>> Top left: NETAFIM DISTRICT SALES MANAGER KELLY KEICHER (LEFT) and project landscape architect Doug Rockne (right) review turf conditions during the dry summer months.

>> Bottom left: PEAKVIEW PARK NORTH is one of a series of community parks that comprise the 12.5-square mile Arapahoe Park and Rec District, just south of Denver.

>> Bottom Right: THE ARAPAHOE PARK AND REC DISTRICT has 100 acres of developed parks, including playgrounds alongside the sports fields.

drop. However, in this High Plains region where rivers are born, ground water is scarce. Lifeline water taps (the right to connect to water mains) and monthly water costs are pricey.

Rockne started working on this massive recreational project in the 1980s. He developed the District's original master plan and continues to function as lead designer and advisor to the board of directors. From the beginning, he knew he had to approach the site's water use with innovative thinking.

"With the Rockies nearby, you'd think we'd have plenty of water. But this is a semi-arid desert environment. We're at 6,000-foot elevation with 15 inches of precipitation a year, and heavy clay saline soils.

"A couple of our first fields were installed with traditional overhead sprinklers, but all the rest are dripline."

This high-use recreation area was designed to serve the fast-growing communities outside Denver and demand for sports fields grew exponentially during the housing boom.

"Local communities were clamoring for fields for all ages, all genders, all sports, and they are typically booked solid from March through November," said Rockne.

Today the Arapahoe complex is nearly 90% built out and has an envy of amenities: 100 acres of developed parks, 500 acres of open space, 14 miles of trails, 75,000 square-foot recreation center, gym, indoor skate park, and a multi-plex of natural turf sports fields.

"There's a reason Colorado is one of the healthiest states. Everyone's outdoors playing sports," said the field designer.

Over the past 6 years, the district has installed Netafim Techline CV dripline on three baseball fields, two softball fields, one football field, four soccer fields (two as large as three acres) and several multi-use fields. By specifying dripline systems, the planning team was able to maximize water use while minimizing costs.

"Our challenges included both fiscally-sound start-up costs and responsible management of water use per acre," said Rockne. "Dripline has helped us achieve those goals and the District has always been able to operate in the black."

WATER DIRECTLY TO THE ROOTZONES

"Dripline delivers a precise amount of water directly to the rootzones without wasting a drop," said Kelly Keicher, Netafim district sales manager for Colorado.

"This area has low humidity and dry mountain air. Overhead irrigation loses too much water to evaporation and wind drift in these conditions.

"We've shown that dripline is 90% efficient when compared to overhead irrigation, which is generally around 60% efficient," said Keicher.

The Arapahoe District management recently conducted a comparison of monthly water costs between a sports field with dripline and an older sports field with over-

>> NETAFIM TECHLINE CV DRIPLINE was run in lateral rows with approximately 14 inches between each line of tubing. The tubing was set in place with an automated Vermeer insertion plow.

head sprinklers. The comparison was done in May, a high usage month.

Arapahoe Sports Park A is a 4.7-acre site irrigated with a traditional overhead system. The field used 437,000 gallons of water or 92,979 gallons per acre in May.

Arapahoe Sports Park B, located nearby, is a 9.34-acre facility primarily irrigated with Netafim dripline (with overhead sprays in limited areas). During the same month Sports Park B used just 59,529 gallons per acre. Even though Sports Park B (with dripline) is twice the size of Sports Park A, it used just half the water.

The district found there were lower maintenance costs as well. Because the system is not visible, mower damage and vandalism are no longer problems and repair work is at a minimum, with no moving parts or heads to replace.

Wind was another area concern, but with dripline there is no water loss on gusty days.

"We've found that dripline also increases playability and safety on the fields. It softens the soil and eliminates compaction, which is problematic with clay. Overhead sprays often compact a field even more, making it tough on injuries," said Rockne.

INSTALLATION ON SPORTS FIELDS

Overseeing field conditions is landscape professional Chris Willis, president and founder of Colorado Total Maintenance, Inc., a landscape management firm based in Denver.

Willis has worked with Arapahoe Park and Rec for 10 years and currently handles maintenance for the entire district. He has installed more than a dozen multi-use and baseball fields with dripline and has become an authority on sports field subsurface irrigation. His expertise is well known and he has led regional seminars on dripline installation for designers and contractors. "Arapahoe's Piney Creek Hollow Park is one of our recent projects," he said.

"It's a 4-acre athletic field with 16 zones controlled by a Hunter IMMS Central Control system. We installed the dripline in an 'open excavation method' by removing the top four inches of the soil, laying down the pipe and placing the dirt back on top. We ran the main supply header in the middle of the field going east to west."

The 17mm-wide dripline laterals were spaced 15 inches apart in 150-foot runs heading north and south. The irrigation coverage per zone was 5,500 square feet.

Willis integrated a minimal nitrogen, plant-based organic compost into the soil to create a sandy/loamy surface.

"This amendment has excellent water-holding capabilities. With dripline, the soil needs to retain the water to its maximum capacity for efficient coverage, yet be able to drain," he said.

The site was then sodded with a hardy high-use athletic field mix from Graff Turf Farms.

SETTING UP THE IRRIGATION SCHEDULE

The important first step in setting up a dripline irrigation program is to initially saturate the field so that it's like a sponge, said Willis.

"We ran the irrigation for 24 hours straight until the field reached its saturation level.

"I have a tried-and-true method to determine when the right point is reached. I walk the field with shoes off and sink my heels in between the driplines to check the softness. Once we reach the right saturation point, we're good to go with the irrigation schedule."

The Piney Creek Hollow irrigation program runs three times a week using a cycle and soak schedule. Each of the 16 zones operates for 8 hours in 6- to 8-minute cycles at .4 gph (gallons per hour). At the end of the 8-hour program, each zone has had 45 to 55 minutes of precipitation.

Because the fields are so used and abused, the District has established ongoing rejuvenation programs. Overseeding and topdressing are scheduled spring, summer and fall and all fields are typically slice-aerated three times a season.

Among the site challenges have been slope irrigation and the occasional dripline repair.

"Even with built-in check valves, we've learned to adjust the scheduling to maintain even distribution from top to bottom in sloped areas," said Willis.

"As for repairs, sections of dripline have had to be replaced a few times, but it's been the coaches and parents at the 'root' of the problem. They'll pound volleyball net stakes or soccer goals into the ground, not knowing the irrigation lines are right beneath."

Lynn Cornell, manager of the Arapahoe Park and Recreation District, has been pleased with the success of the irrigation team.

"They demonstrated that sports fields could be irrigated very efficiently with dripline yet still maintain playability. The District has reported significant savings, based on water bills," he said.

"It's been a win-win for all teams involved in the project." ■

JOHN MASCARO'S PHOTO QUIZ

Answers from page 17

The brown line across this football field is a result of employee error. This large school district is very spread out and requires many of its employees to be a sort of a one-man show. Most operators are supplied with a heavy-duty truck with a pull behind trailer and whatever type of equipment that they will be using that day. They drive to each site, unload the equipment, use the equipment on the property, reload and then drive to the next site. A fairly new employee was applying weed control with a sprayer to this athletic field and using a soap foamer to mark the application pass. During the application process, the foamer ran out of soap. Since this school was one of several that he had to treat before his day was over and he was running a little behind schedule, he decided that going back to his vehicle for more soap would take too long. So the operator decided just to "eye it" with the application to the remainder of the field. As you can tell, it appears that he should have taken the time to go back for more foamer. Luckily the burn was mostly superficial and grew out within about 2 weeks.

Photo submitted anonymously.

If you would like to submit a photograph for John Mascaro's Photo Quiz please send it to John Mascaro, 1471 Capital Circle NW, Ste # 13, Tallahassee, FL 32303 call (850) 580-4026 or email to john@turftec.com. If your photograph is selected, you will receive full credit. All photos submitted will become property of *SportsTurf* magazine and the Sports Turf Managers Association.

Water movement in turf: **the root of soil physics**

IN ITS MOST BASIC TERMS, soil physics is concerned with the delicate balance of water and oxygen in soil. Because this equilibrium is so vital to the health and appearance of turf, all sports turf managers are trained in managing soil water.

Water is released from soil three ways: through internal drainage, evaporation, and transpiration. If a field has poor drainage, it becomes more dependent on evapotranspiration to remove excess moisture. If a field remains saturated, the turf experiences stress typically referred to as "wet wilt." While extended saturated conditions can cause roots to rot, most wet wilt stress is actually caused by an oxygen deficient environment. In essence, the roots are drowning.

When we consider the life processes of the grass plant, we typically focus on photosynthesis. The plant takes in carbon dioxide, water, nitrogen, and other nutrients while the chlorophyll captures photons and through the "miracle" of photosynthesis converts light into simple sugars such as glucose. The byproducts of photosynthesis are oxygen and water vapor.

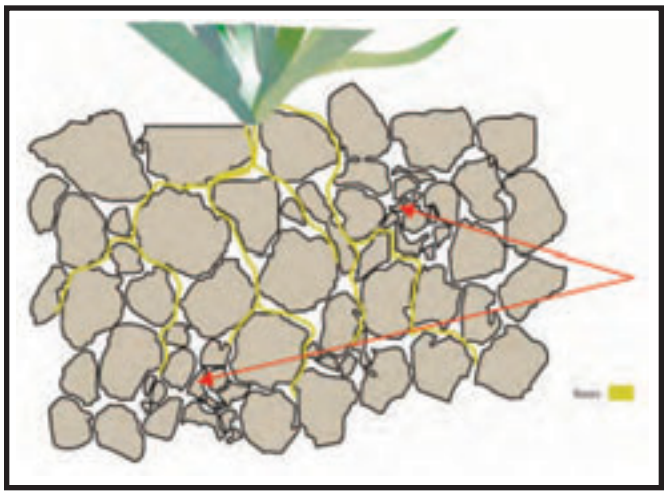
However, the life process does not end at glucose production. The sugar must be converted into energy at the cellular level in order for the organism to live. Oxygen is required to convert the glucose into energy and the byproducts of this ADP-ATP cycle at the cellular level are carbon dioxide and more water vapor. The roots are a primary gatherer of the needed oxygen but they also deposit water and carbon dioxide back into the soil.

THE IMPORTANCE OF OXYGEN IN THE SOIL

If soil is saturated or simply too dense, it will be oxygen deficient. In both cases there is insufficient space for oxygen diffusion, which compounds the challenges roots already face to survive. The roots are in constant competition with the microbial populations for soil oxygen. At this level, Oxygen is a depleting resource that must be constantly replenished from the atmosphere.

Bacteria and fungi need oxygen to break down—or decompose—their food, primarily organic matter. If there is insufficient free-floating O2 in the soil, the bacteria and other microbes will pull it off of other compounds in order to live. This is a simplistic way of describing the anaerobic processes. Carbon dioxide, methane, and hydrogen sulfide are common byproducts of this anaerobic decomposition. These three gases are toxic to the turf in low oxygen environments.

A release of toxic or potentially toxic soil gases coupled with the diffusion of oxygen from the atmosphere into the soil is the process we call aeration. The evaporation of water at the surface draws water and soil gases from the soil column up toward the surface. As water and soil gases are removed from the soil through aeration, space is created for oxygen. The efficiency of the aeration process is determined primarily by a soil's physics. It is also supplemented by the turf's access to direct sunlight, which is needed for transpiration, and surface airflow, which is needed for evaporation. [NOTE: We recognize that there are other factors that affect evapotranspiration. Ambient humidity is an example.]



SOIL COMPOSITION AFFECTS WATER MOVEMENT

The properties associated with soil physics are infiltration rate, total porosity (which is broken down into water porosity and air porosity), bulk density, and water holding. The composition of the soil (distribution of the sand, the gravel component, whether silt, clay, or organic matter is present) dictates the soil's physical properties. The infiltration rate measures the gravitational flow of water. It is related to saturated hydraulic conductivity, which measures the capillary rise of water to the surface. As such, the infiltration rate is an indirect measurement of capillary rise and can also give clues to the level of aeration/oxygenation.

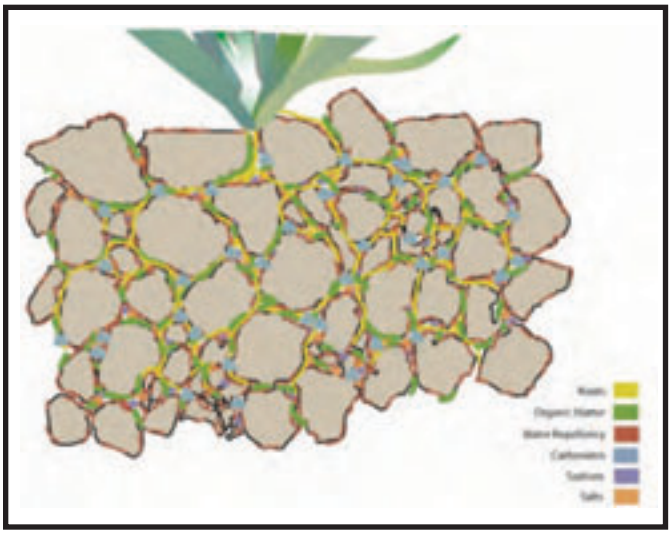
Water does not move freely through the small spaces classified as water pores. Rather, water molecules remain inside the pores due to the water's adhesive and cohesive properties. Some pores are so small that the water is not plant available. The root hairs cannot overcome the water's adhesion and cohesion properties in many of these smallest spaces.

Water does move through the larger air pores, both gravitationally and to the surface through capillary rise. The air pores also provide space for oxygen and for root growth.

This illustration shows how larger particles create air pores while smaller particles compress tightly to create water pores. As compaction tightens the soil, many of the air pores are converted into water pores. The soil loses total porosity and permeability, as measured by the infiltration rate.

Bulk density measures compaction, but it is a "relative" value in that one must know the relative weight of the material in the soil before evaluating soil density. Some products claim they reduce compaction because they lower bulk density. However, a decline in bulk density may not be a true indicator of reduced compaction. If the product weighs less than the material comprising the rootzone, bulk density will decline due to the fact that a lighter material has been introduced. It may or may not have truly reduced compaction.

It is helpful to think of a sports field as a dynamic organism. It is constantly changing through (a) compaction, (b) the deposit of water borne contaminants that are present even in potable water, (c) the byproducts of the organisms that live in the soil, and (d) the organic matter deposited by the turf. This second illustration shows how the air pores are gradually converted to water pores with the resultant loss of permeability. The roots will prune to the surface where they will be vulnerable to multiple stressors.



MANAGING PHYSICAL PROPERTIES

A soil turf manager is a grass farmer. His or her cousin, the row crop farmer, at least in the past, tilled the fields to: (a) relieve compaction, (b) oxygenate the soil, and (c) allow water to penetrate. Sports turf managers cannot use plows but he or she can use less disruptive tools to achieve the same results.

Whether the STM is managing a sand-based rootzone with internal drainage or a soil-based rootzone that is dependent on evapotranspiration, regular aerification is needed.

When it comes time to aerate, different tools are used to address different issues. Deep aeration, for instance, creates sand highways to move water from the surface but is generally ineffective in rehabilitating the soil in the second illustration. Why? Because of surface displacement. For instance, a 1-inch bit or tine on 7.5 x 7.5-inch center spacing, which is the spacing on a popular unit, displaces only 1.4% of a sports field's surface area. In contrast, 5/8 inch tines on 1.5 x 2-inch center spacing displace 10.2%.

The tighter spacing is available on a major manufacturer's walk-behind and tractor-mounted units. The smaller tines can gradually change the composition of a soil if the plugs are harvested and the holes filled with sand, but their effective depth is only 3 to 4 inches. Deep tines cannot change the soil, but they can be used to supplement the shallower tines. During the playing season, solid tines, deep slicers, and other forms of non-disruptive aeration should be used. They cannot change the composition of a rootzone but they aerate the soil and provide temporary space for water penetration, evaporation, and root growth.

An effective aerification program can address many deficiencies in a soil's physical properties but only if all of the variables are known. To use a hackneyed expression: "Knowledge is power." If you know the composition of a field's rootzone and its physical properties, you can choose the best cultural program to properly balance water and oxygen in your soil. ■

Robert S. (Bob) Oppold is vice president of research & development for the International Sports Turf Research Center, Inc. (ISTRC), and chief operating officer for ISTRC New Mix Lab, LLC.

Continued from page 23

Insecticides

Armor Tech (www.utaarmortech.com)

Product name	Active Ingredient	For use in/on
Enforce	Imidacloprid	Delivers long-lasting white grub protection and is also effective against mole crickets, billbug larvae, annual bluegrass weevils, cut worms, chinchbugs and European crane flies. Controls a broad range of pests in landscape ornamentals, flowers, fruit and nut trees, groundcovers and interiorscapes

Bayer Environmental Science (www.backedbybayer.com/golf-course-management)

Product name	Active Ingredient	For use in/on
Allectus GC SC	imidacloprid, bifenthrin	Ornamental and ground cover insects: Adelgids, aphids, ants, bagworms, black vine weevils (adults and larvae), borers, broad mites, budworms, fleabeetles, gall midges, grasshoppers, gypsy moth larvae, Japanese beetle adults, lace bugs, leafhoppers, leafrollers, leaf beetles, leaf-feeding caterpillars, leafminers, mealybugs, mosquitoes, orchid weevils, plant bugs, psyllids, scales, tent caterpillars, thrips, tree moths, treehoppers, wasps, whiteflies Turf insects: Ants, armyworms, billbugs, chinch bugs, cutworms, European cranefly, fleas, mites, mole crickets, pillbugs, sod webworms, ticks, weevils, white grub larvae
Chipco Choice	fipronil	Fleas, imported fire ants, mole crickets, nuisance ants, ticks
CoreTect Tree and Shrub Tablets	imidacloprid	Adelgids, aphids, Japanese beetles (adults), flatheaded borers, lace bugs, leaf beetles, leafminers, leafhoppers, mealybugs, pine tip moth larvae, psyllids, roundheaded borers, royal palm bugs, sawfly larvae, soft scales, whiteflies
Dylox 420 SL	trichlorfon	Annual bluegrass weevils (larvae and adult), armyworms, chinch bugs, cutworms, sod webworms, white grubs
Dylox 6.2	trichlorfon	Annual bluegrass weevils (larvae and adult), armyworms, chinch bugs, cutworms, sod webworms, white grubs
Forbid 4 F	spiromesifen	Blister mites, broad mites, flat mites, rust mites, spider mites (including twospotted, southern red, boxwood, spruce and euonymous mites), whiteflies (including sweetpotato, silverleaf, giant and greenhouse)
Maxforce FC Fire Ant Bait	Fipronil	Fire ants
Merit 0.5 G	imidacloprid	Turf pests: Billbug larvae; European crane flies; hairy chinch bugs; mole crickets; white grubs, including black turfgrass ataenius beetles, European chafers, Japanese beetles, May and June beetles, Northern masked chafers, Oriental beetles, Southern masked chafers Ornamental pests: Adelgids, aphids, Asian long-horned beetles, borers, elm leaf beetles, emerald ash borers, hemlock woolly adelgids, Japanese and other leaf-feeding beetles, lace bugs, leafhoppers, leafminers, mealybugs, pine tip moths, royal palm bugs, sawfly larvae, scale insects, thrips (suppression), vine weevils, whiteflies
Merit 2 F	imidacloprid	Turf pests: Billbug larvae; European crane fly; hairy chinch bugs; mole crickets; white grubs, including Japanese beetle, black turfgrass ataenius, Northern masked chafer, Southern masked chafer, European chafer, oriental beetle, may and june beetles Ornamental pests: Adelgids, aphids, Asian long-horned beetle, borers, elm leaf beetles, emerald ash borer, hemlock woolly adelgid, Japanese and other leaf-feeding beetles, lace bugs, leafhoppers, leafminers, mealybugs, pine tip moth, royal palm bug, sawfly larvae, scale insects, thrips (suppression), vine weevils, whiteflies
Merit 75 WP	imidacloprid	Turf pests: Billbug larvae; European crane fly; hairy chinch bugs; mole crickets; white grubs, including Japanese beetle, black turfgrass ataenius, Northern masked chafer, Southern masked chafer, European chafer, oriental beetle, May and June beetles Ornamental pests: Adelgids, aphids, Asian long-horned beetle, borers, elm leaf beetles, emerald ash borer, hemlock woolly adelgid, Japanese and other leaf-feeding beetles, lace bugs, leafhoppers, leafminers, mealybugs, pine tip moth, royal palm bug, sawfly larvae, scale insects, thrips (suppression), vine weevils, whiteflies
Merit 75 WSP	imidacloprid	Turf pests: Billbug larvae; European crane flies; hairy chinch bugs; mole crickets; white grubs, including black turfgrass ataenius beetles, European chafers, Japanese beetles, May and June beetles, Northern masked chafers, Oriental beetles, Southern masked chafers Ornamental pests: Adelgids, aphids, Asian long-horned beetles, borers, elm leaf beetles, emerald ash borers, hemlock woolly adelgids, Japanese and other leaf-feeding beetles, lace bugs, leafhoppers, leafminers, mealybugs, pine tip moths, royal palm bugs, sawfly larvae, scale insects, thrips (suppression), vine weevils, whiteflies
Nortica	Bacillus firmus (naturally occurring living bacteria)	Cyst, lance, lesion, root-knot, sheath, spiral, sting and stunt nematodes
Sevin SL	carbaryl	Annual bluegrass weevil, ants, armyworms, bagworms, box elder bugs, birch, boxwood and oak leafminers, chinch bugs, cutworms, European crane fly larvae, gypsy moth larvae, leafhoppers, Japanese beetles (adult), lace bugs, pine beetles, spittlebugs, sod web worms, tent caterpillars, white grubs
Tempo SC Ultra Insecticide	beta-Cyfluthrin; 1,2-Propanediol	Annual bluegrass weevils (adult), ants, aphids, armyworms, bagworms, black turfgrass ataenius beetles, bluegrass billbugs, chinch bugs, cutworms, emerald ash borers, fungus gnats, grasshoppers, lace bugs, leaf-feeding beetles (adults and larvae), scale insects (crawlers), sod webworms, spiders, thrips, ticks
Tempo GC Ultra Insecticide	beta-Cyfluthrin; 1,2-Propanediol	Annual bluegrass weevils (adult), ants, aphids, armyworms, bagworms, black turfgrass ataenius beetles, bluegrass billbugs, chinch bugs, cutworms, emerald ash borers, fungus gnats, grasshoppers, lace bugs, leaf-feeding beetles (adults and larvae), scale insects (crawlers), sod webworms, spiders, thrips, ticks
Tempo WP Ultra Insecticide	beta-Cyfluthrin; sodium	Annual bluegrass weevils (adult), ants, aphids, armyworms, bagworms, black turfgrass ataenius beetles, bluegrass billbugs, chinch bugs, cutworms, emerald ash borers, fungus gnats, grasshoppers, lace bugs, leaf-feeding beetles (adults and larvae), scale insects (crawlers), sod webworms, spiders, thrips, ticks

Product name	Active Ingredient	For use in/on
	lignosulphonate; quartz	Annual bluegrass weevils (adult), ants, aphids, armyworms, bagworms, black turfgrass ataenius beetles, bluegrass billbugs, chinch bugs, cutworms, emerald ash borers, fungus gnats, grasshoppers, lace bugs, leaf-feeding beetles (adults and larvae), scale insects (crawlers), sod webworms, spiders, thrips, ticks
TopChoice	fipronil	Imported fire ants

DuPont Professional Products (www.proproducts.dupont.com)

Product name	Active Ingredient	For use in/on
Acelepryn	Calteryx	Comprehensive control of turf-damaging white grubs, plus surface-feeding insects, including annual bluegrass weevils, billbugs, cut worms and webworms.
Advion Fire Ant Bait	Indoxacarb	Fire ants
Advion Insect Granule	Indoxacarb	A granular insecticide bait for use to control crickets, including mole crickets, cockroaches, and listed crawling nuisance or occasional in vader insect pests.
Provaunt	Indoxacarb	A wide range of caterpillars including armyworms, cutworms, sod webworms, bagworms, fall webworms, gypsy moth, caterpillars, tent caterpillars, tussock moth caterpillars, yellownecked caterpillars.

Syngenta (www.syngentaprofessionalproducts.com)

Product name	Active Ingredient	For use in/on
Meridian .33G and Meridian® 25WG	Thiamethoxam	Provides foliar and systemic control of grubs, chinch bugs, ants and other turf insect pests through ingestion and contact activity. Wide application window and flexibility to water within 7 days after application.
Scimitar CS	Lambda-cyhalothrin	Controls more than 20 surface and sub-surface insects with a proprietary formulation technology that encapsulates the active ingredient, protecting it from environmental factors and helping to ensure superior efficacy and residual activity.

FMC Professional Solutions (www.fmcprosolutions.com)

Product name	Active Ingredient	For use in/on
Talstar XTRA Granular	Bifenthrin + Zeta-Cypermethrin	Surface-feeding pests, including fire ants, Carribbean crazy ants, ticks and mole crickets.
Talstar EZ featuring Verge Granule Technology	Bifenthrin on Verge granule	Surface-feeding pests, including ants, spiders, etc. Controls fire ant colonies, too.
Talstar Pro (Liquid)	Bifenthrin	Surface feeding pests, including ants, spiders, etc. Controls fire ant colonies, too.
BaseLine	Bifenthrin	Surface feeding pests, including ants, spiders, etc. Controls fire ant colonies, too.
Onyx	Bifenthrin	Provides reliable long-term control of borers and beetles on trees
Astro	Permethrin	Borers, beetles, leafhoppers, chinch bugs, cutworms and over 40 other damaging tree and lawn pests.
Transport GHP	Acetamiprid + Bifenthrin	Household pests including fleas, ticks, ants and stink bugs.

BASF

Product name	Active Ingredient	For use in/on
Amdro Pro Fire Ant Bait	Hydramethylnon	Fire ants

Dow AgroSciences (www.dowagro)

Product name	Active Ingredient	For use in/on
Conserve SC	Spinosad	Thrips, leafminers, Eastern tent caterpillars, lepidopterous larvae, armyworms, sod webworms and other pests.

PBI Gordon (www.pbigordon.com)

Product name	Active Ingredient	For use in/on
Zylam Liquid		Only liquid dinotefuran formulation labeled for trees and shrubs
Zylam 20SG		A 20% a.i. soluble granule formulation of dinotefuran

F.O.Y.
Field of the Year

Roger Dean Stadium, Jupiter, FL

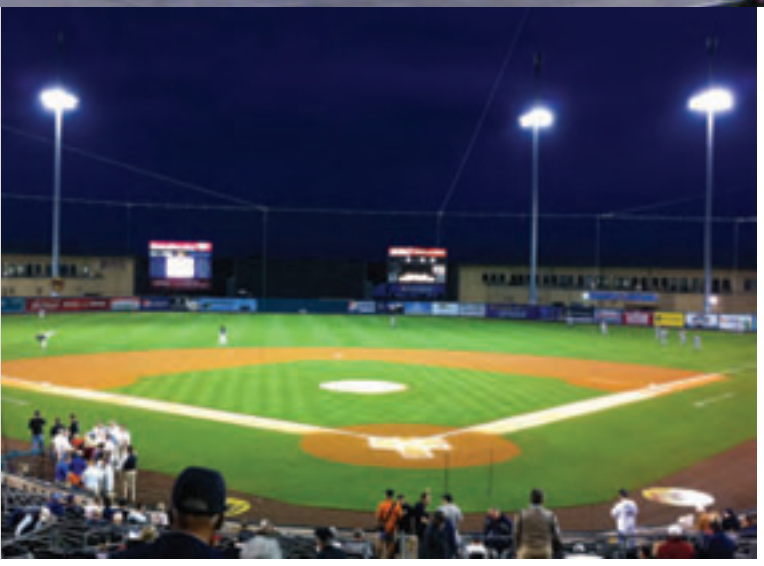
Level of Submission: Professional
Category of Submission: Baseball
Head Sports Turf Manager: Jordan Treadway
Title: Director of Grounds
Education: Bachelor's Degree
Field of Study: Agronomy & Turf Management
Work History: Student member of Misissippi State sports turf staff, internship at Roger Dean Stadium, Grounds Crew Assistant at Corpus Christi Hooks, Assistant Director of Ground at Roger Dean Stadium for 3 years, and Director of Grounds since June 2010.
Full Time Staff: Matt Eggerman and Matt Dierdorff
Students, interns, seasonal, part-time staff: Drew Wolcott, Phil Bathalon, Tyler Potter, and Tim Gambrell
Original construction: 1998
Turfgrass variety: Celebration bermudagrass
Overseeding: Overseed with Lesco Double Eagle Perennial Rye Grass at 12#/1000 in early December
Drainage system: Subsurface; 4-inch tiles on 20 foot centers

CHALLENGES

The field is home to the St. Louis Cardinals and Florida Marlins as well their Advanced A affiliates. One of the challenges that we face is the amount of use the field endures each year. Our field is the main attraction for a variety of events in the community. In addition to the 176 pro games, the field is used for more than 100 additional events as well. These included fantasy camps, Little League, high school, and college games, adult tournaments, corporate dinners, ticket holder receptions, musical performances, charity softball games, scout sleepovers, movie nights, boxing, a football game, a wedding, an Easter egg hunt, and a 10K marathon finish line.

Hosting these events requires a great deal of communication between the stadium staff and the tenants of the field. Making organizers of events aware of the field's limitations in advance, helps to prevent potential problems from occurring and ultimately protects the integrity of the field.

The main test faced by our grounds crew is finding ample time during our seasons to perform required periodic maintenance. For example, the Celebration bermudagrass that we use is very well suited for our high use and climate in South Florida; however, it requires frequent vertical mowing due to its abundant lateral growth. With a game virtually every day, there is little time to perform these tasks as often as needed. The only open dates we



Roger Dean Stadium equipment list

- John Deere 2653A Triplex Mower
- John Deere 260 infield mower
- John Deere 1200A infield groomer
- Wacker 3 ton roller
- Toro 5700D sprayer
- John Deere Turf Tx 4x2 Gator (3)
- 5105 John Deere tractor
- Toro 864 Procore aerator
- Diamond Aggressor verti-kutter
- Smithco Big Vac
- Vicon spreader
- Ford 3430 tractor
- Turfco topdresser

have are the 7-day break between spring training and Florida State League Opening Day and the 3-day All-Star break in June. At these times the field was vertically mowed and aerated. Also, all mounds rebuilt and sloped. As a result of our schedule, the field is not allowed the adequate recovery time before play returns.

The ever-changing south Florida climate can also be stressful to handle during the year. As summer approaches, sun can transform to a thunderstorm momentarily. These pop-up showers are capable of dumping high amounts of rain in short time. Pulling the infield tarp becomes a frequent occurrence. In 2011 we pulled the tarp 55 times during the season. This was an average number when compared to 2010 when it was pulled 38 and 2009 when it was called for a whopping 85 times! The main strategy that we employ is allowing some rain to fall on the clay as it is manageable. We rarely tarp overnight due to our mostly sand infield mix. We allow lighter rains that occur in the morning hours to go untarped so the field can absorb much needed natural rain and avoid the drawbacks that come from the field's constantly being covered.

SportsTurf: What channels of communication do you use to reach coaches, administrators and players? Any tips on communicating well?

Treadway: I think face to face meetings with coaches and players are the best way to go. I or one of my assistants will meet with each coach every morning or afternoon and decide on that day's plan, and what we can improve on from the day before. We meet with our front office twice weekly to discuss what's happening and how the field will be affected with special events or promotions. This way we are on the same page and there are no surprises.

During the week, email is probably the best way to communicate with everyone from my GM to the town of Jupiter's recreation department for schedules since we are all on the go most of the day. Our grounds and operations staff takes advantage of direct connect phones so we are always in touch no matter what part of the complex we are on.

ST: specific job responsibilities?

Treadway: My title is Director of Grounds and I am in charge of maintaining Roger Dean Stadium and the practice field complex as well as managing a crew of 20. We have 14 practice fields, a 7,000-seat stadium, and around 60 acres of landscape and common areas. We are home to Grapefruit League spring training, Florida State Class A-Advanced league, Gulf Coast rookie league, Town of Jupiter parks and recreation, and numerous amateur events throughout the year.

ST: What do find most enjoyable? What task is your least favorite and why?

Treadway: We enjoy hearing positive feedback whether it be from the pros or amateur teams about their experience at our complex and on our fields. It makes all the hard work and long hours of our dedicated staff, led by assistants Matt Eggerman and Matt Dierdorff, and lead groundskeepers, Cory Wilder and Johnny Simmons, all worth it.

I would say the least enjoyable part would be pulling tarp. With the unpredictable South Florida weather and a 170 professional game schedule, it makes for some grueling afternoons in the humidity and heat.

ST: How did you get started in turf management? What was your first sports turf job?

Treadway: My first turf job was at Cherokee Valley Golf Club in Olive Branch, MS under superintendent Rob Roy. I was very fortunate to be given an opportunity and it helped me decide my future career path. My first sports turf jobs were while enrolled at Mississippi State University in the turf program. I worked with Bart Prather on the athletic field crew for the Bulldogs. I did my first internship here at Roger Dean Stadium, under then head groundskeeper Marshall Jennings.

ST: What changes if any are you considering or implementing for the winning field in 2012?

Treadway: We are always trying to learn better and safer ways for all our athletes. We attend conferences and consult others in the industry to hear about changes and improvements. We are always looking to produce a more consistent infield skin playing surface with more than 200+ events yearly. This season we are going to look into adding amendments. Time management is something we have to be very conscious of with our busy schedule. We are going to incorporate more vertical mowing this year during the season when we can to cut down on thatch and scalping on our Celebration bermuda.

ST: How do you see the sports turf manager's job changing in the future?

Treadway: I think continuing education and research are going to keep being a big part of our job. With more fields being built, more athletes, more games, means we should keep raising awareness to constructing and maintaining safe and playable fields for our athletes for years to come. ■