskeeping Training Camp • December 6 – 9, 2006 • Tucson, AZ To register, go to www.sportsfieldinstitute.com or call (888) 424-7672.



John Mascaro's Photo Quiz

Can you identify this sports turf problem?



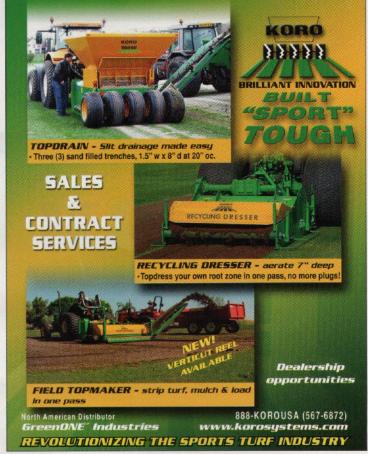
Problem: Brown area on field
Turfgrass Area: Athletic Field
Location: Colorado
Grass Variety: Kentucky
bluegrass blend

Answer to John Mascaro's Photo Quiz on Page 41

John Mascaro is President of Turf-Tec International



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product spotlight

New **Bobcat UV**



Bobcat's new 2300 4x4 utility vehicle can mow, sweep, and move materials with its **RapidLink** attachment system, which can lift loads up to 500 lbs. as high as 2 ft. The 20-hp unit has the exclusive **IntelliTrak** drive system. Cab provides legroom, storage spaces, cup holders, and a 12-volt power adapter on the dash panel.

Bobcat Company

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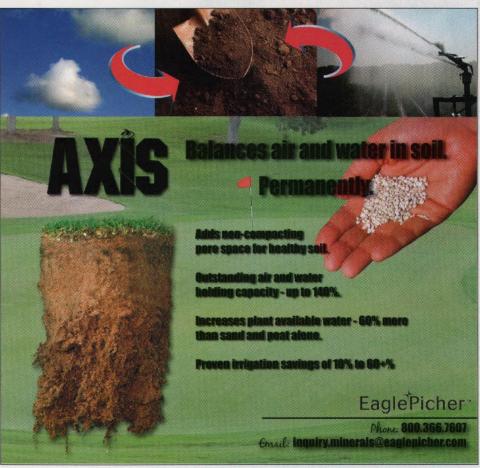
Top Dresser



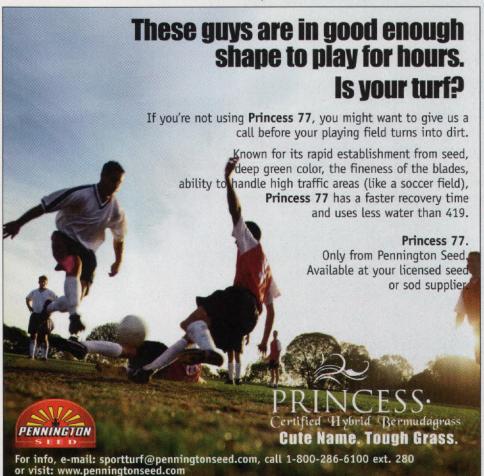
Specifically designed for the John Deere ProGator 2020 and 2030 units, the TD100 Top Dresser has a fixed-speed nylon/polyester cordless conveyor belt that moves material under a metering gate and through a rotating brush for even distribution.

John Deere

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Fill in 168 on reader service form or visit http://oners.hotims.com/9137-168



SoCal STMA renovates field named for a legend by Mike Tarantino

t first the project seemed to be overwhelming, and more than the members of the SoCal Chapter of the Sports Turf Managers Association (STMA) probably wanted to take on. But when we considered it further and finally realized what kind of support it might receive from individuals and businesses, it became "definitely doable."

Rick Covert, STMA secretary and Facilities Supervisor/Landscape at Miramar College, and Ron Lardizibal, Athletic Director at San Diego's Herbert Hoover High, talked during a walk-through at Petco Park. They agreed they wanted to continue the recent STMA tradition of volunteering each year to renovate a public field.

Lardizibal mentioned that the varsity field at the school was certainly a candidate for a local project. The field is called the Ted Williams Field, named in honor of the baseball legend, who while still enrolled at Hoover High, made his professional baseball debut in the minor leagues with the San Diego Padres of the Pacific Coast League.

That this was the school where Williams played baseball when he was a youngster was certainly part of the allure of taking on this project.

Padres' Director of Field and Landscape Maintenance Luke Yoder, an STMA member, and his assistant, John Turnour, echo that sentiment. "I can't think of a better opportunity to give back to the community than at Hoover High and a field named after a true legend," Yoder said.

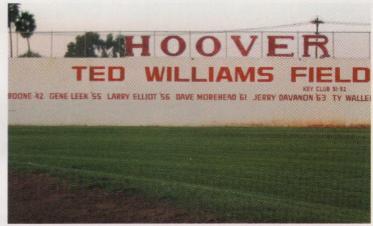
When we looked at the field in January it was clear that it was going to be a challenge. In no uncertain terms, we knew there was much work to be done.

Lack of funds meant the field had not been maintained properly. It wasn't because of lack of interest or knowledge, just money. Budget priorities at municipal and other public organizations are forced to shift from year to year because of a similarly shifting economy.

Ron Hostick, an STMA board member and Lead Groundskeeper for San Diego State University, said that some preliminary irrigation and skin work was done Wednesday and Thursday before the weekend event.



Getting it done: Mike Tarantino, middle, flanked by Ron Hostick, right, and Mike Radigan, left.



Before renovation; check out that bad infield lip.

Hostick, who is responsible for maintaining Charlie Smith Field at Tony Gwynn Stadium on the university campus, said the major part of the massive effort was conducted over 2 full days, July 7-8, with some residual work on Sunday and Monday.

Approximately 50 persons added their labor and talent. Eleven businesses from the San Diego area were present with their product and service donations. The work focused on a number of areas, especially the replacement and updating of the field's irrigation system. Sprinkler heads were replaced and new piping was laid. Sod replacement followed along with removal and replacement of the pitcher's mound.

A major job was the removal of the lip where dirt and grass meet. Over the years, the lip had grown so high that it easily had turned into a hazard for the youngsters using the field.

The businesses that are credited for participating in the event are AA Equipment, Barkshire Laser Leveling, Best Professional Products, Green One Industries, Horizon, Hunter Irrigation, Profile Products, Pro's Choice, Target Specialty Products, Turf First and West Coast Turf. About \$75,000 in products and services were donated!

Mike Tarantino is Director of Maintenance and Operations for Poway Unified School District, and president of the Southern California Chapter of STMA.

STMA partnerships benefit you

ou walk by your athletic director's office, and he waves to you to step inside. In his hand is *Interscholastic Athletic Administration magazine*. He says, "I just read about STMA's partnership with the NIAAA. I didn't realize that your association is *my* association's education partner."

In fact, STMA has been the National Interscholastic Athletic Administrators Association (NIAAA) education partner since 2005. That partnership grew from a desire to open educational and informational channels about safety and sports field management challenges facing