partially decomposed. Most organic products, including composts, are not ready to "go to work" immediately. In a sense, the soil's process of getting some organic materials ready to go to work actually consumes some of the components that are supposed to be available for turfgrass support. Turf managers have not gotten the response that they were seeking so they concluded incorrectly that organics don't work, or are slow to work.

In order to be effective and efficient, the organics applied must be ready to do their job as close to immediately as possible. Moreover, ALL of other materials used (e.g. N.P.K. fertilizers) must be in balance and work together synergistically.

ST: How are your organics different?

RR: The materials are completely decomposed, so no further time is needed for them to provide the benefits to the soil and to the plant. Our plant-based organic products can also have as much as 40 times more organic content than a similar volume of other organics. That alone makes a huge difference in turf performance. Also, some organics have heavy metals and other undesirable components, which can be toxic to the soil and create nutritional imbalances.

ST: What do you mean by "nutritional imbalances"?

RR: For optimal function, nature must be in balance. Upset the balance and performance suffers. Optimize balance and nature will respond favorably. Specifically, this is about nutritional balance within the soil. At least 30+ necessary nutrients are required and they must be available in the correct proportions. The soil grows what it is "programmed" to grow. For instance, there is a nutritional profile that is more likely to grow grass, and a different profile that is more likely to grow weeds. Growing 100% turfgrass is "unnatural" to nature, but by altering various components within the soil, we can optimize that process.

ST: How does aeration work with organics?

RR: Most maintenance programs today approach aeration as a "mechanical" process, using a machine to poke holes in the ground. It is very inefficient, ineffective and expensive. If you were to aerate in two different directions, university calculations report that less than 10% "aeration" of the surface is possible. We also have to realize that in many parts of the United States it is impossible to mechanically aerate during certain times of the year.

Even under the most ideal conditions, which seldom exist, penetration is measured in inches, and the period of "aeration" measured in days or weeks. We want our soil aerated 100% of the growing season, as deep down as possible, because that is the most important part of working in concert with the earth's natural systems.

ST: How do you aerate?

RR: We use biological methods. Our method is more advanced and we've used it successfully for the last 30 years. Our program aerates 100% of the surface area all season-long. And the cost of using our Natural Aeration process is but a fraction of mechanical aeration, plus it saves money in other ways.

For instance, we have athletic fields with roots over 15 inches deep. That means grass plants have a greater root system for storing food energy, providing for a tougher turf to withstand wear-and-tear, thus requiring less seeding. It means that the soil can hold 15 inches of water, a larger reservoir of water, which can save as much as 30% in watering costs. In some areas of the country that represents a huge savings. It also means a larger "warehouse" of nutrients to draw upon for a better nutritionally balanced turf.

Combine all these bonuses with the elimination of de-

thatching and aerating equipment and labor, and the savings can be very significant. Plus, it produces a better turf that requires fewer pesticides. From every perspective, it is better for the environment.

ST: What do you see as the future of organics in sports turf maintenance?

RR: The 20th century was the age of "A Better Life Through Chemistry" and chemical solutions where created for every imaginable aspect of our lives. Special chemical solutions for turf problems and the latest mechanical equipment were, and still are by many, considered to be modern and progressive. The research and development process has taught us much and the information has value. Yet, I feel strongly, and have proven empirically, that too much emphasis has been placed on the grass plant and not enough attention paid on the growing medium, the soil.

Combine this with the large group of turf people who have ventured into organics only to be disappointed by products and/or procedures that didn't work well enough. They too often mistakenly conclude that organics don't work.

What is really driving organic products today is environmental concerns and public pressure. In the rush to capitalize on this shift, some companies are developing products that are environmentally responsible but are often budget-busting and/or poor performers. They are trying to use the symptom management paradigm of the chemical companies rather than going back to the basics of how the biological processes within and between the soil and the plant take place. Performance is a matter of fundamentals.

I am optimistic about the future of organics. It has so many benefits, both economically and environmentally, and it is consistent with the way nature functions, the way that the natural biological and chemical processes have worked together for thousands of years. ST

Contact Robert Riley at 1-800-645-6464.

GreensGroomer® WorldWide, Inc.

Synthetic Turf Groomer with GreensSlicer® Spring Tine Rake.

Fast, Efficient Grooming of all filled synthetic sports fields!

FEATURES and BENEFITS

- Synthetic Sports Turf Groomer works with all fill material currently used, in both wet and dry conditions.
- Patented brush design lifts turf fibers leaving them in a plush, upright position. Brushes move fill to low spots or depressions left after play.
- Synthetic Super Duty Blue Brushes retain their original shape, resist wear, and will not rot.
- GreensSlicer Spring Tine Rake consists of 3 rows of 28 tines spaced 7/8 inch apart for thorough coverage.
- Each row of tines may be adjusted to the desired level of aggressiveness.
- The GreensSlicer combs through the fill material, relieving compaction and assuring a soft, level playing surface.

Synthetic Super Duty Blue Brushes
Resist wear and will not deteriorate from moisture.

GreensSlicer Spring Tine Rake
3 rows of 28 tines.

Call for additional information on our line of Synthetic Turf, Natural Turf, and Clay surface Groomers

888-298-8852 Fax 317-298-8852

www.greensgroomer.com

GreensGroomer WorldWide, Inc., Indianapolis, IN

Circle 147 on card or
www.oners.ims.ca/5062-147

SportsTurf MANAGERS ASSOCIATION
Experts on the Field, Partners in the Game.

Turf students learn by doing

Here are some projects turf students at several universities completed this past academic year. Thanks to Andy McNitt, Pamela Sherratt, Kent Kurtz, Grady Miller, and David Green for their help:

Learn by doing

The Cal Poly Pomona turfgrass program was really launched in 1969 with the hiring of Dr. Kent Kurtz, who brought with him industry experience and the practical approach to turf management was infused into all of the turf classes. "The student needs to see how grasses are installed and established by seed, stolons and sod and how the soil is prepared for planting. They also need to experience aerification, vertical mowing, mowing, renovation, overseeding, and all the aspects of turf management. This is the reason the program has been so successful," says Dr. Kurtz.

Our Lady of Assumption School, Claremont, CA, has had a carnival with rides and booths on their playground turf for many years to raise money for school activities. The playground turf suffered for many years with gas and oil spills from the carnival rides, compaction and unevenness, dead grass and all the ills of a lack of concern.

The site was part of Cal Poly-Pomona class assignments that have students visit challenging situations and try to come up with solutions. Part of it this time was overseeding the school's grounds last winter, part of The Turf Club's community project program to help a non-profit organization each year. Some groups give the club a donation that assists them in traveling to professional meetings like the STMA Conference or GCSAA Conference & Show.

SPORTSTURF Highlights

By Asa High

Transition of overseeded turfgrasses in the southeast can be a difficult period for sports field managers and golf course superintendents. Newer cool-season turfgrass cultivars have proved resilient to warmer temperatures and possess the ability to compete with the underlying Bermudagrass well into the spring and summer months. Thus, turfgrass managers are left with a less than appealing stand of Bermudagrass. I am a University of Florida graduate student working toward combating this dilemma through overseeding research.

As an Environmental Horticulture graduate student specializing in Turfgrass Science, I'm currently evaluating in-season and transition performance of 31 cool-season turfgrass cultivars. Working under the supervision of Dr. Grady Miller and in conjunction NTEP, GCSAA and the USGA, I'm conducting a 2-year NTEP trial at the University of Florida Athletic Association facilities in Gainesville.

Over a 2-year period the overseeded cultivars are evaluated on a number of criteria including: percent establishment, percent coverage, overall quality, genetic color, density, texture, disease resistance, root shear

strength, and transition performance. I will also be working to evaluate modeling methods for predicting cool-season grass transition. Models that will be looked at include Growing Degree Day Modeling and other various models for predicting turfgrass growth.

The implications of this work could have far reaching impacts on turfgrass management and culture. This work could lead to better selection of overseeded turfgrasses for different climatic regions that provide a superior sports turf playing surface. The work could also be helpful to turfgrass breeders looking to breed cool-season grasses with superior in-season performance and excellent transitional qualities. The modeling portion of this research could lead to smoother transition for turf mangers through proper timing of chemical applications to aid in transition.

For more information on this research, contact Asa High at g8trhigh@ufl.edu or Dr. Grady Miller at gmiller@mail.ufl.edu.

Penn State Proud

Penn State has a long tradition of training turfgrass managers. There are currently 240 resident students pursuing undergraduate degrees in turfgrass science at Penn State University. Many more students pursue a degree through Penn State's World Campus, an online education program where students can receive a Bachelor of Science Degree in Turfgrass Science via the Internet.

This summer Penn State students are interning at various golf courses and sports venues around the world. In the sports turf arena Penn State has interns at Fenway Park in Boston, Baltimore Ravens in Maryland, Lakewood Blue Claws in New Jersey, Milwaukee Brewers in Wisconsin, Lebanon Valley College in Pennsylvania, and at Beaver Stadium on the Penn State Campus, among many others.

Of particular note is Aaron Fineberg, one of the SAFE Scholarship winners from last year. Aaron will be interning with Tony Leonard of the Philadelphia Eagles. Along with the everyday maintenance and preparation of the facility for the upcoming season, Aaron's internship project will consist of a study of the chemical control of poa trivialis in high-cut stands of Kentucky Bluegrass.

The objectives of the study include evaluation of the side effects of chemical compounds on the varying cool season turfgrass species present at the time of application, the time needed to see results, and how quickly reseeding can occur.

Having undergraduate students aiding in research in the field gives researchers valuable information regarding real world application of our findings and allows the student and practitioner a greater understanding of the scientific process.

Research Overview

By Jim Brosnan, Ph.D candidate

Little research data exists on the safety or playability of baseball surfaces, especially the skinned portion of the infield. Baseball field managers

place the majority of their effort into maintaining adequate moisture in the skinned areas of the infield. It remains unknown though, how changes in moisture content of this surface affect not only the ball to surface interaction, but the player to surface interaction as well.

As a part of my dissertation research at Penn State University a survey of baseball fields across the United States will be conducted. Fields at all levels of competition will be evaluated for surface hardness and ball bounce. Surface hardness will be measured using both a Clegg Impact

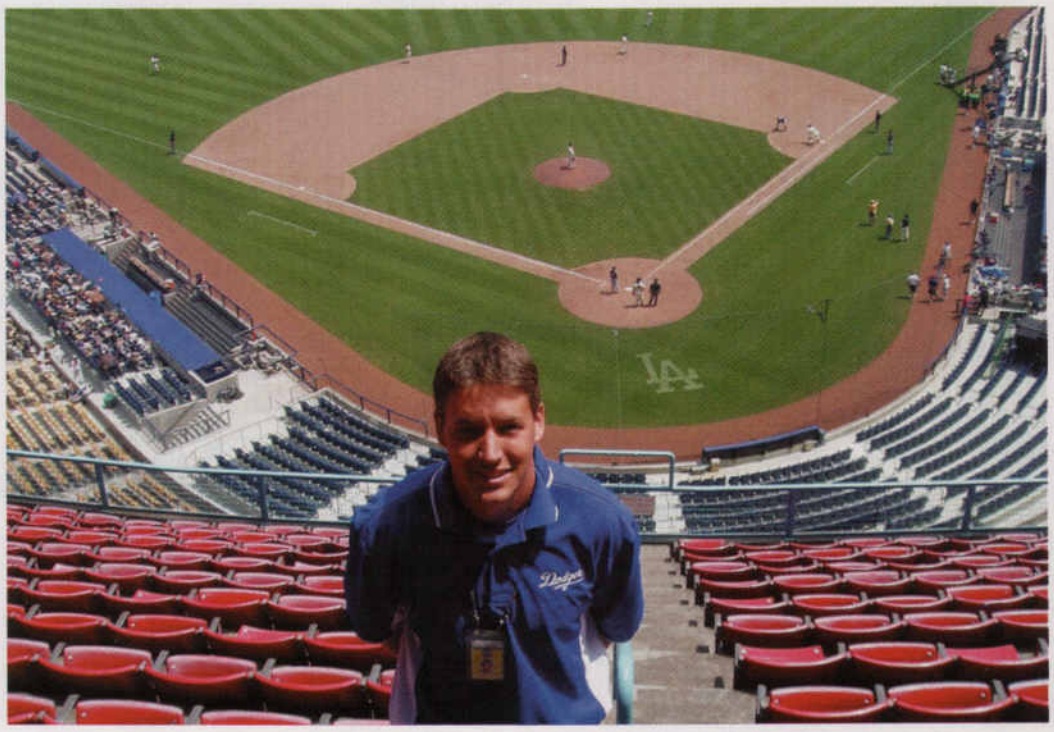
Soil Tester and the ASTM F-355 method.

Ball bounce will be evaluated with an apparatus I developed here at Penn State named PennBounce. This apparatus quantifies ball bounce by measuring the coefficient of restitution (COR) for a playing surface. COR is defined as the ratio of a baseball's velocity after impact with the surface as a proportion of its velocity prior to impact. The apparatus uses infrared chronographs placed twelve inches from the testing surface in an arrangement to obtain the inbound and outbound velocities of baseballs propelled at varying speeds and angles to the surface.

Information regarding soil texture, soil moisture, cutting height, and thatch layer will also be collected. The survey will allow for average baseball field surface conditions to be determined at varying levels of competition.

Upon completion of the survey, field plots will be created at the Joseph Valentine Turfgrass Research Center, University Park, PA. Skinned infield plots, natural turfgrass plots, as well as in-filled synthetic turfgrass plots will be evaluated in order to determine the effects of various management practices have on altering the playability and safety of these surfaces. Specifically, the effects of moisture and inorganic amendments (i.e.-calcined clay) on skinned areas will be investigated.

This project will provide an understanding of how maintenance procedures used in baseball field management effect the playability and safety of the field. It will also provide input into the relevancy of commonly used material testing methods. By gauging actual strain on set forth onto the player due to surface type and correlating that information will values obtained through traditional testing methods (Clegg Impact Tester, etc..), we can begin understand how accurately the evaluation tools we are equipped with today will predict field safety in the future.



Sports turf at Ohio State

By Pamela Sherratt

The Buckeye Sports Turf program at The Ohio State University is now in its fourth year. During that time we have been striving to improve our sports turf research, teaching and extension efforts.

Historically, most of the turfgrass science majors work toward a career in the golf course industry. Out of the 100+ majors it was not uncommon to have just 2-3 that wanted to go on to be a sports field manager. Today, there are 107 turfgrass

science majors and 27 of them are looking for a career in sports turf.

There are currently 18 graduate students in the OSU turf program and 2 post-doctoral associates. Two Ph.D. students recently graduated. One of them, Young-ki Jo, will be going on to the University of Wisconsin as a post-doc to study gray leaf spot and pink snow mold resistance. Some of the graduate student research projects are: characterization of biomass on sand systems; sports turf rootzone materials; phosphorus fertilizer programs; and effects of foliar nitrogen.

Dr. Dave Gardner advises sports turf students and has revitalized the OSU turf club to encourage greater participation from sports turf students. One change has been to make sure that a sports turf student holds either the President or VP position. This year, sports turf student John Koenig is VP.

We are blessed to have great sports turf internships at professional facilities like the Cincinnati Reds, Boston Red Sox, Ohio Stadium, Jacksonville Jaguars, Akron Aeros, and Columbus Crew. This spring we had three students with Dave Mellor at the Red Sox. International internships are also a possibility. The International Program annually sends 3-5 turf students to England, Ireland or Australia. Most recently, Erica Titus worked at Cirencester Polo Club in England, preparing pitches (fields) for England's royalty. Once they have graduated, sports turf students also have the chance to go on to work at professional sports facilities, such as Brian Holtzapfel, who just started a job with the LA Dodgers, or Derrik Grubbs at the Cincinnati Reds.

There is now far better representation from professional organizations such as STMA, and the OSTMA. Students now have professional organization that encourages them to participate and awards student scholarships. In 2004, the OSTMA awarded over $2,000 in scholarships to Weston Applefeller, Erica Titus, Gregg Caspio, and John Koenig. 2005 was the first year of participation in the STMA Collegiate Quiz. 11 students made the trip to Phoenix in January. The OSU team took 6th place in the quiz and is planning for next year. 2005 was also the first year for the Buckeye Sports Turf "Students of the Year" awards. This year was a tie between Erica Titus and Rodney Brockwrath.

CA Poly-San Luis Obispo

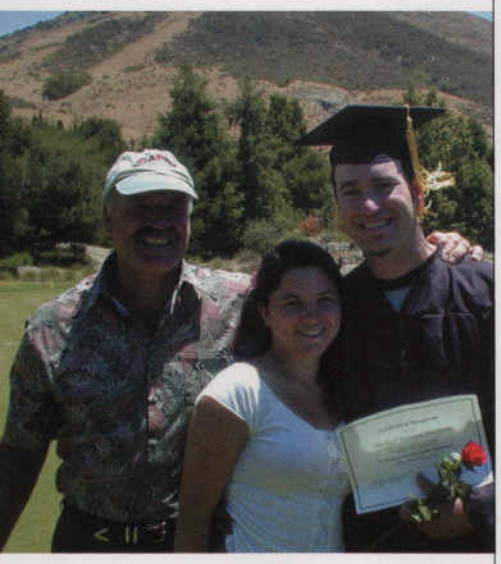
By David Green

Cal Poly's turfgrass program had another exciting year in 2004-2005. Our students continued to diligently prepare for their future, but still found plenty of time to have fun. The year started with the first Cal Poly Turfgrass field day in October.

More than 55 participants were provided updates on cultivar and fungicide evaluations conducted in 2004 and progress reports from the students on their senior project research, which was embraced warmly by the industry. A big thanks goes out to the students who helped make this first field day a success. A second field day is being planned for fall 2005.

In February Cal Poly students attended annual meetings of the Sports Turf Managers Association and the Golf Course Superintendents Association of America. The opportunity to meet and interact with individuals in the turfgrass industry is always a valuable experience that is appreciated by our students. At the GCSAA meeting in Orlando we once again had two teams participate in the Collegiate Turfbowl, a comprehensive 3-hour exam that would challenge the most experienced turfgrass managers. Students competed in teams of four against teams from other universities and found the experience fun and very educational.

In May, the turf club hosted their first golf tournament at Cypress Ridge in Arroyo Grande, CA, raising more than $2000 to assist in funding travel to the annual meetings of the GCSAA and SMA in 2006. Students also had the opportunity to tour several great turfgrass facilities of southern California in their Advanced Turfgrass Production class. Facilities included PetCo Stadium and The Bridges of Rancho Santa Fe Country Club, and a new course under construction



Vellano GC.

This summer our students are once again out among the industry in a variety of internships. These internships include sport field management at the Philadelphia Eagles stadium and at prestigious golf courses such as the Olympic Club in San Francisco County, and Poppy Hills Golf Course in Monterey. We also wish the best to recent graduates as they begin their careers in the turfgrass industry.

Finally, we look forward to the fall 2005 implementation of a turfgrass concentration in the Environmental Horticultural Science major. Developed through a collaboration of the turfgrass industry and Cal Poly faculty, this curriculum will ensure that our students are receiving the best education possible to succeed in California's turfgrass industry. ST

David Green is assistant professor with the Horticulture and Crop Science Department, Cal Poly-San Luis Obispo.

Cowboys' practice facility is a star

Chris Morrow, field manager for The Dallas Cowboys Football Facility, Irving, TX, won the Sports Turf Managers Association 2004 Field of the Year in the Football, Professional Division.

Morrow took over the "play-calling" duties for the practice turf for one of America's most celebrated franchises in 2002, arriving in Texas to find inadequate equipment and barren, un-overseeded centers on the two main fields. He chose to grow in the areas rather than sodding; the native Texas Black Gumbo soil had developed a hard pan after years of repeated aerification at the same depth that limited percolation, stolon and rhyzome development, rooting, and oxygen levels.

Morrow began an aggressive deep-tine aerification program, along with verticutting, to open the soil and promote some lateral growth. Each process was followed by heavy topdressing that aided in physically amending the soil and speeding turf recovery. He says years of mowing above 1 inch and excessive nitrogen levels had created a puffy and grainy Bermudagrass, which started to show one month into the job and forced Morrow to mow in one direction for weeks because of the scalping that came from the weak and grainy conditions. He also tested the soil and began nutritional plans to bring all growth elements into balance. The test also helped determine the most compatible topdressing sand for the fields.

Interestingly, though both fields were built at the same time with the same materials, Morrow found they were two different animals, so he had to get creative with his fertility programs.

Irrigation

Morrow found valve-in-heads at the 20's, 50's and goalposts, and a single row of 1-inch heads down the center. The Texas heat and winds blew water everywhere resulting in poor coverage, so he had to find a way to cool the hot spots. He used ice to cool and water simultaneously, and constantly used hoses, up to 200 feet long running from spigots to movable impact heads. In spring 2003, he installed quick couplers to quell the problem.

That winter Morrow pursued a comprehensive equipment deal. Through contacts and face-to-face negotiations with a national supplier and its local distributor, Morrow obtained the equipment necessary to professionally groom his fields.

In his second season he initiated a foliar fertility program to better meet plant nutritional needs, and added groomers to his mowers to address the grain issue. Morrow also added the Dri-Ject process to his program, which allowed him to get more sand into the soil profile for better drainage and nutrient movement. He also lowered his mowing height of cut to promote a tighter playing surface.

In summer 2003, a tension structure was built over the artificial surface at the Cowboy complex that created another problem. Heavy rains dump hundreds of gallons of water on one side of one natural turf field. Aerifying and water penetrants have eased the problem, but with artificial field covered, Morrow lost his sled field and had to create a "push up" sled area from scratch, adding another acre of managed to turf to maintain.