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Dr. Jim Murphy (holding soil plug), Rutgers University and SFMANJ Advisor, annually participates in Rutgers Turfgrass Research Field Days by delivering practical turfgrass education.

SFMANJ Annual Membership Registration Form

Currently we have 295 new & renewed members. In November 2006, SFMANJ mailed invoices for 2007 membership dues to all current members. If you did not receive an invoice, please contact us at 908-730-7770 or download the 2007 membership form available at www.sfmanj.org. Remember to mail your renewal/payment direct to SFMANJ, PO Box 370, Annandale, NJ 08801.

| Name | Address | City | State | Zip | County | Phone | Fax | E-mail | Signature | Individual | $50 | Associate | $50 | Organization/Institution | $50 | Additional member from facility | $30 | Commercial/Contractor/Vendor/Supplier | $105 | Additional member from company | $35 | Student | $15 |

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Synthetic Infill Field Maintenance Demonstration Field Day to be Held in South Jersey

Don Savard, CSFM, CGM

Sports Field Managers Association of New Jersey’s District 4 will present a Synthetic Infill Field Maintenance Demonstration Field Day field day at the Recino Field Complex in Haddon Township, New Jersey on Wednesday, September 19, 2007.

Thinking of installing a new synthetic infill sports field system? Joel Taylor, Head Groundskeeper will host a tour of his facility and show how he found creative solutions to the unique problems of synthetic field care.

1. See for yourself how these field systems are cleaned, groomed and maintained.
2. Learn how to avoid costly mistakes when planning and building your field.
3. See a demonstration of synthetic field maintenance equipment.
4. Meet other grounds keepers who maintain synthetic fields and hear what they have to say.

This field day is open to all sports field managers whether you have or are just thinking about getting into the new synthetic infill sports field systems. We especially welcome administrators, facility directors and decision makers to see first hand what synthetic field maintenance is all about.

Date: Wednesday, September 19, 2007
Time: 9:00 AM to 1:30 PM
Cost: $20 per person - LUNCH IS INCLUDED

For more information call the SFMANJ Chapter @ (908) 730-7770 or visit our website: www.sfmanj.org

Don Savard is a Certified Sports Field Manager (CSFM); Certified Grounds Manager (CGM); Director, Athletic Facilities and Grounds, Salesianum School; and a member of the SFMANJ Board of Directors.
SFMANJ Field of the Year Contest 2007
Sports Field Managers Association of New Jersey is announcing its annual Field of the Year (FOY) contest.

ELIGIBILITY:
- Must be a current member of SFMANJ
- Only school and park/amenity fields are eligible
- Must be at least 3 acres in size

CRITERIA:
- Award will be presented based on:
  - Playability and appearance of the playing surfaces
  - The mowed area is not cut before photos are taken
  - Describe your maintenance program and what you did to improve your field.
- Describe why the budget used for this field
- Fee free to have sports groups in this photo

SUBMITTING YOUR ENTRY:
Entries are due to be submitted on or before October 15, 2007. Entries will be submitted to SFMANJ at 810 State Rd., Flemington, NJ 08822.

AWARDS:
Winners will be announced on our website and will be featured in our Yearbook in December 2007. The winner will receive a plaque and a one-year membership to the American Society of Sports Turf Managers and three years of education and trade show admission to Corn 2007.

NOTE:
Entries will not be returned and may be used on SFMANJ website and promotional settings.

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An irrigation audit will help you discover how frequently and how much I was putting down. During periods of heat or drought, I would run around like a nut moving hoses and sprinklers to irrigate areas that appeared to be under stress. Many an evening, weekend and holiday was spent attempting to keep my turf green.

Since then, two things have changed. First, I read an article in Sports Turf Magazine by Dr. Dave Minner (Iowa State University) suggesting that my method of irrigation was not efficient. The article went on to say that deeper and denser root systems and better stress tolerance were a result of heavier, less frequent irrigation. Second, at the 2006 STMA Conference in Orlando, I attended an Irrigation Audit Workshop held at the Disney World of Sports Complex. From the workshop, I learned that the irrigation audit was a turf management tool that would help me grow healthier turf, conserve water, and save money. From actually doing it, I learned that it would also save time, my time!

An irrigation audit will help you discover how frequently and how long to irrigate. It considers the needs of the turfgrass plant; for example, the depth of the root system helps to determine how much water the turf needs. It helps to determine how well your irrigation equipment or system works. Aside from looking for leaks and other inefficiencies it helps you find out much water is coming out of the sprinkler head in a minute and how uniformly it is distributed over the soil. It will also tell you how the soil and water interacts on your site! By performing an irrigation audit you will discover what your soil texture is, how much water the soil can hold and the rate that water moves downward or percolates through the soil profile. You will even learn how the rate of evaporation and transpiration changes during different months.

One Saturday, last May, 2006, the weatherman predicted a warm, sunny day with no wind, a perfect day for an audit! If I got wet, I would not freeze, also no wind meant more precise measurements. I wanted to determine once and for all how much water I was putting down and how frequently I needed to irrigate.

An irrigation audit requires only some time and some very low tech tools (tape measure, catch-can devices, metric graduated cylinder, stopwatch, calculator, notebook and pencil). The audit can be performed with both in-ground and portable above-ground systems. The audit is sequential, meaning that each step provides information necessary for the next step.

The test requires data collection from the field as well as information found on the internet, books and even from the irrigation systems manufacturer. In the field, you will need to measure the test area where you will operate the sprinkler. This could be the irrigation zone for an in-ground system or it could be the area that a portable sprinkler would cover. Next, you place catch-can devices in an equally spaced pattern where you will collect the precipitation from the sprinkler. The catch-can devices can be store bought or they can be like mine, simply a paper cup taped to stake to hold them upright. Just make sure that all of the catch cans are uniform. Run water through the irrigation system for a predetermined amount of time and measure and record the amount of water collected in each catch-can.

You will need to find out the volume of water coming out of your sprinklers in gallons per minute. This can be determined with a flow metering device, or manufacturer’s technical data for the system. This information will help you find gross and net precipitation.

**Gross precipitation** is the water that sprays out of the sprinkler nozzle.

\[
\text{Gross Precipitation Rate in inches per hour} = \frac{\text{Gross Precipitation Rate in inches per minute}}{60} \times \frac{60}{24} \times \text{Days in a month}
\]

\[
\text{Net Precipitation Rate} = \text{Gross Precipitation Rate} - \text{Leakage Rate}
\]

**Net precipitation** is the amount of water collected in the catch cans. Find the area of the catch-can opening by measuring the diameter of the circle that is the opening (Area = \(\pi r^2\)).

\[
\text{Area} = \pi r^2
\]

\[
\text{Average catch volume in millimeters} = \frac{\text{Net precipitation rate} \times \text{Test run time in minutes} \times (\text{Catch device area sq. inches})}{3.66}
\]

\[
\text{Lower quarter distribution uniformity} = \frac{\text{Lower quarter of 25% of the devices in millimeters Lower quarter distribution uniformity}}{100}
\]

After measuring the amount of water in each catch can, I was able to determine uniformity of distribution of the sprinklers. This will show how well the sprinklers distributed the water evenly over the test area.

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**Did you know?**

Hydraulic conductivity is defined as a trait of soil relating to the ease of water movement in that soil.
As grounds managers, we often receive requests for special projects. When our township governing body requested we plan, construct, and maintain a “dog park” (off-leash area for dogs) I realized there were many new challenges—not the least was care of the turf.

When I announced the project to my staff, most, if not all, were concerned with the impact of pet waste on staff and equipment. Shortly after the opening of the park we realized that the pet waste was the least of our maintenance problems. Long-term care of the park’s turf was our major battle.

Here are some suggestions you may want to consider before installing a dog park:

**FACILITY DESIGN AND CONSTRUCTION**
1. Visit other existing sites to determine impact on your maintenance program. Don’t reinvent the wheel if you don’t need to. You can see what is best for you by reviewing what works and doesn’t work for other dog parks. Our facility was a one-acre site.
2. Choose better quality fencing materials to provide a safe environment for dogs and to reduce maintenance. Use largest wire core and thickest fabric coating, install a bottom tension wire and use heavier grade posts and rails.
3. Install a double-gated user entrance where owners can unleash their pets.
4. Plan an equipment service gate of sufficient size for your turf equipment.
5. If a water source is available, install a freeze-proof hydrant convenient to the facility.
6. Do not plant trees or shrubs—they won’t survive!
7. Other things to consider: sitting benches, bulletin board, shade canopy, port-a-johns.

**PET WASTE CONTROL**
8. Post user rules and pet waste regulations at several locations.
9. Install several self-serve pet waste clean-up dispensers with covered and lined waste cans along the inner perimeter.
10. Solicit park users to help enforce self clean-up by owners. This provided excellent results for our facility. Additional enforcement by park rangers is available. This includes pet license enforcement, control of aggressive animals, etc.

**TURF MAINTENANCE**
11. Locate the facility in a well-drained area.
12. Our facility consisted of primarily K-31 fescue—the tall fescues provide the best wear tolerance.
13. Soil compaction, both the four-legged and two-legged kind, was the biggest problem, not pet waste. Aerate several times per season to help maintain a viable turf.
14. Raise cutting height to 3”–3 ½”.
15. Conduct soil tests to determine soil phosphorous (P), potassium (K), magnesium (Mg), calcium (Ca) and liming needs. Apply slow-release nitrogen (N) sources to provide 3-5 lbs Nitrogen per year.
16. Remove all sod at the entrance gate and replace with #10 cinders compacted over ¾” clean gravel—the turf will never survive here.
17. Use a nonselective herbicide containing glyphosate (e.g., Roundup) beneath the fence line. Keep the park closed during application until herbicide has dried.

For more information go to www.dogpark.com.

Jeff Cramer is a Certified Public Works Manager; Director of Public Works, Howell Township, NJ; and a member of the SFMANJ Board of Directors.

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14 Sports Field Managers Association of New Jersey
Renovation can be defined as turf improvement that involves partial or complete replanting without total tillage of the soil. Complete renovation is when the entire turf stand is killed and reseeded. Partial renovation is called for when only a portion of the total area is to be killed off. Renovation of a turf should be considered when the condition of the turf stand is: severely damaged by pests, predominately covered by weeds (broadleaf or grassy), of a poor quality turf due to excessive thatch or compaction, or if a combination of these conditions exist.

Prior to taking any direct action the site needs to be evaluated to determine how severe and extensive the damage is and to identify the underlying cause of the damage. The evaluation should include identification of the dominate turf species and current density. All weed species should be identified (the weeds can be strong indicators of underlying problems). Additionally the thatch layer, drainage patterns and soil conditions should be checked. Soil should be tested for pH, nutrient levels and compaction. When the root cause of the decline in turf quality can be identified, a long term plan to alleviate the damage and prevent it from reoccurring should be developed and implemented.

Selecting an appropriate species for the site and use of the turf is the most important step in this process. On most athletic fields in New Jersey, the following species are desirable: Kentucky bluegrass, tall fescue, and perennial ryegrass. Kentucky bluegrass and tall fescue tend to be the more durable species; but when time is limited, perennial ryegrass is the fastest to germinate. For these species, the end of August into early September is the best time of year for establishment.

The area should be treated for weeds prior to seeding; preferably with an herbicide that will have short residual life such as glyphosate. Depending on the weeds present, more selective herbicides may used or applications limited to spot treatments. In this situation one needs to be very careful in the selection of an herbicide since the desirable seedlings will have an increased sensitivity to the chemicals remaining in the soil.

Soil compaction should be alleviated with aggressive hallow tine aeration - at least two to three passes over the area being treated. If thatch is a problem the field should also be dethatched at this time (the slicer can also help break up the cores from aerating if it is done second). This process will help expose the soil and allow for good seed to soil contact.

The last cut prior to over-seeding should be at reduced height to lower the canopy and allow more light to reach the soil for the germinating seeds. The seeding is best performed with a disc-type seeder to get the seeds directly into the soil and through the canopy as opposed to a broadcast spreader that may leave the seeds exposed on the surface or in the canopy of the existing grass. The seeding rate will need to be higher than as compared to seeding over bare soil (by roughly 20 percent) due to increased competition from the standing turf. A thin layer of topdressing can be applied over the top of the seeds to aide at incorporting them into the soil.

The new seeds will need to be irrigated with frequent light applications until they have started to become established. Any fertilizer applications should be based on need as determined from the soil test.

When time is extremely limited one can either prime or pre-germinate the seed for a quicker establishment. Priming the seed is pre-imbibing it with water so when the seed comes in contact with the soil, it is ready to germinate. To do this, place the seed in a burlap bag than soak in a large container of lukewarm water (aerating with a fish tank bubbler helps but is not completely necessary) for about 24 hours than drain and air dry so it can be spread. Pre-germinating is taking this idea a step further; the seed can be placed on damp paper in a warm location (70-75°F) until roots can be seen emerging form the seed. With the per-germinated seed the plants are already growing when they first contact the soil. The drawback to either of these ‘tricks’ is that the seed will be more susceptible to mechanical damage or fungi as you prepare it, so it is best to sow the seed/seedlings by hand (making this not practical for large areas) to minimize the physical damage.

Craig Tolley is Professor, County College of Morris; and President, SFMANJ
Dr. Henry W. Indyk
Graduate Fellowship in Turfgrass Science

“...I remember when I came here (St. Louis’ Busch Stadium) once in ‘94, the turf was scorching. We had to take our spikes off and put our feet on top of them to keep them from burning.”

- Pittsburgh Pitchers’ pitcher Rick White on the synthetic surface at Busch Stadium (Pittsburgh Post-Gazette: July 25, 2005)
Fundamentals of Laser Grading

By Sean Connell

Laser grading is a term in the athletic field construction industry used to describe the process of moving soil with a grading mechanism equipped with an automated control. Laser guided controls can be mounted on any machinery including track hoes, trenchers, motor graders, bulldozers, tractors and infield groomers. In fact, anything with a motor and hydraulic supply can be mounted with an automated laser control system. The fundamental reason to use laser guided equipment is that it creates the most accurate and consistent grade and ultimately improves the drainage, usability, safety, and overall appearance of a sports field.

One of the biggest myths about laser grading is that some fields cannot be laser graded because of the elevations of land or fences that directly encase the field. This is usually untrue. A field can often be laser graded without moving the surrounding topography. In order to do this, you must do the following procedure.

First, grid the field on 40’ or 50’ centers, then shoot all grades and record on a scale drawing. (Note: most fields have some type of original blueprint so that scale drawings can be made very easily by tracing). After you have a drawing with grades shot, you can evaluate which way the water is going. After determining where the water can drain the most efficiently, you will then determine how much slope you will laser grade. One tenth of an inch in 10 linear feet is 1% of slope, so 1’ of fall in 100 linear feet equals 1% slope.

After compiling your information, you need to measure the length of slope to determine your slope %. For example, if you have 4’ of fall over 200 linear feet, you automatically know that is 2% of slope (4/200 = 0.02). Now you can determine if there are any problems between the points such as a big mound of soil which is holding the water back from draining or a big dip that is holding water. This process identifies problems and helps you determine the best equipment to move larger quantities of soil. A farm tractor equipped with a box blade with ripper teeth can loosen the soil but does not have the ability to move a large amount of soil. A large tractor can do the work of leveling the field, the box is making cuts and fills leveling soil giving you a beneficial grade. The most frequently used type of equipment to laser grade athletic fields is a tow-type box blade. It has a hitch receiver to the draw bar of a tractor and an axle of wheels behind the box blade. It makes it independent of the tractor and provides the most consistent grade. There is also a mast that holds the laser receiver which receives the signal from the sloped laser and sends it to a control box. The control box sends the signal back into an electric hydraulic valve that controls the box blade that is grading.

The signal is instant and in real time. As the tractor moves across the field, the box is making cuts and fills leveling soil giving you the safest playing surface and best drainage. In addition to the tow-type box blade, there are also 3-point hitch versions of the laser guided systems available. Unfortunately, they are more sensitive to the tractor movement. For instance, the front wheel going into a hole and moves the box blade faster than the system can respond requiring the operator to have more responsibility on the finished surface.

The field is laser graded. All the soil is in-place and you balanced the soil so you do not have to export or import any fill to complete your job. As completion of the field is near, you are going to install your irrigation (always tamp ditches and make a contractor fix settling for up to a year, this is a safety issue and is a standard for professional contractors). After irrigation and soil amendments, you will need to prepare the soil for grassing by loosening the top soil so you do not have to export or import any fill to complete your job. As completion of the field is near, you are going to install your irrigation (always tamp ditches and make a contractor fix settling for up to a year, this is a safety issue and is a standard for professional contractors). After irrigation and soil amendments, you will need to prepare the soil for grassing by loosening the top 2” to 3” of soil. To remove all stones, trash, sticks etc. for a clean surface, use a harrow or soil pulverizer to loosen the soil; then smooth with a box blade, preferably with the laser box. After completion, you are ready to seed or sod your field; remember, the biggest chance of damage or slow drainage is when a field is being grassed. In summary, automated laser grading guarantees safety and improved drainage which are the biggest issues on any field. Understanding the method and how it directly impacts the finished result on any playing field should make it a mandatory trade to be included on any field renovation or construction. You do not let plumbers do electrical work, so why would you let a site contractor grade a field when there are sports turf specific contractors with properly sized equipment and specialize in field construction? Site contractors move soil and install the utilities more efficiently and cost effectively. The same logic should go to the Architect / Engineers by specifying laser grading as a trade and including them on all field construction projects. When renovating and constructing fields, properly sized equipment and trained operators make the difference.

Sean Connell is Owner and Primary Project Manager, Georgia Golf Construction, Woodbine, NJ; and a member of the SFMANJ Board of Directors.

An SFMANJ-sponsored tradeshow will be part of the program at the 2007 Rutgers Lawn, Landscape, and Sports Turf Research Field Day on Wednesday, August 1, 2007 at Adelphia.

Turfgrass education and New Jersey DEP Pesticide credits will be available to those attendees at the 2007 Rutgers Lawn, Landscape, and Sports Turf Research Field Day on Wednesday, August 1, 2007 at Adelphia.

2007 Calendar of Events

Rutgers Golf and Fine Turf Field Day
July 31, 2007
Rutgers Hort. Farm II
North Brunswick, NJ
www.nj turfgrass.org

Rutgers Lawn, Landscape, and Sports Turf Field Day
SFMANJ Equipment Demos back for 2007
August 1, 2007
Rutgers Adelphia Research Farm
Freehold, NJ
908-730-7770
www.sfmanj.org
www.nj turfgrass.org

NJ Turf & Landscape Conference
and Expo 2007
December 4-6, 2007
Trump Taj Mahal Casino-Resort
Atlantic City, NJ
www.njturfgrass.org

Sports Turf Managers Association
2008 Conference
January 15-19, 2008
Phoenix, AZ
www.stma.org

New Jersey State League of Municipalities
92nd Annual Conference
November 13-16, 2007
Atlantic City Convention Center
Atlantic City, NJ
www.njslom.org

Rutgers Lawn, Landscape, and Sports Turf Field Day
SFMANJ District 4 Synthetic Infill Maintenance Demonstration Day
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