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ports turf managers in both the north and south have found numerous ways to use turf covers to extend their turf's growing season, protect their fields from environmental extremes (particularly cold and moisture), and by doing these things, covers help maximize field use potential.

Covers are used for low-temperature protection of both warm- and cool-season fields, and to maximize turf recovery and establishment from late-season seed and sod installations in preparation for spring sporting events.

Unfortunately, no single type of cover meets every need of a sports turf manager. Differences in cover composition, thickness, and color play major roles in how a cover will perform. One must also consider practical factors such as cost, lifespan, ease in handling and applying, and storage characteristics.

The following is a summary report from 15 years of field research and my personal observations on the use of various covers on sports turf:

Cover sources and temperature modification

With the support of numerous Mississippi State University faculty and staff, I conducted a 3-year research trial measuring how various cover sources modified the surface temperatures of a bermudagrass golf green. Though the applications in the research were for the winter protection of a sand-based golf green, the relative effects on temperature from cover application apply equally to both warm- and cool-season sports fields.

Of course, the amount of light transmission is an important consideration in how long a cover can stay in place when turf growth is desired. The data that are typically of most interest, though, are the effects of the covers on maximum and minimum soil surface temperatures.

Almost all covers were successful in elevating soil surface temperatures as compared to the uncovered control but remember that these increases in temperature are accompanied by concerns as well. For instance, the experimental OB (looks and performs much like a clear plastic) consistently provided the highest daily maximum mean temperatures in the 3 years of the trial, but these high temperatures also increased the likelihood of breaking bermudagrass dormancy in either late winter or early spring. This enhancement of dormancy break could be a desirable feature for the use and playability of spring sports, but it also might cause serious problems in the long-term performance of the bermudagrass turf if the early season growth can not be properly protected by covering when spring freeze or frost events occur.

This is an important consideration in the use of any cover for accelerating spring growth — can the early-season investment in plant growth and development (all of which requires the utilization of carbohydrates within the plant) be adequately protected from the highly variable temperatures of the spring period?

What about covering effects on minimum daily temperatures? All commercially available covers tended to increase the average daily minimum temperatures over the uncovered control, and color and thickness generally did not result in large differences between cover sources. The addition of a 2-mm thick reflective film (often used as the external backing of insulation sheeting used in home construction) to the underside of the SL 500 green textile as an experimental treatment resulted in the highest daily minimum temperatures in each of the 3 years, providing at least a 6 degree F increase in average temperature over the uncovered control.

Is this source the answer to our ‘covering prayers’? Maybe, maybe not! It might be if you are interested in maximum cold temperature protection, but the reflective backing will also
likely reduce soil warming in the spring, perhaps working against you if you are interested in early season turf growth or establishment. The addition of the reflective backing converted a permeable geotextile into an impermeable cover. Further research is needed to determine how this cover would perform in long-term applications either as is or when vented to allow for improved moisture and gas exchange.


Ongoing research at Virginia Tech on both warm-season and cool-season athletic field turfs is being conducted to further the understanding of how various colored covers can modify sports turf morphology and physiology. Research with single layers of black and white woven polypropylene on Riviera bermudagrass have shown that the application of black covers in mid-late fall to prevent frost/freeze damage to the turf maintains acceptable green turf color until low air temperatures are approximately 23°F or lower. Black, white, and a silver cover all helped sustain turf color into late fall, but when using instrumentation to measure photochemical efficiency (PE, in effect, a measurement of chlorophyll activity) the black cover maintains higher turf PE levels until extreme cold finally damaged the leaves.

We hypothesize that darker colored covers block ultraviolet radiation, thus reducing chlorophyll degradation that otherwise would be occurring due to frost events and the high light intensities of the fall season. Conversely, long-term application of black (or any light impermeable) covers do not work as well in accelerating spring transition to a dense bermudagrass canopy because of the lack of light.

Research by Erik Ervin, Turfgrass Physiologist at Virginia Tech, and Josh McPherson, sports field manager at George Mason University (and former graduate student), similarly reported that different colored covers resulted in different turfgrass responses when applied in either the fall or spring to Kentucky bluegrass. The research stemmed from the desire to accelerate the growth rate and aesthetic quality of a Kentucky bluegrass field in the fall and spring months when temperatures were suboptimal for grass growth. McPherson applied three impermeable vinyl rain tarps (colors of red, blue, and orange) along with a standard cover for short duration covering events (approximately 14 days) in order to accelerate Kentucky bluegrass growth either before or during heavy use periods on the field. In the fall, if daily high air temperatures hit 75-85°F, turf quality declined under the colored rain tarps due to excessive heating and only one tarp improved turf quality. As daytime highs cooled into the 50-60°F range, red, orange, and [green] covers improved turf quality, but the blue cover resulted in even lower quality ratings than the uncovered control, apparently due to poor photosynthetic light quality penetrating the cover. In the spring, all covers improved turf quality after only two weeks of application in mid-March, and the vinyl rain tarps even provided higher growth rates and better turf quality than the green cover. Desirable turf growth and color responses from short term covering in the spring were more closely linked to temperature alone, whereas both temperature and light were important in turf performance in the fall. Based on the results of this study, VT Athletics purchased an orange-colored non-woven geotextile cover for the football practice field specifically for enhancing spring regrowth prior to the practice season. As evidenced in McPherson’s research, the enhancement of turf quality from short-term spring covering is exceptional.

The good and the bad
As desirable as accelerated spring greening is from cover use on either cool- or warm-season grasses, be aware that all of this growth requires ‘accountability’ from Mother Nature. Due to your manipulation of the growing conditions by covering, the plant has expend-
ed quite a bit of its stored food reserves towards all the new growth. If Mother Nature provides ideal growing conditions for the spring, you might see very little decline in turf quality later that year and might even have a healthier turfgrass plant. However, very often our observation has been that late spring/early summer turf quality in covered areas is noticeably less than that of nearby uncovered turfs and you might even need to use your covers to protect the turf from unseasonable cold that could damage the turf.

**Future research**

As this article has indicated, many questions remain regarding cover color, composition, and timing of application to gain desirable turf responses. There are many things that we don't fully understand regarding what is happening with the plant itself regarding biochemical, physiological, and morphological responses due to covering. Research is planned to see if the addition of a plant growth regulator such as trinexapac ethyl (Primo Maxx) to a covering program can desirably regulate the surge in spring growth and improve other turf characteristics as well. While there is almost always a situation where a cover can enhance the turf, there really isn't a cover that applies to every situation.

Michael Goatley, Jr., is Extension Turfgrass Specialist, Virginia Tech.
roy Taylor and his crew won the 2006 Sports Turf Managers Association’s Field of the Year Award for Schools/Parks Complex. North Park in Lincolnshire, IL covers 67 acres, including 28 acres of athletic facilities. The fields hosted 4,200 hours of events in 2006 and were named the Illinois STMA’s Outstanding Facility Award in 2005.

**SportsTurf**: What attracted you to a career in sports turf management?

**Taylor**: Since I was a little kid, I have loved the outdoors, and was always outside. In grade school and later, I would help my grandpa work on his friend’s yards. This is when I started to think, “Hey I get to be outside and make a little money, this is pretty good.” When I was 16, Steve Roser of the Rockford Park district, hired me. Steve is incredibly knowledgeable [Ed.’s note: Roser won a FOY in 2005] and taught me many things. I worked for the Rockford park district for 8 years, and this is where I came to the conclusion that a career in sports turf management was for me. In 2002 Scott Pippen of the Village of Lincolnshire hired me for the North Park sports complex. The village of Lincolnshire has been a great place to work for, Scott has taught me many tricks for field maintenance and the management side of things. My sports turf management career choice has been a good. I still get to work outside, made many new friends with the STMA and, to see the kid’s smiles when they get to play on a professional like field makes all the long hours worth it.

**SportsTurf**: What are your specific responsibilities in this job?

**Taylor**: Luckily I have a great co-worker, Cory Purintun, to help me share some of the responsibilities in this job. My responsibilities are overseeing all operations at the North Park sports complex. This
includes all field maintenance, ice rink maintenance, building and equipment maintenance, ordering supplies, etc. I also have two other main parks that I help out with baseball and soccer maintenance. In the wintertime I help the Public Works department plow the cities streets.

SportsTurf: Do you plan any adjustments, large or small, to your maintenance plan in 2008?

Taylor: Other than a couple new equipment pieces to help out with field maintenance, our maintenance plan will stay pretty much the same. It seems to be working well with the amount of field usage we have.

SportsTurf: How do you balance your family life with work demands?

Taylor: I think this is one of the hardest problems any sports turf manager has. With events during the week and weekends, you can spend a lot of time away from home. As a solution to this, my co-worker, Cory Purintun, and I take turns working on the weekends. This solution lets us spend more time with our families.

SportsTurf: How do you see the sports turf managers' job changing in the future?

Taylor: Sports turf managers have evolved from the person who cuts grass, to the go to person that manages the entire operation. Our responsibilities are much bigger now. We are constantly maintaining for the higher demands of usage on our fields. As the world is turning more environmentally conscious, we as sports turf managers have also turned more environmentally conscious, by recycling cans and plastics, using organics for fertilizer, bio-diesel in our field equipment, and not overwatering our facilities.

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Two weeks before his first home game, the Assistant Sports Turf Manager was at the stadium to mow and noticed perfect shaped Purdue “P” logos all around the entire perimeter of the playing field. He reported that it looked like someone came in and sprayed Round-up with a stencil around the entire stadium. After a closer inspection, the text and symbols matched up with the field wrap that is hung on the stadium walls throughout the season.

He recalled that only one day before the field wrap company had been there hanging up the wrap. Before hanging the pieces up, they were laid out along the turf for approximately 6-8 hours with temperatures in the 90’s. The dead turf you are seeing is where the black lettering sat on the turf. In addition to the Purdue “P”, the effect also included the Purdue logo, the word “Boilermakers” and the Purdue website all the way around the stadium. The brown turf grew out and was simply mowed off and was not visible for the first game.

Photo submitted by Brian F. Bornino, Assistant Sports Turf Manager, Purdue University Athletics, West Lafayette, IN.

If you would like to submit a photograph for John Mascaro’s Photo Quiz please send it to Turf-Tec International, John Mascaro, 1471 Capital Circle NW, Suite #13, Tallahassee, FL 32303 or email to john@turf-tec.com. If your photograph is selected, you will receive full credit. All photos submitted become property of Sports Turf Magazine.

John Mascaro’s Photo Quiz

Answer: from page 14

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If you have any questions, please contact STMA Headquarters at (800) 323-3875 or STMAinfo@STMA.org. A letter acknowledging your donation will be sent to you after the Auctions/Raffle for your records, provided the item(s) listed are presented and auctioned/raffled as described on this form. SAFE is a 501 (c) 3 not-for-profit foundation. Please consult your tax advisor regarding the deductibility of your donation to the SAFE Foundation.
STMA's 2008 Membership renewal invoices have been mailed via the U.S. postal service. Be sure to take a few minutes to verify and update your contact information on your invoice. STMA is "going green" and on your renewal notice you will be offered the opportunity to opt-out of receiving a hard copy of the Annual Membership Directory. STMA's on-line directory is real-time and provides the most up-to-date membership information. The hard copy is available for those who prefer a printed directory, and you can certainly change your preference at any time.

Included with your renewal notice is the Ballot/Slate of Candidates for the 2008 STMA Board of Directors election. You will be able to fax, email or mail the ballot to headquarters to cast your vote. Please follow the instructions noted on the ballot. The deadline for voting is December 21.

Take the CSFM test at Conference
Testing for STMA Certification is offered twice at the STMA 19th Annual Conference and Exhibition in Phoenix for those who pre-qualify and pre-register by Dec. 14. The test will be given on Tues., Jan 15, 2008, from 4 p.m. to 8 p.m. This will allow you to take the test and then enjoy the conference. For those who prefer to wait until the conclusion of the conference, the test will be offered again on Sat., Jan 19, 8 a.m. to 12 p.m. If you take the test on Tuesday and do not pass all of the sections, you may be able to retest on those sections on Saturday. The exam covers agronomics, pest management, administration, and sports specific field management. Join the 79 Certified Sports Turf Managers who have validated their knowledge, skills and abilities by taking and passing the exam.

To find out if you qualify to take the exam, contact STMA headquarters at 1-800-323-3875, or STMAinfo@STMA.org. STMA has a simple form that can help you determine if you are eligible to test.

SAFE has new look, stronger focus
The SAFE Foundation (The Foundation for Safer Athletic Field Environments), the STMA's charitable arm, has unveiled a new logo. The new design presents a closer visual connection with the STMA logo. However, the closer alliance is much more than a visual statement. STMA President Mike Andresen, CSFM, sees collaboration as a means to bring awareness to the issue of safer athletic field environments.

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to enhance the industry. He says, "The partnership between STMA and SAFE goes beyond our legal relationship. It is vital that we work together to advance our profession."

SAFE is a 501(c)3 organization, and donations to it are usually tax deductible. Funds donated to SAFE can be used for scholarship, research and education. Andresen sees huge opportunity for more involvement by SAFE in developing education and is committed to providing recognition for their support. "All STMA educational resources will include the SAFE logo," says Andresen. We want our industry, allied associations, athletes, and fans to recognize the important work of SAFE." Andresen also notes that SAFE is linked to the STMA through the association's long-range strategic plan. "Our strategic plan has one entire platform that focuses on joint STMA-SAFE objectives."

SAFE Chairman of the Board Boyd Montgomery, CSFM echoes Andresen's thoughts on the importance of working together. "STMA has set the bar really high on its commitment to deliver superior education to its members. By working as a team we can accomplish those goals."

With the new visual statement, SAFE also will be refocusing its efforts to grow its funding. SAFE has engaged a grant writer to explore appropriate and available grants for The Foundation. In addition, SAFE is evaluating two research proposals. In 2006 and early this year, SAFE provided partial funding for the STMA/NIAAA DVD on Mound-building and Home Plate Maintenance, funded $12,500 in scholarships to STMA student members, partially funded the Student Challenge participants' conference registration fees and provided $8,000 for the Student Challenge awards.

STMA requests donations to SAFE through its conference registration and membership renewal forms and also encourages on-line donations, which can be accessed from the STMA website at www.STMA.org.

Donate auction items

The SAFE Foundation needs donations for its live and silent auctions and raffles, which will be held throughout the conference in Phoenix. Donations can be team gear, products, equipment, tickets to unique attractions in your area; about anything will work for the many auction/raffle events.

SAFE offers the following opportunities to donate:

Level 1 Donation items that have a value of $2,000 or more. These items will be the grand prizes for our event-long Raffle, which will be drawn during the well-attended Awards Banquet Jan. 18. The items will be displayed throughout the conference at the registration area with signage promoting the donor. Promotion will also be given at www.STMA.org.

Level 2 Donation items that have a value of $500 or more. These items will make up the live auction that will occur at the Pre-Banquet Reception January 18. Signage will recognize the donating organization.

Level 3 Donation any items that fall below the above levels. We will be using these for the Silent Auctions that will be conducted daily during the trade show. Each day will feature new items.

Donating to these charitable events is a great way to showcase your business, your sports team, or your hometown! To donate, please fill out the following form or contact STMA at 800-323-3875.

STMA Affiliated Chapters Contact Information


Chesapeake Chapter STMA (formerly Mid-Atlantic Athletic Field Managers Organization – MAFMO Chapter STMA): www.ccstma.org.


Florida #1 Chapter: 954/782-2748


Illinois Chapter STMA: 847/263-7603.
