Sports Field Managers Association of New Jersey

Update

May/June. 2002 sfmanjchapter@netscape.net www.geocities.com/sfmanj Vol. 2 • No. 10

APRIL FIELD DAY ANOTHER GREAT SUCCESS!

It was a dark and stormy night!..Oop's wrong story. It was a wonderful, sunny day. 15 vendors attended the field day. There were door prizes donated by the vendors. The day was full of classes and demonstrations. Participants were able to purchase turf books & SFMANJ shirts.

We experienced the results of how a turf blanket can give turf a boost for spring. The first demonstration showed a side by side comparison seeding and core aerating with and without a blanket in a warn goal area. The second demo showed a blanket placed on existing turf so participants could see with and without comparison of turf growth. In both situations the results were impressive.

Landscape Plus worked with Plainsboro six weeks prior to the field day to demonstrate how geese control works. The turf was vacuumed of all droppings. The geese control product was applied and the area was monitored. Jeff, DPW Supervisor, stated, "The next day 2 geese were standing off but near the field that was sprayed. The geese were on an adjacent field but never came back to the sprayed area even after several rains." This was another impressive demonstration.

Participants saw first hand, thanks to Jim Gavigan of Lesco, how to build a pitchers mound and modify a batters box utilizing clay bricks.

Dr. James Murphy of Rutgers and Dr. Henry Indyk of TurfCon explained the results of the soil test they had taken on the site. They also explained how they developed a turf maintenance program based on the results of the test.

Since baseball fields were our main focus Jim Hermann of Total Control explained how to grade an infield, remove a lip, install bases and groom an infield properly.

Dr. Steve Hart of Rutgers enhanced our knowledge on weed control.

We saw an informative demonstration by Dr. John Grande of Rutgers Extension Services on sprayer calibration and efficient spray tip selection.

Ann Waters of DEP explained IPM and the changes in the pesticide regulations.

Since irrigation is a very important subject this time of year, Art Elmers of Storr Tractor showed us how to trouble shoot potential irrigation problems, replace worn parts and prepare a system for the new season.

In addition, the vendors were given the opportunity to describe their products and equipment. Plenty of food was served. Lots of questions were answered. The responses to our field day survey were very positive and provided many suggestions to make our next field day an even greater success.

Thank you speakers, participants and vendors for supporting Sports Field Managers Association. A very special thank you to Plainsboro Township, Jeff Cramer and his wonderful staff for donating their complex and helping us put on this special day. Don't forget the volunteers who put the field day together. Kudos to the volunteers. If you would like to volunteer your time to help with the next field day or if you have a complex, where SFMANJ can hold a field day, get in touch with Fred Castenschiold, the Activities Chair at (908) 722-9830.▲

COMING SOON. Field Day August 8th Will be Held in Bernards Township

Our focus on this field day will be on soccer, lacrosse and football fields. You will learn how to read a soil test, devise a maintenance plan for your field and write complete specs when sourcing out the work or purchasing product ...and much more. Find out five ways to renovate and maintain a goalmouth which can be utilized for your entire field. Come see how to use the equipment you will need to maintain your fields. See demonstrations on how to use the equipment. Get your questions answered by the professionals.

Participants and sports field managers: Registration forms will be mailed in June. If you would like to sign up sooner call us at (908) 236-9118 or e-mail us at sfmanjchapter@netscape.net for forms.

Vendors: Vendors who participate as an exhibitor will be able to schedule their equipment for demonstrations. Letters will be sent in the mail to commercial members and previous field day vendor participants by May. Any other vendors who would like to participate please call us at the above number for information.▲

INSIDE THIS ISSUE

This newsletter is the official bi-monthly publication of the Sports Field Managers Association of NJ. For information regarding this newsletter, contact:
SFMANJ at 908-236-9118

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MISSION STATEMENT

Committed to enhancing the professionalism of athletic field managers in New Jersey by improving the safety, playability and appearance of athletic fields at all levels through seminars, field days, publications and "networking" with those in the sports turf industry.

"Welcome New SFMANJ Members"

Our membership is growing fast. Currently we have 208 members. If you haven't renewed your membership please call for a new form in order to continue receiving this newsletter at (908) 236-9118.

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"RUTGERS CORNER"

'Sports Turf Drainage' by Dr. James A. Murphy, Specialist in Turfgrass Management

Adequate drainage is essential to maximize field use, minimize maintenance problems and provide a desirable environment for turfgrass growth. The main idea in planning drainage is to protect the playing surface from excess water. Many fields attempt to accomplish this by surface flow (drainage). Catch basins and surface inlets (vertical drains) are used around the perimeter of the field to move the excess water away.

Techniques used to protect the root zone from becoming waterlogged include subsurface pipe to intercept a rising water table and vertical or slit drainage (shallow and very close spacing). High sand content root zones work quite well since the depth of the root zone aids in displacing the soil interface deeper so that saturated conditions would mostly occur well below the depth of turf rooting. Root zones constructed from native soil (often problematic) work by encouraging surface runoff (centerline to sideline paths for water flow off field).

Both internal and surface drainage must be considered. Good internal drainage allows excess water to move out of and away from the surface layer where it could be a problem. Surface drainage is sufficient when excess rainfall can runoff the surface layer. Turf areas with minimal surface drainage require high infiltration and internal drainage.

Good surface drainage requires a slope of 2% (1 foot fall over 50 feet). A 1% slope can be effective; however, any imperfections (depressions) along the run of the slope will likely pond water under high rainfall. When surface drainage is inadequate and internal drainage can not removed the excess water, vertical drains are necessary to remove the surface water.

Cross drains and perimeter drains are two types of vertical drains. Cross drains are a corrective action used when adequate surface drainage does not exist. Cross drains are placed directly on the playing surface to prevent water from accumulating and running to low portions of the playing surface. Cross drains can be as simple as silt trenches filled with a uniformly sized coarse sand or fine gravel, or prefabricated drains within the trenches. To be effective the trenches need to be open to the surface, thus the trenches should be back-filled to the surface with a readily draining material (i.e., sand, fine gravel, etc.). Covering with a finer-textured soil will seal off the trenches. Slit trenches of various widths and depths have been used successfully to improve surface water conditions. Typically, the trenches are no more than a couples inches in width.

Perimeter drains are placed outside the playing field areas to collect surface runoff (surface inlets) and move the excess water away. Cross drains may be connected with perimeter drains to the direct excess water away from the field.

Subsurface drain tiles are used in fine- and medium-textured soils to lower a water table that is too near the playing surface. Very wet (saturated) soil conditions must exist before water will move from the soil into the drain tile. Therefore, placing drain tiles at hallow soil depths will do little to create drier soil conditions. ▲

"Give It What It Needs"

'Nitrogen Sources for Turf' by Dr. James A. Murphy and Pedro Perdomo[1]

A sound nitrogen fertility program is needed to maintain the desired quality and function of a turf. Of all the cultural inputs, nitrogen is preceded only by water in the amount required by the turf. Not only is the amount of nitrogen applied important, but the timing of the application is also critical. A well-timed nitrogen fertilization may help alleviate damage from diseases such as dollar spot or red thread. Pythium blight and brown patch, however, may be stimulated by the application of nitrogen during hot, humid weather. Research continues to show that nitrogen source and form can play a significant role in the management of stresses afflicting turf. Understanding how nitrogen sources influence the amount and timing of nitrogen release is crucial to the development of a sound fertility program.

Quickly and Slowly Available Nitrogen Sources

Two broad classes of nitrogen fertilizer are the quickly available and the slowly available nitrogen sources. Quickly available nitrogen sources fit into three categories: inorganic salts, urea, and ureaformaldehyde products. These water soluble forms of nitrogen are taken up rapidly by a healthy and vigorously growing turf. Inorganic salts are materials such as ammonium sulfate, ammonium nitrate, ammonium phosphates, calcium nitrate, and potassium nitrate. Urea is a compound containing organic nitrogen. Methylol-ureas are short-chain precursors to methylene ureas and are formed by the combination of urea and formaldehyde. Although methylol-ureas are included among the quickly available nitrogen sources, they are not as readily available as urea.

Compared to the quickly available nitrogen sources, slowly available sources have lower water solubility, a lower salt index, and when applied, result in a slower initial turf green-up with a longer duration. Slow green-up and longer color retention of turf occur when using slowly available nitrogen sources because the plant available nitrogen is released over a longer period of time. When using slowly available nitrogen sources, consider the physical and/or biological processes involved in releasing plant available nitrogen to the turf. It is important to understand these processes so that the growth responses expected from a nitrogen fertilizer are realistic.

Slowly available nitrogen fertilizers are formulated as either water insoluble nitrogen compounds or as encapsulated, water soluble nitrogen sources. Water insoluble organic nitrogen fertilizers can be derived from either natural organic or synthetic organic materials.

Natural Organic Nitrogen Sources

Prior to 1950, natural organic materials were the only form of slow release nitrogen fertilizers available for use on turf and other agricultural crops. Materials such as animal manures, bone meal, dried blood, waste from the food industry, activated sewage sludge, soybean meal, and cotton seed meal are used as components of natural organic fertilizers. Each component has a distinct rate of nitrogen release due to differences in the complexity of organic nitrogen containing compounds within each material.

Non-leguminous plants, such as turfgrasses, can only utilize the mineral forms of nitrogen, which are nitrate- and ammonium-nitrogen. Natural organic nitrogen sources must be mineralized, or converted from an organic nitrogen compound to a mineral form of nitrogen, before plants can utilize the nitrogen contained in these sources. To mineralize natural organic fertilizers, soil microbial activity is required. Factors such as pH, temperature, and moisture influence the activity of soil microorganisms. A soil pH between 6 and 7 is generally considered optimal for the mineralization of organic fertilizers by microorganisms. Microbial activity is reduced when cold soil temperatures predominate. The application of organic nitrogen fertilizer during the cool weather of early spring and late fall, therefore, will not result in a rapid green-up response. Deficient and excessive soil moisture will also inhibit microbial activity. Soil moisture levels at field capacity and slightly below are considered ideal for microbial activity.

Synthetic Organic Fertilizers

Ureaformaldehyde reaction products and IBDU are two widely-used synthetic organic nitrogen sources. Methylene ureas (also known as UF or ureaform) are formed by the reaction of formaldehyde with urea. Methylene urea polymers formed by this process can be short- or long-chain compounds. The length or size of these polymers influences the speed with which the nitrogen is supplied to the turf. Larger size polymers release plant available nitrogen more slowly than small size polymers. Methylene ureas require microbial activity to release mineral nitrogen (mineralization); therefore, the growth response will be limited when microbial activity is low. Nitrogen release from methylene urea is slowed during the cool weather of spring and fall. Low soil pH and moisture content may also reduce the effectiveness of methylene urea fertilizers. ▲

Isobutylidene diurea (IBDU) is another synthetic organic fertilizer, and it is formed by the reaction of urea with isobulybuteraldahyde under pressure and heat. In contrast to methylene urea, nitrogen release from IBDU is independent of

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microbial activity; however, its release is influenced by temperature, moisture, particle size, and soil pH. Moisture and particle size are typically the dominating factors influencing nitrogen release from IBDU because nitrogen release is the result of hydrolysis of IBDU to urea. Wetter soil conditions and a finer fertilizer particle size increase the release rate of plant available nitrogen from IBDU. Thatchy turfs often respond more slowly to IBDU than turfs with little thatch. Thatch inhibits IBDU granules from reaching the soil surface where the granules are more easily hydrated and dissolved. Good low temperature response from IBDU can be expected because the release of nitrogen is independent of microbial activity. Release of nitrogen from IBDU can be inhibited as soil pH approaches and exceeds 7.

Coated Nitrogen Sources

Coated nitrogen sources consist of a water soluble nitrogen source, such as urea, encapsulated within a coating that is impermeable or semi-permeable to water. The coating inhibits wetting of the water soluble urea, delaying the release of nitrogen. The two principal types of coated fertilizer are sulfur-coated and resin-coated fertilizers. Resin-coated materials are also referred to as plastic- or polymer-coated products.

Sulfur-coated urea (SCU) relies on a sulfur coating around a prill of urea to create a barrier to water. Water must penetrate the sulfur coat through pinholes or cracks in the coating before the urea prill can be dissolved. Once dissolved, urea will either diffuse out through pinholes, or will more rapidly leak out through the larger cracks in the sulfur coating. Conditioners and sealants are commonly used on sulfur-coated material to minimize the effects of cracks on nitrogen release.

The process of nitrogen release from resin-coated urea is different than that of sulfur-coated urea. The resin-coated fertilizer pellet swells upon diffusion of water across the resin coat and into the pellet. Dissolved urea then diffuses back out through the resin coating, or the swelling pressure causes the pellet to crack open and release urea. Resin-coated materials have fewer flaws compared to the numerous cracks found in sulfur-coated products. The greater integrity of resin-coated materials provides a more predictable nitrogen release. Urea release from resin-coated urea is affected by the coating thickness, prill size, soil temperature, and moisture. A thicker resin coating and larger prill size will decrease the rate of nitrogen release, thus slowing nitrogen availability. Temperature increases the release of nitrogen from resin-coated products because the rate of diffusion increases with temperature. Moisture is needed for diffusion to proceed; dry conditions following fertilization, therefore, will delay the release of nitrogen from a resin-coated urea. Resin-coated ureas are typically blended with uncoated urea to improve initial green-up and growth responses. Cont. next page.

Recently, materials combining sulfur-coating and resin-coating technology have been marketed. The resin coating of this sulfur/resin-coated material is much thinner than a typical resin-coated urea and acts primarily as a sealant over the sulfur coat. The resin sealant reduces the rapid release of urea that can occur when cracks or flaws are present in the sulfur coat.

Nitrification and Urease Inhibitors

Nitrification and urease inhibitors modify nitrogen transformation processes in the soil and are intended to maintain nitrogen in a form that minimizes leaching and volatilization losses, thus improving the efficiency of nitrogen fertilizers. Nitrification inhibitors inhibit the conversion of ammonium-nitrogen in the soil to nitrate-nitrogen. This is useful because nitrate-nitrogen is susceptible to leaching, whereas ammonium-nitrogen is retained by the soil. Two products that inhibit nitrification, N-Serve (nitrapyrin) and DCD (dicyandiamide), have been studied on turf. N-Serve has not been effective on turf systems most likely because the compound is highly volatile. Although DCD is a low volatility nitrification inhibitor, most research indicates that its effectiveness on turf is also limited.

Following application, urea should be carried into the soil by thorough irrigation or by rainfall. Otherwise, surface-applied urea will hydrolyze and release ammonia to the atmosphere. Research has shown that up to half of surface-applied urea can be lost in this manner. Initial research has shown that urease inhibitors can be effective in reducing this type of nitrogen loss. Phenylphosphorodiamidate (PPD) and N-butyl phosphorothiaic triamid (NBPT) are two urease inhibitors shown to be effective in reducing ammonia volatilization losses from urea fertilizer.▲

DID YOU KNOW? Rutgers is *"plotting"* to develop higher quality turf. Check out the turf research plots. Come see the finest programs in the nation. Visit Rutgers Landscape Research Turf Field Day on July 31st. It's not only for Landscapers. Sports Field Managers can enhance their knowledge too. SEE CALENDAR on page 8.

Always Consider the Environment

by Jim Hermann

As students of the turf industry we try to read as many articles as we can find on the subject of turf management. We use the information we receive from these articles to help formulate the management programs we implement on the fields we maintain. These articles often times include topics such as aeration technique, selection of topdressing materials, yearly maintenance programs, athletic field renovation etc.

When you evaluate an article, always make sure you are considering the similarities and differences in the ***environment*** of the field you are reading about and the ***environment*** of your own field.

I trust that many of you have found yourselves in the following situation. You are trying to decide how to deal with a problem on your field. Not having had personal experience with this particular problem, you base your decision on an article that was written about a similar situation, or so it would seem.

Let's assume your soccer field is constructed on heavy textured native soil. The chemical soil analysis has determined that you have an acceptable Ph of 6.5 along with adequate amounts of available Phosphorous and Potassium.

It's September and the soccer league is tearing your field up and you're in a quandary over what to do first. You go to your mailbox and what do you find but the new issue of Sports Turf. By sheer coincidence the main article is written about how some facilities management company maintains a world-class soccer field. After you finish reading the article, you commit to a fertilizer program consisting of 8 lbs. of Nitrogen a year along with an obscene amount of Potassium and Phosphorous and micronutrients you never heard of before. In addition to this you purchase a trailer load of sand from the local supply house to use as a topdressing material. What's wrong with this picture?

The field you are reading about is more than likely constructed on a sand based root zone. Water is most certainly supplied by an automatic irrigation system. It is more than likely mowed every other day with a reel mower. It has a slit drainage system and employs a maintenance crew the size of a small town. *Cont. next page*

continued from page 6 **"Always Consider."**

Sand based root zones have relatively low water and nutrient holding capacity as compared to heavy clay root zones. A more complete and intensive fertilizer program typically including micronutrients is necessary to supply the turf with what it needs. Nutrients are typically supplied at lower rates and at more frequent intervals than are most heavy textured native soil New Jersey fields.

The sand topdressing is supplied with a sieve analysis ***"compatible"*** (the key word when discussing topdressing) with the root zone. Although sand may be indicated as a topdressing material for many fields, its use should never be contemplated without first consulting an agronomist well versed in soil science. The risk of causing more harm than good is extremely high.

If the ***environment*** of the field you are reading about differs greatly from your own, the maintenance program is going to differ from your own.

As you enter into decisions concerning maintenance and renovation procedures of your sports turf always ask yourself this question, "What am I trying to accomplish?" Here is an example. Modification of heavy textured soil with sand is often times recommended as a means of increasing the drainage qualities. What many fail to realize is that in order for drainage to occur, there needs to be a place for the water to go. If your field is not equipped with drainage, this procedure may not work.

Whenever making maintenance decisions, "always consider the **environment**".▲

***If you are looking for suggestions to improve your fields and have questions for the professionals attend the Sports Field Managers Association of New Jersey's field day on August 8. *SEE CALENDAR ON PAGE 8.*

CALENDAR OF EVENTS

RUTGERS

July 31 - Rutgers Landscape Turf Field Day, Adelphia Plant Science Research Station, Adelphia, NJ. (732) 932-9711 ext. 135. *(Learn about the research on turf grasses to improve your turf).* MARK YOUR CALENDAR!!!

SFMANJ

August 8 – Field Day at Bernards Twp's Bunham Park. A Day loaded with equipment demos, 5 ways to attack your goal mouths, writing specs, maintenance programs and more. 8:30am to 3pm. Watch for fliers mailed in June or call 908-236-9118 for info.

NEW JERSEY TURFGRASS ASSOCIATION

December 10-12 - New Jersey Turf and Landscape Expo 2002 , Taj Mahal, Atlantic City, NJ. *(Athletic Field Educational Sessions begin Wed., Dec.11 from 4pm to 6pm. & Thurs. Dec. 12 from 10am to 3:30pm with annual SFMANJ meeting at 1pm Thurs).*

SFMANJ Membership Registration form

Name_____

Title_____

Employer_____

Address_____

City_____

State_____ **Zip**_____

County_____

Phone_____ **Fax**_____

E-Mail_____

Signature_____

***Individual*.....$35**
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***Organization/Institution*.....$35**
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Vendor/Supplier
***Additional member from company*....$25**
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STMA Members deduct $10 for first applicant

Send with Check or voucher to:

SFMANJ
P.O. Box 370
Annandale, NJ 08801

WELCOME NEW MEMBERS

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Dennis	Murphy	Borough of Allendale
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ENDOPHYTE-INFECTED TURFGRASSES

FOR SUSTAINABLE INSECT MANAGEMENT

Dr. Albrecht M. Koppenhöfer[1] & Dr. William A. Meyer[2]

Certain turfgrass species, notably perennial ryegrass, tall fescue, and fine-leaf fescues, can form mutualistic relationships with fungi in the genus *Neotyphodium*. Because these fungi occur exclusively within the plants they are called endophytes. The fungus can be found only in the above ground parts of the plants and is transmitted by seed and vegetative propagation. Endophytic fungi depend on their grass host for nutrition, whereas endophyte-infected plants have been observed to have enhanced growth and vigor, germination and seed set, drought resistance, and resistance to certain pathogens and insects. Insect resistance is associated with the production of toxins, called alkaloids, by the endophytes. While the alkaloids do not harm the grass, they are deterrent or toxic to some insect pests that feed on stems, leaves, and leaf sheaths.

In perennial ryegrass, endophyte-infection generally confers resistance to billbugs, sod webworms, hairy chinch bug, and greenbugs, and partial resistance to fall armyworms. In tall fescue, a grass species that is generally less susceptible to insect damage even without endophytes, endophytes have been observed to increase resistance to fall armyworm, billbugs, sod webworm, leafhoppers, and greenbugs. In fine-leafed fescues, increased resistance to the hairy chinch bug and fall armyworms has been observed. Root-feeding insects such as white grubs generally don't seem to be significantly affected by the presence of endophytes, probably because little of the protective alkaloids is translocated into the turfgrass roots.

Figures on the degree of protection against insects that endophytes confer to turfgrasses are variable because resistance levels may not only vary with turfgrass and insect species but also with turfgrass cultivar, environmental conditions (e.g. highest alkaloid concentrations in spring and in fall), soil fertility, and other parameters. In a field study in New Jersey in the late 1970, perennial ryegrass cultivars with > 90% endophyte infection generally sustained only 1-5% damage by billbugs whereas cultivars with < 10% endophyte infection sustained generally > 25% damage (up to 83%). However, in the same study some cultivars with 100% endophyte infection sustained 25% damage and some cultivars with 0% endophyte infection sustained only 7% damage. In another study in New Jersey in the late 1980s, tall fescue infected with endophytes sustained only 1% damage by billbugs whereas endophyte-free tall fescue sustained 25% damage.

From a historical perspective in the past 2 National Turfgrass Variety Trials all top performing perennial ryegrasses contained a high level of endophyte. The following new improved turf-type perennial ryegrasses performed well in New Jersey turf trials: AllStar2, Amazing, Applaud, Brightstar II, Brightstar SLT, Cabo, Charismatic, Churchill, Citation Fore, Exacta, Fiesta III, Gator III, Integra, Jet, Kokomo, Pace Setter, Palmer III, Paragon, Pizzazz, Pinnacle II, Premier II, Promise, Repell II, Seville II, Somerville, SR 4820, Stellar. Similarly, all top performing tall fescues in the National Turfgrass Evaluation Trials contained a high level of endophyte. The following improved turf-type tall fescues have performed well in New Jersey turf trials: Arid 3, Bingo, Biltmore, Bonsai 2000, Coyote, Crossfire II, Finesse, Focus, Forte, Gazelle, Justice, Masterpiece, Millennium, Mustang 3, Plantation, Olympic Gold, Oncue, Picasso, Rebel Exeda, Rebel Sentry, Rembrandt, Shenandoah II, Scorpion, Sr8250, Tarheel, Watchdog, Wolfpack.

Recent studies in Ohio indicated that insect pests can also be suppressed in mixed stands of Kentucky bluegrass and endophytic perennial ryegrass. Thus, population densities of bluegrass billbug and bluegrass sod webworm decreased significantly as the percentage of endophytic perennial ryegrass (Repell II) increased in mixed stands with Kentucky bluegrass until the proportion of endophytic perennial ryegrass reached 40%. Higher percentage of endophytic perennial ryegrass did not result in further reduction of pest populations. In the same study, another endophyte enhanced perennial ryegrass cultivar (Triple Play) did not decrease billbug populations.

Viability of the endophyte in seed declines rapidly under warm, humid conditions. Therefore the seed should be stored under cold (32-40°F) and dry conditions, and should be planted as soon as possible to guarantee the higher endophyte infection levels after establishment. Overall, the use of endophyte-enhanced turfgrasses is a useful tool in the management of surface-feeding insects and can significantly reduce the need for insecticide applications. ▲

[1]Assistant Extension Specialist in Turfgrass Entomology, and [2]Professor of Plant Science, New Jersey Agricultural Experiment Station, Cook College, Rutgers, The State University of New Jersey, New Brunswick, NJ 08901.

"It Takes More Than Sneakers" by Jim Hermann[1]

As we explore the area of infield maintenance, we find ourselves inundated with products and procedures designed to provide professional results. When reading these articles and advertisements always ask yourself about the similarities in your field *environment* and the *environment* you are reading about.

A problem with infield maintenance is that many of us are looking for that perfect product that will minimize maintenance along with increasing the quality of the field. In many cases an increase in quality can also serve to minimize maintenance. However, the maintenance that remains becomes more essential.

The quality of your program is not a direct result of the products you use, but more a direct result of how you use those products.

An example of this would be the procedure of modifying the pitchers mound with clay. Damage caused by the pitcher is minimized, thereby increasing the quality of the mound and decreasing the time necessary to maintain it. However the maintenance required becomes more imperative. Once a pitchers mound is modified with clay it should be kept covered when not in play. A higher level of expertise is necessary for maintenance. If the mound is not covered and maintained properly any depressions created by the pitcher become wet and sticky. The only thing worse than wet clay on your cleats is dog *shhhhhhhhame* on me.

On a similar note, if you increase the clay content of your infield mix, you minimize the time necessary to maintain the infield in a safe and playable condition. The clay content causes the mix to become more stable. The mix has less potential to translocate to the perimeters and create that lip we are all so familiar with. On the other hand, the infield mix will have the potential to become much harder when it is dry and hold more water during rainy weather than an infield mix containing a higher percentage of sand. This causes a greater need for a more timely and effective maintenance program.

A great deal of caution and judgment needs to be exercised as you continue to search for effective products. There are many products available that are very effective in accomplishing what the manufacturer states they will accomplish. However, they need to be used within the *environment* for which they are intended in order to be most effective.

Ask yourself these questions:

1. Can I cover the infield when it rains?
2. Can I water the infield when it's dry?
3. Can I roll the infield when it's soft?
4. Can I scarify the infield when it's hard?

Have you ever heard this statement? "We use the same infield mix they use at So and So Stadium." That's like saying "I wear Michael Jordan sneakers." It's just not the same.

It should not be assumed that failure is eminent if the means are not provided to address the four questions posed. What should be understood is that we need to live within our means, so to speak. It makes little sense to anticipate a level of quality that demands a maintenance program that is unattainable. The quality of your program is not a direct result of the products you use, but more a direct result of how you use those products. Take care when purchasing a product or service that you have the ability to provide the *environment* necessary to achieve the benefit that you anticipate.

When you make decisions on the products and procedures you include in your maintenance program remember this, ***"It takes more than sneakers."***

Although it is true, you can't make a silk purse out of a sow's ear. You can have the finest silk available, but without the proper tools, equipment and knowledge; you will never create that silk purse.

The best way to gain the knowledge necessary in making educated decisions on equipment and procedures used in athletic field maintenance is to become an active member of SFMANJ. This membership puts you in touch with people in your area who have similar interests. By networking with these people through involvement in tradeshows, field days and seminars you will have the opportunity to learn first hand what works and also what doesn't work in athletic field maintenance. Involvement allows you to profit from the experience of others. This is an invaluable asset. ▲

[1], SFMANJ Board of Directors

DID YOU KNOW? 17% of the lawsuits concerning the physical condition of baseball/softball fields are due to FIXED BASES.

Utilizing Proper Cultural Practices to Reduce Turfgrass Diseases by Bruce Clarke[1]

Most turfgrass diseases are caused by fungi that are dramatically affected by changes in the environment. This may include natural changes in temperature, moisture, and relative humidity as well as alterations in the environment caused by cultural management practices. Although we can do little to change the weather, turf managers can and should attempt to modify those management practices that affect the incidence and severity of major turfgrass diseases. Virtually everything a turf manager does can affect disease development. Some management practices may intensify turfgrass diseases while others may reduce symptom expression. It is the responsibility of every person who manages turf to accentuate the positive attributes of proper management and to limit those practices that enhance turfgrass diseases.

Nitrogen Fertility Management

Nitrogen, more than any other element, can influence the incidence and severity of turfgrass diseases. Many diseases, such as Gray leaf spot, Cercospora leaf spot, brown patch, pink snow mold / Fusarium patch, Drechslera leaf spot and melting-out and pythium blight, are readily enhanced by the application of quick-release nitrogen fertilizers when they are active. Other diseases, such as red thread, rust, and anthracnose, are frequently suppressed by small applications of nitrogen. Even dollar spot, one of the most widespread diseases of turf, is dramatically affected by nitrogen applications. When dollar spot is active, nitrogen may actually enhance disease development. However, when the disease is in remission, light applications of nitrogen can stimulate the recovery of infected turf.

Quite often, careful selection of the nitrogen source can help reduce symptom severity. For example, Drechslera leaf spot and melting-out can be intensified by spring applications of quick-release nitrogen sources such as ammonium nitrate or urea. However, the use of slow-release products like sulfur-coated urea or IBDU can reduce the melting-out phase of this disease. Research at Rutgers University has also clearly shown that the selection of the nitrogen source is critical to the successful management of summer patch.

Summer patch is caused by the root and crown infecting fungus *Magnaporthe poae*. This pathogen is greatly stimulated by high soil pH. As a result, the application of acidifying fertilizers (i.e., ammonium sulfate and sulfur-coated urea) over several years can reduce patch development 30 to 40% even without the use of fungicides. On the other hand, the use of nitrate-based fertilizers can actually stimulate patch severity by elevating soil pH over time. This relationship has also been observed with other diseases such as take-all patch and pink snow mold. In general, a good target pH for the management of these diseases is 6.0 since the causal agents are stimulated above a soil pH of 6.5.

Compaction/Aerification

Most stress related diseases are intensified by compaction. Soil compaction reduces rooting depth, plant vigor, and water infiltration. Unless alleviated, compaction may favor the development of many diseases such as summer patch, take-all patch, pythium root rot, rust, dollar spot, and anthracnose basal rot. Turf management practices that reduce compaction will, over time, reduce the severity of these diseases. The use of shallow (3.25 in) and deep (7 in) tine aerification has been used to reduce the diameter of summer patch loci 70 to 80% over a three year period. This research has also indicated that spring aerification is often more effective than fall aerification in reducing disease severity. Aerification, however, should not be initiated when the target disease is active.

Thatch and Disease

Most foliar diseases are enhanced by a thick (>0.75 inch) thatch layer. Dollar spot, pink snow mold, Drechslera leaf spot and melting-out, yellow patch, dollar spot, pythium blight, brown patch, gray snow mold, and southern blight are all examples of diseases that are more severe when the thatch layer becomes excessive. Thatch acts as a sponge for water and nutrients and is a protection zone for turfgrass pathogens. Maintaining the thatch layer below 0.75 inch will help reduce this protective cover thus reducing fungal populations and ultimately disease intensity.

Effect of Moisture on Turf Disease Development

There are two types of moisture that can affect turf disease development. Leaf moisture is required by most fungi to infect turfgrass foliage. Diseases such as brown patch, pythium blight, and dollar spot need extended periods (>10 consecutive hours) of leaf wetness to develop into epidemics. Reducing the period of time that turf foliage remains wet should be the goal of every turf manager. One of the best ways to do this is to avoid irrigating turf in the early evening (6 to 10 PM) or late morning (9 to 11 AM) hours. Since turf is often wet because of dew or guttation water from midnight to 9 AM, avoiding the early evening and late morning hours will limit the total leaf wetness period and help prevent many disease outbreaks.

Soil moisture is also an important factor in turf disease development. Many diseases such as dollar spot are actually enhanced by low soil moisture (dry soil) and abundant leaf wetness. Even pythium blight (foliar pythium) is more severe under conditions of low soil moisture and high leaf wetness. Other diseases, including brown patch and red thread are generally unaffected by soil moisture levels.

Mowing Height

Many diseases are more severe at lower mowing heights. Root diseases in particular are often enhanced when turf is maintained below the recommended height of cut for a particular grass species. For example, summer patch is much more serious on golf greens when turf is turf cut below 5/32 inch. Low mowing depletes carbohydrate reserves in the plant thus predisposing it to disease. However, a few diseases (i.e., gray leaf spot) are more serious at higher heights of cut. For these diseases, high humidity associated with higher cutting heights, may actually intensify disease severity. For best results, maintain turf at the recommended mowing height▲.

[1]Director of the Department of Plant Biology & Pathology, Cook College, Rutgers University.

DID YOU KNOW? Rutgers Cooperative Extension publishes a "Plant & Pest Advisory" newsletter. For more information see their website at: www.rce.rutgers.edu/pubs/plantandpestadvisory

"Monthly Field Tip"

Know Your Target

Environmentally Sensitive Pest Control by Jim Hermann

The NJ Pesticide Applicator Training Manual defines a pesticide as "a chemical or other agent that will destroy a pest or protect something from a pest." The Applicator Training Manual defines a pest as "an unwanted organism (animal, plant, bacteria, fungi, virus, etc.") This is what a pest is. A surface-feeding pest is not the center fielder for the local t-ball team that single handedly keeps the outfield void of dandelions. An opportunistic pest is not the men's softball team that played without a permit just because the field was not occupied. Some pests like cool wet weather. They are not the girls' lacrosse team. Others can devastate a stand of grass in a few hours. They are not the varsity football team.

If you apply pesticides to the athletic fields and/or grounds you are employed to maintain, you are required to be a certified commercial pesticide applicator, or be working under the direct supervision of a certified commercial pesticide applicator. It has been said, "It's only Roundup, I don't have to be licensed." IF IT'S A PESTICIDE, YOU HAVE TO BE LICENSED.

When applying pesticides follow label instructions, know and understand your **"Target."** (The area, buildings, plants animals, or pests *intended* to be treated with a pesticide application). Be aware of and be concerned with any potential **"Non-target"**: (Any plant, animal or other organism that a pesticide application is not aimed at, but may accidentally be injured by a chemical)

Before making any pesticide applications do three things:

1. ***Identify***
   Know your target. Understand its life cycle and growth habits to determine when is the best time to treat and what is the most effective method of treatment while causing the least amount of environmental impact.

2. ***Quantify***
   Thoroughly inspect the area you contemplate treating of to determine if existing pest populations warrant treatment. Remember, no pesticide is 100% effective. There have always been and always will be pests in the environment. A part of your job as a responsible turf manager is to determine acceptable levels or thresholds of population density below which chemical controls are not necessary.

3. ***Justify***
   Weigh all the factors. Do ten dandelions justify a blanket application of herbicide? Does a lawn moth spotted in the evening justify an insect control application? ▲

"Take it to Hart" by Gerald Henry and Dr. Stephen Hart

Dr. Stephen Hart is an Assistant Extension Specialist in the Plant Science Dept. at Cook College/Rutgers University. Gerald Henry is a graduate student at Rutgers University

You can ask Dr. Hart your weed questions by e-mailing him at sfmanjchapter@netscape.net

Question: We have a lot of white clover on our soccer field. We would like to treat the clover with a herbicide to get rid of it. The problem is the geese have it chewed off to the point where I am concerned that a herbicide that depends on available leaf surface will be less than effective. What can we do?

Answer: White clover, *Trifolium repens* L., is one of the most difficult broadleaf weeds to control in athletic fields. White clover has adapted to survive under moist soil conditions, low nitrogen fertility, soil acidity, and low mowing heights. White clover reproduces by seed (pods) and the rooting of creeping above ground stems (stolons).

The first step in avoiding weed encroachment is to maintain a healthy, dense, vigorous stand of turf. White clover is a legume whose presence in turf usually signifies a nitrogen deficient soil. Applying nitrogen at a rate of 2 - 3 lbs N/1000 sq. ft over one growing season should alleviate this problem. White clover has a shallow root system that is highly susceptible to drought. Proper water management during periods of dry weather can help reduce white clover populations. Also, maintain a soil pH of at least 6.0 with 6.5 to 6.7 being preferred.

White clover is most susceptible to the herbicides clopyralid, MCPP/MCPA, and dicamba. Of these three, clopyralid (a component of Confront herbicide) is probably the most effective. Clopyralid will also be taken up by the roots of white clover and would be the best herbicide to use in situations where the clover has been recently mowed or the foliage has been eaten by geese. Herbicide treatments for white clover control should be made prior to (mid-spring) or following flowering (fall). ▲

"Rutgers Economic Survey"

Rutgers recently mailed out an Economic Survey to many businesses such as Sod Farms & Golf Courses; municipalities such as DPW, Parks & Rec Depts;, schools such as Building & Grounds; and Commercial business in the Green Industry.

If your business or town received a survey Please, Please take the time to fill it out and send it back.

WHY? This survey is very important to the Green Industry. The study will show the economic importance of turfgrass to industry leaders, policy-makers and the general public. Specific objectives are to:

1. Estimate the size of the turfgrass industry by sector
2. Characterize the nature of NJ's turfgrass industry for use by industry professionals.
3. Evaluate factors that will shape the future of the turfgrass industry, including population dynamics, development, state policies, industry consolidation, water regulation, image, policy support, and environmental factors.
4. To create a resource inventory for use by industry, Rutgers will develop GIS maps to identify locations of major demand units.
5. In order to allow industry to strategically plan for its future, 10 year projections of demand for services and products will be developed. ▲

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