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SportsTurf Contents

JULY 2011 | VOLUME 27 | NUMBER 7

Features

Departments

On the cover: North Scott Community School District, Eldridge, IA, won the STMA 2010 Football Field of the Year in the School/Parks category, led by John Netwal, CGCS, a leader and influential turf manager in the region. He and what he calls the District's "unsung heroes," his 3-man maintenance team, cover 110 acres of general grounds and 11 acres of sports fields. From L to R: Terry Loesel, John Netwal, Andy Hamann, and Chris Thomas.

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From the Sidelines

Eric Schroder
Editor

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Education opportunities shouldn't be missed

IN MY MORE THAN 25 YEARS covering educational events and trade shows in industries including construction, auto repair and dentistry as well as turfgrass, I've witnessed some terrific programs and some real clunkers. As well-intentioned as an organizer might be sometimes you get a dud, whether because of unforeseen circumstances, poorly prepared presenters, or ill-conceived program choices.

It may appear self-serving but I'll go there anyway: in my experience, the Sports Turf Managers Association and their affiliated chapters take a back seat to no one in pulling off great and useful events. Last month I was in Knoxville for the Southeast Regional Conference that was put together by National STMA HQ and six regional chapters: Tennessee Valley, Kentucky, Georgia, South Carolina, North Carolina and Virginia. It's difficult to imagine an attendee leaving this event thinking, "I didn't learn a damn thing."

The event was held at the University of Tennessee (my eyes readjusted from all the orange in a few days) and, just as was the case last summer in Seattle, the venue brings much to the event. Like many of you, I'm a sports fan and get a thrill from getting to see and be in places most people don't—for example, standing midfield at huge Neyland Stadium or touring the Volunteers' first-class locker room. The Vols' indoor practice facility would dwarf most airplane hangars, it is huge!

But the facility tours are cake icing compared to the workshops. Those in Knoxville heard from most of the turf team experts from the University: Drs. John Sorochan, Tom Samples, Brandon Horvath and James Brosnan, plus research techs Adam Thoms and Marty Wallace as well as university turf managers Darrell Denney, Darren Seybold and Jimmy Andes. Also on the program were regional big hitters such as Dr. Mike Goatley from Virginia Tech, Dr. Grady Miller from North Carolina State, Eric Fasbender, CSFM, who manages fields and facilities at LSU, and long-time industry leader Bill Marbet, president of Southern Athletic Fields.

And as you might expect, topics related directly to the region, with lots of information on bermudagrass, including new information from National Turfgrass Evaluation Program (NTEP) traffic trials, managing bermuda to prevent winter injury, and info from Dr. Samples on the best new bermudagrasses for athletic fields (appears there are some real winners soon to arrive from the minds at Oklahoma State).

Other topics covered included field painting, using field covers, pest management, and a number of talks and demonstrations on maintaining infield skins for baseball and softball (not exactly the same thing I learned). And it should be noted that if you signed up before the event, all this, plus some meals, transportation, and CEU credits, not to mention the trade show with national and regional vendors, cost $95!

We all have a bag of excuses we dip into when it comes to things we know are good for us but for some reason are reluctant to do. Next time you have a chance, pass on the broccoli but not these education opportunities from STMA. They are more than worth the effort and expense.

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President's Message

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Storms' long-term impact unknown

THE DEVASTATING SPRING AND EARLY SUMMER STORMS throughout the country have affected so many lives. The long-term impacts are unknown, though we know they will be considerable. One known factor, however, is the volunteer spirit of our individual members and our affiliated chapters. Resilience and the ability to give back are in the core makeup of sports turf managers. I commend all of you who are assisting in the efforts to repair communities, and especially in rebuilding sports fields that can help to bring back a sense of normalcy to neighborhoods. STMA can help to provide informational resources and guidance in reconstruction of fields, so please contact our headquarters and let us know where we can help.

July offers two significant opportunities to recognize our members. It is National Park and Recreation Month and Smart Irrigation Month. Twenty-four percent of our membership works in parks and recreation. This is the largest portion of our membership, and also one of our segments that has been substantially damaged by budget reductions. I congratulate our parks and recreation members for their ability to "do more with less" and their commitment to provide safe fields for play.

Smart Irrigation Month offers all sports turf managers the opportunity to demonstrate their management practices that save water. Long before a month was dedicated to "smart irrigation" our members were the original water stewards, reducing use, planting drought tolerant turfgrasses and landscaping and finding ways to reuse water. I encourage all of you to take advantage of this month to promote your water management expertise to your employers and to the users of your fields. Our upcoming conference in Long Beach has a focus on water and several academics will present the latest water management strategies.

As we get into the heart of the summer, please remember to include a Field of the Year submittal in your plans. Now is the perfect time to photograph your field and do the Playing Conditions Index (PCI) assessments that are required. For the first time, the Field of the Year application is electronic, which will help you to organize the information that you need to submit and streamline the process. The deadline is October 15. This is the same deadline to submit a Founders' Award nominee. Our Founders' Awards are named in honor of those who created STMA, and they continue recognize those who are great contributors to the profession. Please take a moment to nominate someone who has impacted our industry. Our association is filled with many deserving members, and as you know, our peers are also very humble. It is up to us to bring them into the recognition spotlight.

Are you getting the most from your granular nitrogen fertilizers?

NITROGEN (N) is the essential mineral nutrient required in greatest amounts by turfgrasses. Although more than 78% of the air we breathe is N2, turfgrasses are unable to capture it from the atmosphere so many researchers, chemists and fertilizer manufacturers spend considerable time and effort every year developing granular N-containing fertilizers for turf.

Some of these are homogenous, with granules having an equal amount of nutrition. Others are blends of several nutrient sources or carriers. Depending on how it is formulated, a fertilizer may release N very quickly or for an extended period of time. Since energy is required to convert atmospheric N to ammonium and nitrate, the forms that turfgrasses use, the cost of fertilizers increases as energy and fuel costs rise.

Knowing how much N a turfgrass requires, how long N is available after a fertilizer is applied, the factors that affect how N is released and the physical properties of a fertilizer helps sports turf managers make informed decisions when purchasing and applying granular fertilizers.

The N requirement of cool- and warm-season turfgrasses varies among species. Bermudagrass and Kentucky bluegrass usually need more N per growing month than tall fescue and perennial ryegrass. For example, bermudagrass and Kentucky bluegrass usually require from 0.5 to 1.5 lb. of N per 1,000 sq. ft. per growing month, and tall fescue and perennial ryegrass, from 0.4 to 1 lb. of N per 1,000 sq. ft. per growing month. This information is helpful when developing a fertilization program and budget.

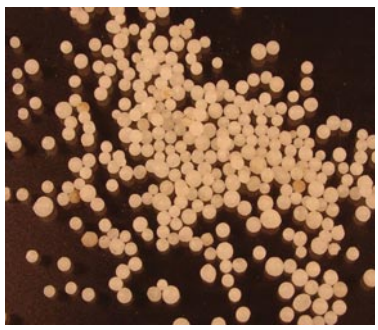
The chemical properties of the N carrier(s) in a fertilizer influence how, and the rate at which, N is released. Physical properties such as the size and uniformity of granules influence the ballistic properties, and may also affect N release. If the granules contain an herbicide, their size and uniformity may directly influence herbicide coverage and performance.

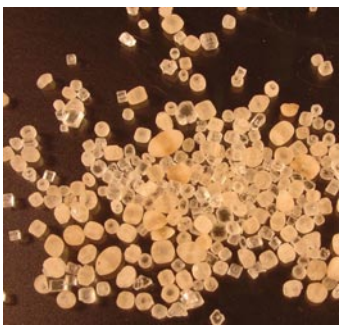
The N requirement of cool- and warm-season turfgrasses varies among species. Bermudagrass and Kentucky bluegrass usually need more N per growing month than tall fescue and perennial ryegrass.

CHEMICAL PROPERTIES

Highly Water-soluble N Carriers. There are two groups of highly water-soluble N carriers. Inorganic (containing no carbon) salts are synthetic, dry and solid materials formed as N from the air reacts with other materials. Urea, unlike the inorganic salts, is a quickly available, synthetic-organic (containing carbon) N carrier. It is made by reacting carbon dioxide with anhydrous ammonia under high pressure (e.g., 3000 psi) and temperature (~350 degrees F). Water is removed during this process and a molten N-containing substance is converted into small, hollow prills (Figure 2) or solid granules.

Inorganic salts like ammonium sulfate (Figure 3), calcium nitrate, diammonium phosphate (DAP), monoammonium phosphate (MAP, Figure 4) and potassium nitrate





>> **Figure 2.** UREA Prills. **Figure 3.** Granular Ammonium Sulfate. **Figure 4.** Monoammonium Phosphate.

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The spring tine rake attachment is equipment with 42 tines that comb through the turf surface, lifting fiber and infill, preparing the turf for exposure.

The two 3' x 3' light banks, housing 16 shatterproof bulbs, provide the UVC energy required to kill dangerous MRSA & HIV.

The unit is powered by generator with an intelligent power regulator for efficient electric power. An optional rechargeable battery bank with inverter is also available.

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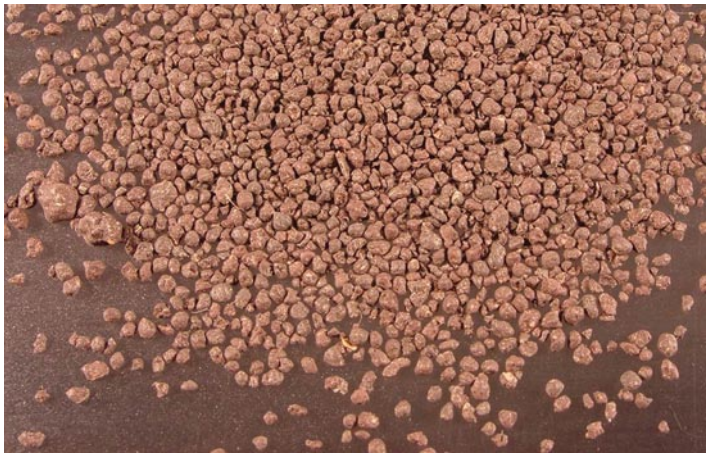
have several characteristics in common. In addition to being very soluble in water, N carriers in this group produce an initial rapid-growth response, even at low temperatures; have the potential to burn turf; have a growth response limited to about 4-6 weeks; are prone to leaching in the nitrate form; and are usually less expensive than more highly processed, extended-release N carriers. To avoid fertilizer burn, these N carriers should be applied to dry turf when the air temperature is less than 80 degrees Fahrenheit and at a relatively low rate (for example, no more than 1 lb. of N per 1,000 sq. ft.).

Due to its strong acidifying properties, ammonium sulfate is commonly applied to turfgrasses growing in soils with an excessively high pH (for example, >7.2). The burn potential of ammonium sulfate is greater than that of the other synthetic-inorganic N carriers. Monoammonium phosphate supplies plants with both N and phosphorus (P). Granular MAP contains about 11% N and 52% phosphate. Like MAP, DAP contains both N (about 18%) and phosphate (about 46%). An application of MAP creates an acidic zone around each granule, while the zone around granules of DAP is basic. Potassium nitrate contains about 13% N and about 36% K. The entire amount of N in potassium nitrate is in NO3- form.

Urea was discovered by a French scientist in 1773 and was first produced from two inorganic materials, silver cyanate and ammonium chloride, by a German chemist in 1828. Today, urea is used worldwide to fertilize agronomic and horticultural crops, ornamental plants and turf. The N in urea must be converted to NH4+ before being absorbed from the soil by turfgrasses. When broadcast over turf, molecules of urea are converted to ammonium carbonate by hydrolysis (reaction with water). The enzyme urease, which is found in turfs, speeds this conversion and leads to the formation of NH4+and the release of CO2. More than 60% of the total amount of applied urea may be hydrolyzed in 24 hours. Urea is usually completely hydrolyzed within 7 days after a turf is fertilized.



>> **Figure 5.** Activated Sewage Sludge / Milorganite.™

>> **Figure 6.** Urea Formaldehyde.

When the soil is warm, moist and slightly acidic (for example, pH between 6.0 and 6.9), soil microorganisms convert NH4+ to NO3- within a few days. Conversely, once inside a turfgrass plant, NO3- is converted back to NH4+, a process requiring energy.

Extended-release N Carriers. Several carriers release N slowly compared to highly water-soluble carriers. These include natural organics with N bound in organic compounds; synthetic organics with urea in short-, medium- or long-chain compounds; sulfur-coated urea (SCU); polymer-coated urea (PCU); polymer-coated, sulfur-coated urea (PCSCU); and carriers with a reactive layer coating (RLC).

Natural organics are categorized as water-insoluble N, or WIN carriers. A natural organic fertilizer may originate from plants or animals. Nutrient concentrations are often low (for example, Milorganite with a grade of 6-2-0 + 4% Iron). About 70 to 85% of the N in natural organics, such as activated sewage sludge (Figure 5), bone meal, composted turkey litter, feather meal, leather meal, soybean protein and spent mushroom compost are in WIN form. The rate of N release from natural organics is influenced by soil moisture, temperature and the activity of soil microorganisms. The rate of release of N from natural organics becomes very slow at soil temperatures below 55 degrees Fahrenheit. Natural organics have a very low burn potential and may release N for 12 months or longer.

Isobutylidene diurea (IBDU) and urea formaldehyde (UF, Figure 6) are examples of synthetically produced, extended-release organic N carriers. Presently, synthetic-organic N carriers receive greater use in sports turf management than natural organics. Because IBDU and UF are produced by reacting urea with other compounds, they are sometimes referred to as reacted products.

Isobutylidene diurea contains 31% N with more than 80% N in slow-release, water-insoluble form. There are no coatings for water or nutrients to pass through. The rate of release of N from IBDU is influenced by soil moisture and particle size, and does not depend on the activity of soil microorganisms. Since the release of N is minimally dependent on soil temperature, sports turf managers may apply IBDU in late summer or early autumn to provide cool-season turfgrasses with N during September, October and November. The release of N from IBDU may last for 12 or more months.

Urea formaldehydes, or ureaforms, are produced by reacting urea with formaldehyde under controlled conditions. The longer these two chemicals are allowed to react, the longer the urea-containing molecule. The longer the molecule, the more C and N it contains, the longer it takes for N to release and the lower the possibility of fertilizer burn.