

represents a 4% point increase. Our May graduates acquired post-graduation internships; these positions were sought by 3% of all graduates of the College. Of the May graduates, 25% continued in programs of education, an increase of 2%. Of these, 77 enrolled in graduate schools and 26 in professional schools.

There was a decrease of 4% in the number of students still seeking employment. Sixty percent of our May graduates are employed or continuing their education here in Indiana.-  
Cale A. Bigelow PhD, associate professor agronomy-turfgrass science

**PENN STATE**

Dr. Andy McNitt, professor of soil science-turfgrass, and coordinator for the turfgrass science undergraduate program: "Below is a partial list of our graduates. We had 38 BS students in turfgrass management this year and another 14 from our 2-year program. This is only our resident students and doesn't include our online certificate or degree programs. I have found that there is a strong market for entry level positions. On average, our graduates have had three job offers each. Of course they

must be willing to relocate. What is apparent however is that while entry level jobs seem plentiful, compared to a decade ago, and upward mobility is much slower."

George Peters, Pittsburgh Pirates; Phillip Manglitz, Rolling Rock Club, Ligonier, PA; Marcus Von Hertsenberg, Penn State Beaver Stadium Grounds Crew; Andrew Swigart, West Shore CC, Camp Hill, PA; Nick Marini, Butler CC, Butler, PA.  
Eric Michael Sosnowski, Toftrees Golf Resort, State College, PA; Jake Leadbetter, Gilliland Landscape, Clearfield, PA; David Krizauskas, C/Maj, Air Force Reserve Officer Training Corps; Colton Spaid, Fox Chapel GC, Pittsburgh; Chris Pelczar, Sebonack GC, Southampton, NY.

Mike Urich, Lancaster (PA) Barnstormers; Mike Scheyd, National Golf Links of America, Southampton, NY; Jeff Cuthbertson, Windview Athletic Fields, Middletown, DE; and Zack Longenecker, Oakland Raiders.

Two-year graduates:

Craig Acton, Coppinwood GC, Uxbridge, Canada; Aaron Archambault, Quaker Ridge CC; Benjamin Burrill, Merion GC; Gregory

Coughlin, Hong Kong GC; Franklin Dodd, New Castle CC. Matthew Fisher, Century CC; Mitchell Guy, Trump International GC, Scotland; Nicholas Huttie, research technician in the Department of Entomology at Penn State; Joseph Kohut, Saucon County CC; Christopher Konow, Black Hall CC, Old Lyme, CT. Justin Lantz, Kennett Square G&CC; Keenan Lilyquist, Sebonack GC; Logan Murphy, Pinehurst Resort; and Ben Spencer, Priddis Greens G&CC, Priddis, Canada.

**WASHINGTON STATE**

Washington State University during the 2012-2013 academic year will have a total of seven turf majors graduate. In the fall we had one student with a turf job; this spring we have three students, two with turf jobs and another doing an internship at a golf course near home. And finishing up in August there are three students, two already have turf jobs and the other is not sure though he did an internship last year with the Washington Nationals. Graduation is not until August so he has some time.-  
Bill Johnston, professor of turfgrass science. ■



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# The 7 best youth baseball field maintenance tips

## WE ALL WANT THE YOUTH ON OUR SPORTS

**FIELDS** to reach their fullest potential. And we all want to get the most out of what we put into maintaining our ballparks. So, we need safe and playable ball fields. Safe and playable baseball fields mean firm footing and true, consistent ball bounces.

But there is a constant **STRUGGLE** we have to deal with in youth sports: the time and money constraints coupled with perhaps not knowing where to start or what to do. You can, however, create a ball field you can be proud of and perhaps be a hero to your community too.

The solution for a better field for better play is to:

- Evaluate your ballpark

- Create an action plan to follow
- Keep your ballpark in tip top shape

I am going to use three case studies to show how you can create a better baseball experience by focusing on a few lessons learned. I'll summarize

these lessons into the 7 best tips for maintaining youth baseball and softball fields.

## DETERMINE WHAT IMPROVEMENTS ARE NEEDED

Use the 81 Point Checklist for Evaluating Your Ball Park

(see sidebar). This checklist covers all areas of your ball park and lets you objectively identify problem areas. You can then prioritize your improvements.

For many people this assessment checklist is also an excellent tool to educate and communicate issues to board members or administration staff who are part of the budget decisions. That way you and your leaders make an informed decision about the safety and playability for your young athletes. It's not just

### Ball Park Assessment Checklist

- ✓ **Infield Dirt Playing Surface:** infield dirt, base paths and sliding areas, the mound, home plate, batter boxes, infield lips, and the warning track.
- ✓ **Infield Turf Playing Surface:** bare spots, sprinklers, grass edges, density and quality, irrigation, thatch, uneven surfaces, ruts, other vegetation besides grass.
- ✓ **General Playing Surface:** condition of maintenance equipment, sprinkler boxes, drainage, unsafe debris, history of accidents, alterations, field to specs.
- ✓ **Bases and Anchoring:** base ground stake, concrete footing, bases, home plate, pitcher rubber, don't forget the bullpens.
- ✓ **Fencing:** posts, footings, caps, rails, gaps, bottom of fencing, gates, protrusions, backstop, outfield fences.
- ✓ **Spectator Areas:** seating area, guard railing, walking surfaces, steps, gaps in seating, nuts & bolts protruding, other hazards sticking out.
- ✓ **General Safety:** foul lines, chalking, signage, construction areas, concessions, parking, protective equipment.
- ✓ **Dugouts:** fencing, benches, equipment, waste containers, player area.
- ✓ **Lighting:** lighting system, bulbs, utility poles.

your pushing an agenda that decision makers don't understand or appreciate.

Go through the checklist as you think about your ball park. Better yet, walk your field and really see what you have. Make notes about each topic. This checklist is a condensed version, but you can use it as a guide. For example, do your base paths look like a gully washed through with the sides higher than the middle? Write it down. This is a safety issue. Do you have a base anchor sticking up at third base? Write it down.

When we look at the Little League complex in our case studies, the assessment shows us that:

- The 4 ball fields are overused and over-run
- There are inconsistent maintenance practices by all field users
- There are a variety of drainage and puddle problems

The high school assessment indicates:

- Under maintained turf and infield dirt
- Drainage and water coverage problems, and
- Inconsistent practices year round, especially summer and fall

And the assessment for the college ball field at a Park and Rec facility shows:

- Weak turf with lip buildup
- Infield dirt that is either powder or hard as rock
- Inconsistent/poor maintenance practices by the users

In each of these situations, there are specific improvements to make. These range from using better equipment, to adding more dirt, to improving the turf, to being consistent with field maintenance practices.

You may already work hard on your fields; **but sometimes working hard is not good enough. You have to be smart, too.**

If you are like me you don't have an unlimited amount of time and money to spend on your sports field maintenance and upgrades. So, how do we identify and prioritize our improvement efforts? What should we spend time and money on? And how do we know the projects we pick to work on really keep our sports field safe and playable for our players?

The answer is the assessment checklist.

I help manage the fields at a local Little League complex. There are five ball fields for ages 6 to adult. Each spring and fall I use the checklist to help identify new and ongoing needs. From that I put together a budget proposal for the board. That way they see exactly what I suggest and why. It makes the work visible and gets their support.

Now let's look at some specifics from the assessments.

### THE BEST THING FOR IMPROVED DIRT MAINTENANCE

Build and regularly use a nail drag. Go slow in varying patterns and stay away from the grass edge. This will turn a dry, hard in-



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field into a reasonable playing surface. Nail drags can be home made from three 2x4s and two boxes of 16d nails. Pre-drill holes for the nails will make it go easier with all the pounding you'll do.

The first time you use a nail drag, players and parents will think you added new dirt to the field. It will play just that much better. And if you can water down the field a bit first, the nail drag won't kick up dust and it softens up the dirt for you.

Nails do eventually wear down. But even when they get pretty short the nail drag can still scarify the surface and the 2x4 can even help level the dirt as it goes.

### THE BEST THING FOR IMPROVING TURF HEALTH

Periodically core aerate. After core aerating, drag the turf with a screen drag to break up the cores and smooth out the turf subsurface. This way you get and maintain level turf for ball bounces.

I also like to add in frequent but light fertilizing and overseeding. I have found that fertilizing the turf every 4 weeks at about half the recommended rate provides more consistent growth and color and is much easier for mowing. I mow the infields twice a week, Tuesday and Friday. Outfields are mowed on Thursdays.

Ideally you want to get at least 10 holes per square foot for the aerating to be effective. Therefore, it probably will take two passes of the aerator to do this

Ideally you want to get at least 10 holes per square foot for the aerating to be effective. Therefore, it probably will take two passes of the aerator to do this.

### THE BEST EFFICIENCY IMPROVEMENT FOR A LARGE COMPLEX

Use stubs for batter box corners, provide access to shared equipment, and really focus on not getting any dirt on the grass edges. These short stubs can be 6 inch pieces of rope or surveyor markers.

Here's what you do to speed up making batter boxes game after game:

1. Mark the corners of the batter box.
2. Dig a hole down about 5 inches down. Narrow is better.
3. Insert a piece of stiff nylon rope about 6 inches long.

4. Fill in the hole around the rope and pack or tamp it down.

Now the 1-inch stub sticking up marks the corners. You can rake and drag over them usually no problem. Then just chalk or paint as needed. No more hassles with a template.

Some softball fields use pink rope and don't even chalk or paint the actual batter box outline. They just use the pink stubs as a visual for the box. These rope stubs usually will last the spring season, but do wear down over time. If you have problems with them coming out, you can also anchor them down with a large washer and a knot or with a large nail. But I try to avoid doing that.

### BEST TIP FOR HIGH SCHOOL

Soak dirt before game time, manage the edge for a flat transition, and mow often.

A hand pulled broom drag helps keep the dirt off the corners. These are light weight and wide. And they are simpler than getting out the riding tractor and a screen drag. Using a plastic fan rake helps remove dirt from the grass edges. Variations for turf edge management include blowing the dirt off or vacuuming it up also. For many youth fields, the plastic rake is quick and easy.



### BEST SUGGESTION FOR COLLEGE AND ABOVE

Use mound clay, laser grade the infield, and manage the field for player safety.

At the higher levels of competitions, firm footing and true bounces is a must for safety. Players will start and stop quickly. Ideally the field conditions should be consistent throughout a nine inning game. Therefore, you must use quality materials and techniques.

### YOUR MOST IMPORTANT FIELD MAINTENANCE TOOL OF ALL

Water. A proper amount of water just makes everything better. Moisture management of the infield skin as well as the turf is just about the best thing you can do for your players.

We all have ideas what a good playing surface is like. But ask the players. Seriously. Ask them if they prefer dry and loose versus moist and firm. My experience is that most prefer even a hard surface rather than one that blows out from under them. Water is the answer. It can make just about any dirt mix so much more playable.

We can create a better baseball experience for our players, coaches, and fans. These lessons-learned and basic practices can do that for you. I believe sports programs can help our youth develop lifelong habits for success. And I sure don't want their dream to slip away due to a poor sports field. And I want to help men and women like you transform their sports fields into a field of dreams where our youth reach their fullest potential and you have no regrets.

For the past 11 years I have refined my previous AAA baseball field maintenance skills by spending time with MLB and AAA groundskeepers, with sports turf managers, and with suppliers of field products for professional sports. During that period I also renovated 49 baseball and softball fields and had the privilege of consulting on hundreds of other new construction and renovation projects. ■

*Jim Reiner is the field director for the Sunrise Little League in Orangevale, CA and assist with field maintenance at Valley Christian Academy in Roseville, CA.*

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◀ **PLUGS MOWED** at 3/8" and pulled after 3½ months. Plugs were grown in the field with proper rates of fertilizer and irrigation applied. Left: Organic Humic Substance, APEX-10, applied at 3 ounces per 1000 square feet. Right: No APEX-10.

# Healthy and safe turf begins at the rootzone

*Editor's note: Timothy Kwiat is the Director of Turf and Landscaping for Nature's Wonder, the manufacturer of APEX-10. He has more than 20 years in the golf industry including as a superintendent.*

**Y**OU WOULDN'T BUILD A BEAUTIFULLY DESIGNED multi-million dollar house without a strong foundation and expect it to withstand a hurricane. So why would anyone expect their turf to be visually appealing and perform well without a healthy rootzone? By starting at the ground level, sports turf professionals will see improved turf performance and increased safety for athletes.

Healthy rootzones that support turf have been defined by the following criteria: well drained, compaction resistant, with free nutrient exchange. This free nutrient exchange is essential to allowing the soils to hold onto nutrients as well as release them to the plant.

But what creates the support structure for this exchange? Microbes. So, what if your rootzone isn't supporting your microbes and your microbes aren't supporting this nutrient exchange? How do you improve your turf health while dealing with the other challenges

in the sports turf management arena?

There are new technologies on the market that focus on bio-stimulation to continue to build those microbial populations while maintaining proper levels of organic materials in a soil system. Having higher organic matter content in soils allows for additional food sources and attachment sites for microbes to thrive in the environment in which they live. These in turn create a healthier environment for root growth and plant growth.

Turf professionals deal with many rootzone types. Bringing each rootzone to its optimal performance to support the needs of each specific sport is where the challenges lie. You face many challenges when working toward building turf that looks good and supports the needs of athletes. Producing the type of turf that provides stable footing, cushion, and resilience specific to each sport is dependent on your program. While normal programs focus on nutrients, water, weed and pest control, many professionals

are finding it harder and harder to manage the demands put on the turf with increased input restrictions. To overcome the challenges of creating the best rootzone while reducing inputs, turf managers must be creative in their approach.

## SAND-BASED

Typical sports turf fields are made up of a combination of varying degrees of soil and root zone types. Some soils are composed of high sand content to create a well drained surface and the firmness that certain sports demand. These rootzones put all of the nutrient control in the hands of the professional simply due to the fact that they have very low cation exchange capacity or nutrient retention ability.

Modified sand-based rootzones have moved into professional venues and stadiums. In the professional sports arena, sand-based root zones give athletes the solid footing and cushion they need to play the desired game. The challenges are characterized by excessive nutrient leaching, low CEC, and low organic activity with very little microbial support capability. In addition, localized dry spot formation and potential algae buildup can become an issue. The importance of microbial populations in high sand content rootzones is to support nutrient and water retention. Beneficial organisms and plant roots have a symbiotic relationship. As microbial populations increase through bio-stimulation, the roots are fed the nutrition they need. The roots in turn feed the microbes the complex sugars that the roots put back into the soil.

## NATIVE SOIL

Healthy native soil zones or push-up fields have longer water retention for better plant support, larger CEC capacity for nutrient retention, and more organic matter for microbial support. Native soil surfaces still sustain the functions that are needed to support sports, but like sand, it comes with the need for turf professionals to manage it properly. Larger microbial support in these systems is essential and builds porosity with increased drainage and capillary water movement. The increased porosity allows for better carbon dioxide gas



exchange and oxygenation of the soil.

Without these characteristics native soil rootzones have the potential to develop compaction which leads to nutrient binding, uneven moisture availability and restricted root penetration. When these issues plague native rootzones the system becomes over wet with lower wear tolerance. Compaction in the rootzone reduces the ability for the roots to grow freely slowing the nutrient release potential due to the physical properties and chemistry of the soil. This is when it becomes critical to support the soil biomass, as a more active microbial population improves soil flocculation.

### IMPROVING ROOTZONES

When rootzones are unhealthy it can lead to increased plant stress, reduced plant growth rate, thicker thatch layers, localized dry spot, algae buildup, increased weed pressure and unstable footing for athletes. So, what is the best way to meet these challenges without breaking your back and your budget?

Historically turf managers have employed mechanical and chemical means of improving rootzone health. These include chemical

and mechanical thatch removal, oxygenation by aeration (various sizes and depths), mechanical drainage improvement, and other various soil remediation techniques. While each of these enhancements works and provides the means necessary to address these issues, playing schedules, calendars and event schedules prohibit the frequency and tolerances for these practices to be done on regular intervals.

A true biostimulant provides a food source for the existing soil biomass, accelerating the natural growth of the microbial population. As proven in the university research, the organic humic substance also solubilizes and transports nutrients to the plant. Virginia Tech examined APEX-10's effectiveness in rootzone development on sports turf to improve playability and stable footing when limiting factors are present. It was found to increase the soil's ability for both the physical and chemical bonds of nutrients and water, allowing for more water and nutrient retention. Applying an organic humic substance with a high fulvic acid ratio per unit early in the season reduces the effect

of the limiting factors in the rootzones and prepares turf for heat and summer stress. A second Virginia Tech University study showed that APEX-10's greater antioxidant activity improving photochemical efficiency, enabling sustained root growth and leaf function during drought conditions.

Furthermore, APEX-10 improves the recuperative capacity of turfgrasses following heavy play and traffic by providing consistent nutrient and water availability to the plant as found in a series of fertilizer and irrigation reduction studies by Rutgers University. The organic humic substance improves safety for the athlete by naturally degrading the thatch layer over time without creating spikes in growth due to excessive nutrient release. Chris Walsh, turf manager of the Akron Aeros, said, "We applied APEX-10 for the first time to our Kentucky blue/ryegrass minor league field after a considerable stressful stretch of games in August. We aerated, overseeded with rye grass and applied APEX-10. Within 7 days the turf had recovered and was looking and playing great just in time for our 2012 playoff run." ■

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

**I**F 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-

**I absolutely believe there will be intensive new regulations in water sourcing very soon.—Jeff Bruce**

◀ **JEFFREY L. BRUCE, FASLA**