



Equipment List

- Buffalo Turbine-Cyclone PTO blower
- Graco Fieldlazer
- John Deere -4520 Tractor with cab
- 400X loader with bucket, pallet forks and 6' plow

- Toro ReelMaster 5610 reel mower
- 2000 Aercore Aerator
- Gator XUV w/ V-plow
- Lely 1250 Fertilizer Spreader
- Rain Bird - Maxicom Central Control System, 1800 series pop up head, 7005 series rotary head and ESP-Site-

- Sat-40 sprinkler controller
- Toro- Aerothatch 83/Seeder 93
- Pro Sweep 5200
- Workman Sprayer 200 gallon
- Workman 3300 (2)
- Ty crop MH-400



Infinity Park

Rugby is a unique sport in that the game must go on. Games are played regardless of any limiting factors. There could be a foot of snow on the ground and they will still play. The culture of rugby is that the players are tough and if there is an injury that is just part of the game. For example, during a rugby game if a player is hurt the play does not end until the ball is kicked out of play.

Editor's note: Noel Harryman and his colleagues in Glendale also won the Sporting Grounds category last year. We asked Harryman to comment on his success and the interesting dynamic between his facility and the City of Glendale. Here is his response:

"Glendale is a unique city to work for and is a town where change is always expected. The city is always looking for ways to make our city different and looking for future opportunities to set us apart. Our crew is no exception to this status quo; we are responsible anything and everything that happens within the public works department. This includes the water distribution system, parks, streets, pitch, and my personal favorite, the sanitary and sewer collection system. Since we are responsible for collection and distribution throughout the city we are also required to hold licenses in both these areas.

"Our crew is crossed trained and very capable of taking on any task in any of these given areas. One week we might be doing a water line repair and asphalt and the next we might be forming and pouring concrete. This also presents some very major challenges since we tend to have multiple crews running five different directions in order to accomplish every-

thing that we set out to do. One reason that this is a challenge for me is maintaining consistency of how things are done on the pitch. The way that I have worked through this challenge is to always document sprayer calibration, fertility programs, mower height, aeration, and everything else under the sun. I think that documenting not only gives a record of what we have done in the past for success but more importantly what strategies failed and how to change our process to make them successful.

"For me this Field of the Year is recognition of our crew and their tireless dedication to hard work and their pursuit of perfection. There have been countless hours spent making sure that everything is perfect for games and practices as well. Our goal is to give our athletes the best product possible to make them successful. Our city management team trusts us to make decisions on the playing surface and is always concerned how many hours the field is being used. This trust allows us to make the best decision possible not only for the short term but also future of our facility. Our coaching staff also plays a key role in maintaining a quality surface. The coaches that we have are more than willing to move drills around and even use a practice field whenever possible. There is a great deal of pride in the facility and what are small city has to offer.

"I was asked, 'What do you different that makes you successful?' I am surrounded by people that all have the same goal as me. We all want to continue to promote the sport of rugby and we want to make sure that we have a world class facility and experience when playing here." ■

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SPRAYERS FROM JOHN DEERE

The HD200 and HD300 offer the ultimate in flexibility, with a choice of centrifugal or diaphragm pumps, manual or automatic rate controls, and boom options that come standard with an electro-hydraulic lift. More versatile than a single-purpose sprayer, no tools are needed for tank removal, and storage stands allow the operator to get more out of the vehicle, even while not spraying. The optional CleanLoad chemical agitator makes it easy to load chemicals by ensuring that every last drop is used, and a powerful jet agitator makes sure the tank solution is mixed thoroughly. An efficient valve bank design simplifies operation and plumbing, while standard triple nozzle bodies make nozzle changes effortless.

John Deere



TORO MULTI PRO 1750 SPRAYER

The Multi Pro 1750 is a 175-gallon dedicated turf vehicle sprayer designed to maneuver in smaller turf areas like tees, greens and sports fields to improve productivity and spray accuracy. The Multi Pro 1750 features a completely redesigned polyethylene elliptical tank with side agitation nozzles, which eliminates the shelves and corners on which chemicals tend to stick, and ensures proper mixing and agitation. Unlike competitive models, the Multi Pro 1750 features an exclusive six-diaphragm pump, which provides the highest spray rates while simultaneously supplying a generous agitation flow. Together, these spray components create the Multi Pro spray system that sets the standard for chemical mixing and unmatched spray performance and accuracy.

The Toro Company



TURFCO T3000I SPREADER/SPRAYER

TurfcO's T3000i spreader sprayer features intuitive upgrades including hands-free speed control and trim-lock speed for consistency while in use. Additionally, the T3000i now has 50% more hopper capacity. The spreader sprayer features 12- to 18-foot spreading widths, six- and nine-foot spraying widths and a four-foot trim spray and 15-foot wand for spot treating. Because it has the ability to cover 124,000 square-feet per fill and fit through a 36-inch gate, it's versatile enough for properties of any size.

TurfcO



CUSHMAN SPRAYTEK BY JACOBSEN

With the most consistent governing speed of any sprayer, the Cushman Spraytek by Jacobsen provides unmatched coverage consistency every time. Choose from a 300-gallon capacity and 24.8 hp diesel or 175-gallon capacity 33.8 hp gas model. A corrosion-resistant 316 stainless steel centrifugal pump provides up to 44 gpm maximum flow and up to 80 psi maximum pressure to handle your toughest applications. Both Spraytek models offer either manual, all-function electronic system or Raven flow-based computer boom control options.

Jacobsen



SPRAYER ATTACHMENT IDEAL FOR YEAR-ROUND JOBS

Bobcat's sprayer is manufactured to fit the versatile Toolcat utility work machine and Bobcat utility vehicles. The sprayers are designed for chemical applications ranging from spot spraying for weed control to broadcast spraying of liquid fertilizer and chemicals. All sprayer tank components are mounted to a formed steel skid-frame. Sprayer flow is controlled by a pump on/off switch conveniently mounted in the console of the Toolcat machine, or within easy reach on front of the skid for utility vehicles. The spring loaded boom wings break away horizontally (fore and aft) and vertically to help protect the boom on rough terrain or in case an obstacle is struck.

Bobcat



SMITHCO STAR COMMAND SPRAY SYSTEM

"This will change everything you thought you knew about spraying," said Emil Miller, the national sales manager for the new Smithco Star Command Spray System. Consisting of three integrated modules THE STAR COMMAND is a collaboration between Smithco and Sharpshooter by Capstan. It will help overcome many of the hard-to-solve spray problems most turf superintendents have long had to contend with. For example, speed no longer matters. You can spray from 2 to 10 mph, maintaining a constant rate, a constant operator-set pressure and a consistent droplet size and pattern...without changing tips you won't overspray between passes again. And savings can add up to 25% on chemicals annually. The Spry Star System is available on a range of models to accommodate varying needs.

Smithco



NEW SPREADER/SPRAYER WITH ELECTRIC FEATURES

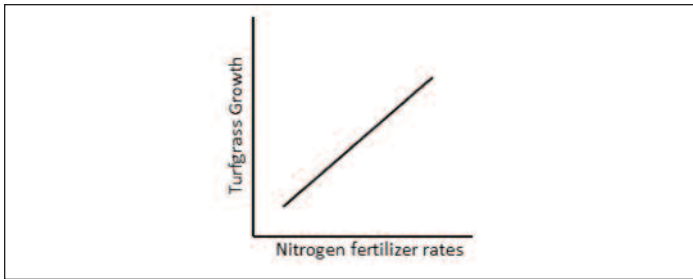
TurfEx introduces the RS7200E spreader/sprayer with an electric start, adjustable electric spray pump, and a hand-held spray wand. The unit is driven by a 7-horsepower Subaru EX210 engine and has a 0.95-gallon fuel tank. Its heavy-duty transmission has two forward gears, neutral and reverse. A hand-operated transmission disc brake and foot-controlled sulky band brake allow smooth, confident operation of the unit, and the machine's low center of gravity further increases the safety of the RS7200E. A 17-gallon tank system has a single port for easy filling and a balanced design for enhanced stability.

TurfEx



Continued from page 10

fertilizer (X-axis equaling increasing rates of nitrogen fertilizer and the Y-axis equaling turfgrass growth).



However, we also need to ask, “Is nitrogen fertilizer the only factor that can increase growth?” The answer is obviously “no.” External variable such as temperature and rainfall can influence results as well. So we can see that statistical relationships are not so clear cut and analyses try to find the best fit (the slope of the line) for this relationship.

ANOVA is used to analyze differences or equality between treatment means. ANOVAs are useful for comparing two or more means for statistical significance. Significance between means is often determined by a threshold value such as the Least Significant Difference as one measure.

Analysis of data can be very confusing, drawn out and beyond the scope of this article. Those of us in Plant Sciences often consult with statisticians to aid in the analysis of large data sets. Let’s leave this up to the experts.

EXAMPLES OF TABLES AND CHARTS & WHAT TO LOOK FOR

Understanding data tables becomes an easier task now that you understand some terms like the mean, standard deviation and least significant difference. The following example comes from the National Turfgrass Evaluation Program website. All tables should be titled; columns labeled and have some indication of significance between means.

This example shows a data table for weed ratings in some bermudagrass cultivars. The numbers listed under TN1 are means of three replications of percent weed ratings. Several text boxes explain much of the information on the data table; however, the most important question to ask, “Are there any differences, significant differences?” You will noted that the Least Significant Difference (LSD) value is 1.6 If the differences between means is greater than 1.6, then you will see a different lower case letter adjacent to that mean. It also specifies that the LSD is an LSD set at 0.05 or a 95% confidence level. Means with the

TABLE 74C. PERCENT WEED RATINGS OF BERMUDAGRASS (VEGETATIVE) CULTIVARS 1/
2012 DATA 2/

NAME	TN1
MIDLAWN	10.3 a
TIFWAY	8.7 ab
PREMIER	7.7 b
NORTHBRIIDGE (OKC 1134)	5.7 c
PATRIOT	5.0 c
LATITUDE 36 (OKC 1119)	4.7 c
LSD VALUE	1.6
C.V. (%)	13.9

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

Annotations:

- Midlawn was not different from Tifway in terms of weed growth because the means were not greater than 1.6%, even though numerically they appear different. 10.3 – 8.7 = 1.6 (1.6 is not greater than 1.6)**
- The type of data may be specified in the title or in the data itself.**
- Numbers represent the means, or averages, of data collected (unless otherwise specified).**
- Midlawn demonstrated a larger percentage of weeds compared to all varieties (except Tifway), as it is greater than 1.6% from each mean.**
- LSD value is usually located at the bottom of the charts, tables or graphs – you will need to use this LSD value and subtract each mean to determine comparisons between**
- Often letters are used to visually demonstrated the LSD differences**
- LSD – Least Significant Difference, also known as P<0.05, is a 5% probability that results were received in error; or 95% confidence results would be repeatable in the future**

same lettering adjacent to it, are statistically equal (even if numerically appearing different).

Understanding Bar Graphs can appear to be easier than large data tables. They can present data in a cleaner, more simplified format; however, some cautions should be pointed out. First look at the vertical or y-axis and determine what measurement is being labeled and the scale. All scales should start at “0”, but sometimes do not. Look at the units on the scale. Unit interval (unit interval of 1 versus a unit interval of 20) may tell you that differences in the bars are not as great as they may appear.

Just as data tables should, bar graphs should have some indication of mean separation and significance. Bars labeled with the same letters are equal to one another. Those with different letters (A versus B) are significantly different from each other. Bar graphs should be titled as well and have both axis labeled.

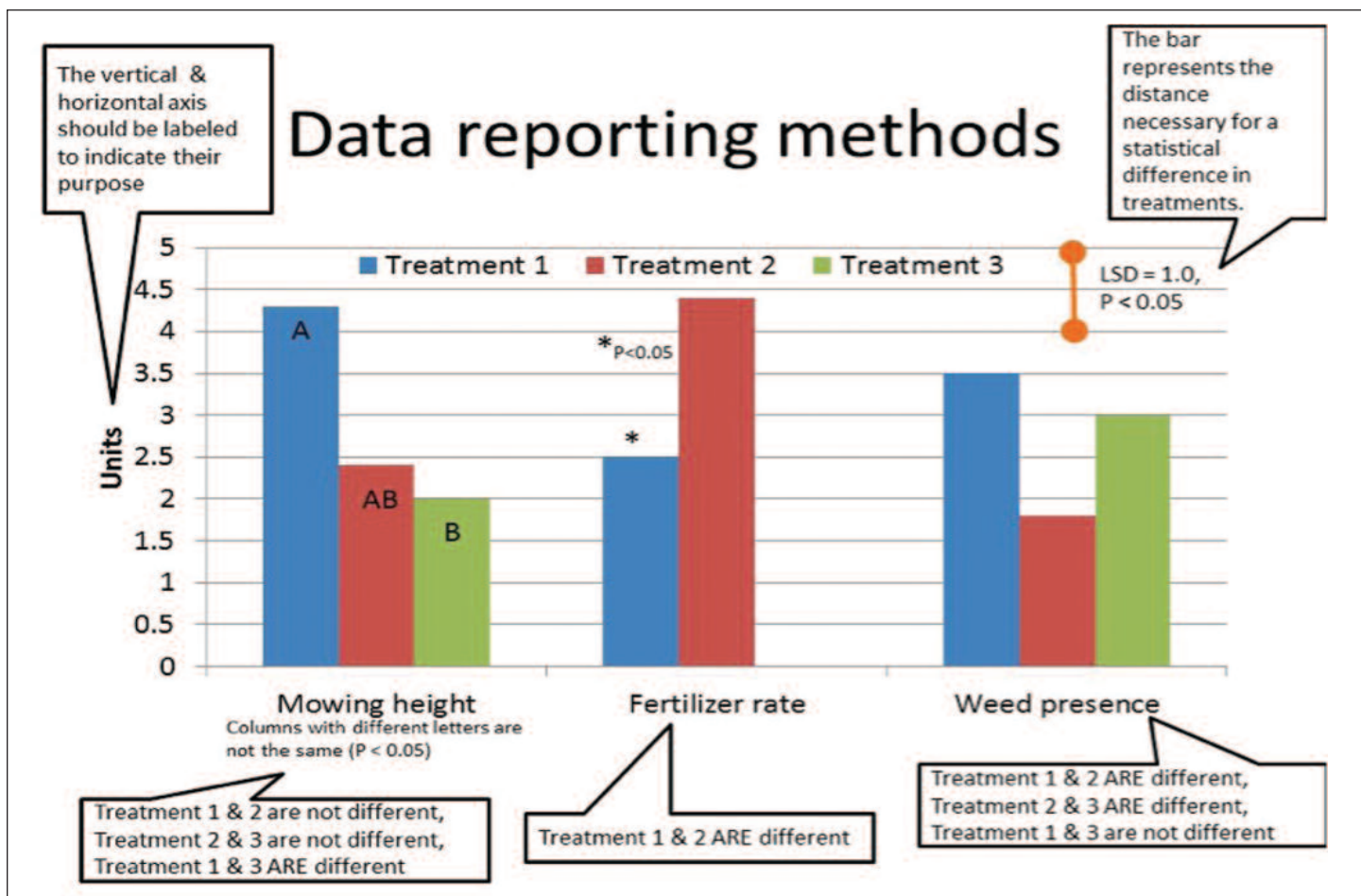
Data tables and bar graphs can be used to present supporting data for conclusions being made. Researchers will sometimes present large data tables and cluttered bar graphs that will cause you as a viewer to lose interest simply because you are unable to keep up with what is being said by trying to follow the numbers.

When a presenter displays data in a table or chart, there should be a reason to show such data other than just showing the numbers.

When a table or chart is used in a PowerPoint, the presenter should explain all of the parameters of the information: what is it showing, define the numbers, explain the X and Y axis on a graph, point out and explain the level of significance and where significance exist. Highlighting areas of interest to make a point, or two at the most, is often best where large tables are used, but often not followed. This becomes difficult for the participant to pick up on the key points and often interest is lost in the presentation. Most often it is best to express large amounts of data as text statements rather than showing the numbers. For it's the results or conclusions that you want to take home at the end of the day.

The best advice to give where statistics are involved is to ask questions when things get muddled. Any presenter should be willing to explain their research results if they took the time to include those results in their presentation. Do not be shy or intimidated about statistics, because a little understanding can go a long way for everyone in the room. ■

Chad Follis is a Horticultural Instructor at Mineral Area College in Park Hills, MO. Brad Fresenburg is an Assistant Extension Professor of Turfgrass Sciences at the University of Missouri in Columbia, MO. To see a list of references for this article, see www.sportsturfonline.com



Order recorded education sessions from 2014 STMA Annual Conference

All of the sessions were either video or audio recorded by IQ Media.

These recordings benefit conference attendees unable to make it to concurrent sessions as well as sports turf managers and crews unable to make it to the conference. See demo at www.intelliquestmedia.com/library/stmademo.

The sessions are available through an Online Learning Center where users can have access to education at any time throughout the year. Price for an all access subscription to the Online Learning Center is \$159 for all STMA members and \$199 for non-members.

A USB thumb drive is also available for purchase to those inter-

ested in a hard copy back up to the online content (includes Online Learning Center subscription) for \$189 for all STMA members and \$229 for non-members. Individual sessions are also available via the IntelliQuest Media website for \$20 per session.

An order form is provided below for you to purchase the content. In addition, you can visit the STMA website at www.stma.org/2014-conference-education to order now. Make sure to take advantage of this valuable opportunity for yourself and your crew. Stay on track with the latest education, industry trends, and research.

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STMA continues new membership incentive promotion, referral rewards

STMA has decided to continue its successful New Membership

Incentive program, citing the extremely favorable reception it has received. The program offers a number of incentives to new members and a referral bonus program, both designed to help the association build on its continued growth.

New Member Benefits

Through the program, new members—those individuals who have not been an STMA national member since 2000—are eligible to receive a free conference registration (valued at \$375, to be used within 3 years) when they purchase an STMA membership. This new member offer is valid for the association’s sports turf manager and commercial categories, including individuals at the associate level (sports turf manager and commercial associates). Unfortunately, new affiliate and student

members are not eligible for the free conference registration benefit.

To see if you qualify for the free conference promotion, please visit www.STMA.org or call the STMA office at 800.323.3875.

STMA Referral Rewards

All STMA members are eligible for the association’s new referral rewards program. Any current member who refers a new qualifying individual that signs up for a membership will receive a \$100 voucher that can be used on a variety of items, including STMA merchandise, conference registration fees or membership dues. There is no limit to the number of new recruits a member can refer; he/she will receive the \$100 voucher incentive for each new person they refer who signs up.

Stay tuned for more details at www.STMA.org.

2014 Committee Service underway

STMA President David Pinsonneault, CSFM, CPRP has named current and past board members and other active members to Chair the 2014 Committees. Volunteers are in the process of being placed

on each committee. For a complete list of volunteers go to www.STMA.org.

Committees and Subcommittees	Chair
Awards	Andrew Gossel
Bylaws	Mike Trigg, CSFM
Certification	Martin Kaufman, CSFM
Chapter Relations	Debbie Kneeshaw
Commercial Membership	James Graff
Conference	Allen Johnson, CSFM
Conference Education	Jeffrey Fowler
Conference Exhibition	Co-Chairs James Graff and Doug Schattinger
Conference Tours	Phil McQuade
Editorial	Brad Jakubowski
Environmental	Tim Van Loo, CSFM
Ethics	Ken Mrock
Finance & Audit	Jeffrey Salmond, CSFM
Historical	John Mascaro

Committees and Subcommittees	Chair
Information Outreach	Darian Daily
Innovative Task Group	Rene Asprien
International	Abby McNeal, CSFM
Membership	Sarah Martin, CSFM
Nominating	James Michael Goatley, Jr., PhD
Past Presidents' Council	James Michael Goatley, Jr., PhD
Scholarship	Ken Edwards, CSFM
Student Challenge	Eric Fasbender, CSFM
Technical Standards	Jason Henderson, PhD
Turfgrass curriculum	Jeffrey Fowler
Website	Pam Sherratt
SAFE Board of Trustees	Mike Tarantino, CSFM and Jeffrey Salmond, CSFM

STMA Affiliated Chapters Contact Information

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Colorado Sports Turf Managers Association: www.cstma.org

Florida #1 Chapter (South):
305-235-5101 (Bruce Bates) or Tom Curran
CTomSell@aol.com

Florida #2 Chapter (North): 850-580-4026,
John Mascaro, john@turf-tec.com

Florida #3 Chapter (Central): 407-518-2347,
Scott Grace, scott@sundome.org

Gateway Chapter Sports Turf Managers Association: www.gatewaystma.org.

Georgia Sports Turf Managers Association: www.gstma.org.

Greater L.A. Basin Chapter of the Sports Turf Managers Association: www.stmalabasin.com.

Illinois Chapter STMA: www.ILSTMA.org.

Intermountain Chapter of the Sports Turf Managers Association:
<http://imstma.blogspot.com/>

Indiana - Contact Clayton Dame, clayton-dame@hotmail.com or Brian Bornino, bornino@purdue.edu or Contact Joey Stevenson, jstevenson@indyindians.com

Iowa Sports Turf Managers Association: www.iowaturfgrass.org.

Kentucky Sports Turf Managers Association: www.kystma.org.

Keystone Athletic Field Managers Org. (KAFMO/STMA): www.kafmo.org.

Michigan Sports Turf Managers Association (MiSTMA): www.mistma.org.

Minnesota Park and Sports Turf Managers Association: www.mpstma.org

MO-KAN Sports Turf Managers Association: www.mokanstma.com.

Nebraska Sports Turf Managers Association:
sphillips4@unlnotes.unl.edu

New England STMA (NESTMA): www.nestma.org.

Sports Field Managers Association of New Jersey: www.sfmnj.org.

Sports Turf Managers of New York: www.stmony.org.

North Carolina Chapter of STMA: www.ncsportsturf.org.

Northern California STMA: www.norcalstma.org.

Ohio Sports Turf Managers Association (OSTMA): www.ostma.org.

Oklahoma Chapter STMA: 405-744-5729;
Contact: Dr. Justin Moss okstma@gmail.com

Oregon STMA Chapter:
www.oregonsportsturfmanagers.org
oregonstma@gmail.com

Ozarks STMA: www.ozarksstma.org.

Pacific Northwest Sports Turf Managers Association: www.pnwstma.org.

Southern California Chapter: www.socalstma.com.

South Carolina Chapter of STMA: www.sc-stma.org.

Tennessee Valley Sports Turf Managers Association (TVSTMA): www.tvstma.com.

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Q&A



BY DR. DAVID MINNER

Professor, Iowa State University

Questions?

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culture Hall,
Ames, IA 50011
or email
dminner@iastate.edu.

Or, send your
question to
Grady Miller at
North Carolina State University,
Box 7620, Raleigh, NC
27695-7620, or email
grady_miller@ncsu.edu.

Winter woes? Come to St. John

I'm still down in the Caribbean but I have been getting an earful about your winter woes across the country. Snowfall records were set for Central Park in February as well as many Midwestern states, while municipalities have been reporting a record number of water main line breaks as the frost depth creeps well below 3 feet.

So maybe you have wondered what this all means for your athletic field turf. Snow is usually our friend because it insulates fields and reduces direct low temperature injury as well as winter desiccation. Even though air temperature and wind chill can be very cold in the winter the earth continues to emit heat from its core and the snow traps the heat much like a tarped field. The snow also prevents direct contact with the sun and wind that can cause excessive plant drying when water can't be extracted from the frozen ground.

Snow cover is a little unpredictable so turf covers are a good choice to prevent desiccation and offer earlier spring green-up. The only real down side to snow cover is increased disease from pink and brown snow molds. If snow mold is a real problem for your field situation then preventative fungicides can be applied in the late fall just before the first snow flies in the winter. If caught with substantial snow mold and a sea of matted grass, then fluff up the matted grass to speed recovery using a spring tooth drag, Fuerst harrow, or rake.

Direct low temperature kill can also occur during the winter from extremely low temperatures or moderately low temperatures that last for a long time. This year the deep frost line indicates that we have had both extremely low temperatures and moderately low temperatures for an extended period of time. Here is how I rank the potential for turf loss based on low temperature kill from most injury to least injury; bermudagrass > zoysiagrass > annual bluegrass > perennial ryegrass = turf type tall fescue > Kentucky bluegrass.

Fields often collect pockets of surface water that can freeze like little ice rinks with a half inch of ice. Ice injury is far more damaging on golf courses where mowing heights are lower and the amount of annual bluegrass is greater. Annual bluegrass is also becoming more of a nuisance as sports turf creeps below the 1.5 inch mowing height and our research shows that annual bluegrass does not like to be covered in an impermeable layer of ice. So improve your drainage and reduce your annual bluegrass or Mother Nature may do it for you.

As the ground begins to thaw and before things begin to green up there is usually a month where you are wondering just what the spring will bring. On questionable fields where injury may have occurred make the crystal ball a little clearer by gazing at a plug of grass a month in advance of green up. Every year since I've been in the turf business (except this year because remember,

I'm stuck in the Caribbean) I have taken field samples of grass and grown them in the greenhouse to determine if the grass is dead or alive. Just keep them warm and moist and put them on the window sill; you don't need a greenhouse. A cup cutter won't work on frozen ground; use a sawzall or chisel and 5-pound hammer. Those of you pushing bermudagrass farther to the north would be wise to make this a routine practice. It would be nice to know if your grass is dead so you can anticipate all the problems that lie ahead from personnel communication to developing a regressing plan.

On another note I am still helping with the local school field here on St. John and they have been playing multiple sports for years on a field shared with the community that is mostly dirt and rocks. Last year the community rallied with their support of labor and the field was scratched up using backhoes, the only equipment available on the island. The field did well for a while but I am needing a few basic things to take this field to the next level of safety and pride: fertilizer, a hybrid seeded or vegetative bermudagrass, a walk-behind broadcast spreader, backpack sprayer, and a topdresser; the topdresser is an optional luxury because we used 25 people to spread 40 tons of sand and we can do that again. There is no doubt that we can grow grass on the field, I just need a few resources; any help would be welcome. Call me at 340-514-4740 and I'll send you a little warmth. Tank-u-mon. ■