

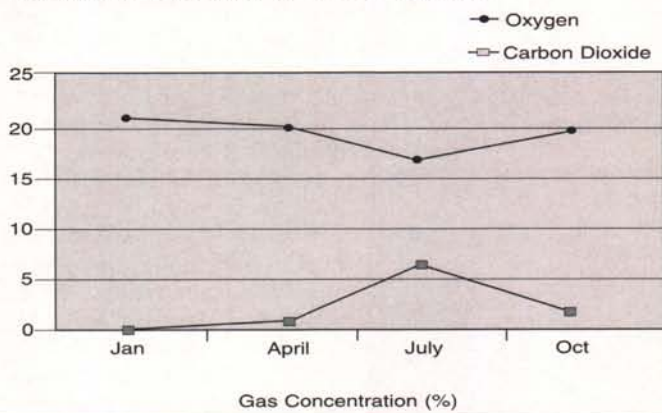
Forward Motion

Do seasonal changes affect soil gas concentrations?

When soil gas data is compiled over the long term, certain trends become evident. These trends are indicative of how weather patterns, biological activity, and plant growth interrelate.

In New England, temperature extremes are common. Average winter temperatures fall into the single digits, and summer temperatures routinely climb above 90°F. Figure 2 illustrates the respective concentrations of carbon dioxide and oxygen in the root zone at Dodd Stadium in Norwich, CT, throughout 1996.

Figure 2. Dodd Stadium's 1996 Seasonal soil gas concentrations



Dodd measured root depth in conjunction with soil gas analysis. As Figure 2 shows, rooting is deepest in the spring and fall, and most shallow in the summer. Also, oxygen concentrations decrease with warmer weather and the concentration of carbon dioxide increases.

During midwinter, the concentrations of these two gasses within the root zone are similar to the concentrations found in air. This coincides with the cessation or reduction of biological activity.

During the summer months, as biological activity increases with temperature, carbon dioxide concentrations of 7.0% and oxygen concentrations as low as 11.0% have been measured in the root zone. While 7.0% carbon dioxide may not sound like much, it is 233 times the level found in air. At 11.0%, the concentration of oxygen in the soil is only about half the level found in air.

In the summer of 1997, the crew at Dodd Stadium made a concerted effort to maintain 20.95% oxygen and 0.03% carbon dioxide in the root zone. A SubAir blower attached to the drainage system stabilized gas levels. Rooting depth remained consistent in the root zone and underlying gravel throughout the growing season, even during the hottest part of the summer. In addition, aerating the soil prevented the accumulation of excess organic matter.

Continued on pg. 35



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Colorado Chapter Meets Come Sun—Or Snow

It takes more than 10 inches of snow cover to dampen the spirits of the Colorado Sports Turf Managers Association—or to keep members from attending a seminar.

Despite continuing snowfall on April 16, 84 people gathered in the United States Air Force Academy's (USAFA) Falcon Stadium. From the press box they looked out at a snow-covered field during the chapter's 1998 Spring Seminar.

If the turnout alone isn't enough to confirm this chapter's dedication to promoting better and safer sports turf areas, consider the fact that two Colorado facilities earned top field awards for 1997. CSTMA President Abby McNeal's facility, Pleasant View Sports Complex, was named STMA College Soccer Field of the Year. Chapter members Michael Sexton, Tony Madrid, and Richard Sandoval also earned top honors for their work at La Junta's Potter Park Field. The facility captured the STMA / sportsTURF / Beam Clay Municipal Baseball Diamond of the Year Award (See Field Focus: page 12).

USAFA Football Coach Fisher DeBerry opened the educational session with his presentation: "What a well-maintained field means." He noted that football is a mind game, and the condition of the field has a lot to do with the team's confidence, mental attitude, and pride. He added, "A field not in good condition is the greatest equalizer of a football game." Before every away game, DeBerry takes his team to the stadium so players can see what they will be playing on, and to set

the tempo for the competition.

Falcon Stadium Manager Mike Wehrmann followed with a history of the facility. The original field had been installed in 1965, but it was converted to a high-tech, sand-based field in 1996. Prior to the reconstruction, five crew members labored for three days prior to each game to whip the problem areas into playable condition. The antiquated irrigation system took six hours to adequately water the field.



Ten inches of snow covered USAFA's Falcon Stadium for CSTMA's Spring Seminar in April. Courtesy: Steve Trusty

Wehrmann told of the extra work created by secret service inspections when the President or Vice President attend games at the stadium. Even the irrigation system's valve boxes are checked out.

Richard McDonald, landscape architect for RBI, supplied details of the field reconstruction. Because the nine-foot high tunnel is the only entrance to the field, they could only bring in five yards of material at a

time. This becomes a long process when you're adding 5,000 tons of sand and 2,000 tons of gravel!

Mark Altman of Altman & Altman Consulting addressed the topic, "Understanding soils and soil test results." He gave a step-by-step review of how to gather, prepare, and send soil samples, and noted that if you only soil test once a year, you should be sure to do it in full.

Next Steve Yarish of American Pride Fertilizer covered "the basics of fertilizer varieties and their costs," giving a practical, easy-to-use overview of the steps necessary to match fertilizer products with field needs and budgetary parameters.

STMA Executive Director Steve Trusty addressed services provided by the national association and gave an update on the status of the certification program.

Ross Kurcab, turf manager for the Denver Broncos, kicked off the afternoon session with a presentation on "how to calculate fertilizer rates and spreader and sprayer calibrations." Kurcab gave a detailed walk-through of the basics and worked through some sample calculations.

Show-and-tell tours of Falcon Stadium, the fieldhouse, and athletic complex wrapped up the seminar with as much outdoor observation as the melting snow allowed.

Chapter news

The MAFMO Chapter STMA: MAFMO will hold a "Seminar on Wheels" on June 26. Tour stops will

include Byrd Stadium, home of the Maryland Terrapins; Jack Kent Cooke Stadium, home of the Washington Redskins; and Prince George's Stadium, home of the Bowie Baysox. The group will share a picnic dinner in the left-field pavilion of Prince George's Stadium, and will take in a game between the Baysox and the Portland Seadogs.

For information, contact the hotline: (410) 290-5652.

The Iowa Sports Turf Managers Association: The ISTMA will meet on July 8, at Kinnick Stadium, University of Iowa - Iowa City. Featured speakers include Dale Getz of the University of Notre Dame, Ted Thorn of the University of Iowa, and Mike Andresen of Iowa State University. The chapter will also participate in the "Iowa Turfgrass Field Day," which will be held July 16, at the ISU Horticulture Research Station in Ames.

For information, contact Lori Westrum at the Turf Office: (515) 232-8222 or fax (515) 232-8228.

The Mid-South Chapter STMA: STMA's newest affiliated chapter will hold its next meeting July 8, in Millington, TN, in conjunction with Floyd Perry's Groundskeepers Management Academy.

Construction of the new Redbird Stadium in Memphis is underway. A tour of this facility is in the planning stages.

For information, contact Chip Houmes: (901) 377-5081, or Jim Calhoun: (901) 755-1305.

Colorado Chapter: The CSTMA will hold its "Mountain Seminar" July 17, at Steamboat Springs. The annual golf tournament, "Lawnmower Man Open," will be held Monday, July 13, at West Woods Golf Course in Arvada.

For information, call the 24-hour CSTMA chapter hotline/fax: (303) 438-9645.

Minnesota Chapter: The Minnesota Chapter will hold its "Workshop on Wheels" July 15, starting at Midway Stadium in St. Paul. After a stop at McMurray Field for groomer demonstrations; the tour moves on to Winter Park, the Minnesota Vikings' training facility; then to Canterbury Park, a horse racing facility. Following lunch at Canterbury Park, the group heads to

Lakeville for a tour of the high school athletic fields, and then it's on to the University of St. Thomas. The Workshop ends at Midway Stadium for tailgating, networking, and a St. Paul Saints game. The chapter is also planning a September workshop.

For information, contact Connie Rudolph: (612) 646-1679.

KAFMO Chapter: The Keystone Athletic Field Managers Organization is planning a mid-July meeting. For information, contact Dan Douglas, Reading Phillies Baseball Club: (610) 375-8469 ext. 212.

Midwest Chapter: The Midwest Chapter will hold an "Athletic Field Construction Seminar" July 29, at the Carol Stream Park District, Carol Stream, IL. The seminar will highlight Panther Football Field.

For information, call the chapter hotline: (847) 622-3517.

Florida Chapter #1: For information, contact John Mascaro: (954) 938-7477.

Nor-Cal Chapter: For information, contact Gail Setka at the UC Davis Grounds Office: (916) 752-5035 or fax (916) 752-9631.

Southern California Chapter: The chapter is planning its annual community service project for early August at Mount San Antonio College in Walnut, L.A. County. Further details will be announced soon.

For information, contact the chapter hotline: (888) 578-STMA (toll free in Southern California).

Chapters on the grow

Arizona Chapter: STMAAZ is planning a July meeting in Show Low. For information, contact Bill Murphy, City of Scottsdale Parks and Recreation Department: (602) 994-7954; or Kris Kircher, City of Chandler Parks & Recreation Department: (602) 786-2728.

Indiana Chapter: For information on this developing chapter, contact Terry Updike, B & B Fertilizer: (219) 356-8424, or Pat Hickner: (800) 672-4273.

Michigan Chapter: A new chapter is taking shape in Michigan. It will be meeting from 7:30 am to 3:00 pm, June 25, at the West Ottawa Public Schools.

Recertification credit can be earned through this meeting's educational sessions: "Timing is Everything" and

"Putting an IPM Program to Good Use," presented by Dr. Paul Rieke of Michigan State University; and "Calibrating Spray Equipment," presented by David Gilstrap, also of MSU.

1998 Football Hall of Fame Coach Doug Coe and STMA Executive Director Steve Trusty will also speak at the meeting. Afternoon events will include outdoor demonstrations of equipment and materials for baseball and football field care.

Plans are also in the works for a July event at MSU, which will include a presentation on field marking and a tour of the athletic facilities; and an August event with presentations on football field compaction. More details will be announced soon.

For information, contact Rick Jurries, West Ottawa Public Schools: (616) 395-2364.

Great Lakes Chapter: The chapter has elected the following officers for the 1998 term:

Joe Zelinko, Athletic Field Services
President
Boyd Montgomery, Sylvania Recreation
President-elect
Dave Conover, Conover Supply
Vice President
Rick Wiegand, Medalist America Seed
Commercial Vice President
Karen Zelinko, Athletic Field Services
Treasurer
Duane Smith, Baldwin-Wallace College
Secretary

A June event, an August golf outing, and a November meeting in Toledo are all in the planning stages. A July 10 "Field Day" will be held at the Akron Arrows' Stadium. It will begin with a tour of the facility at 9:30 am. Events include on-field demonstrations, lunch, and an evening ball game.

Executive board meetings are scheduled for June 30, July 28, Aug. 25, Sept. 29, and Oct. 27.

For information, contact Joe Zelinko: (800) 897-9714, or Boyd Montgomery: (419) 885-1982.

Great Plains Chapter: For information, contact Mark Schimming, City of Wichita: (316) 337-9123.

Nevada Chapter: For information, contact Ibsen Dow: (702) 649-1551, or Alan Paulson, Clark County School District: (702) 799-8724. □

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Eagle lowers application rate

Rohm and Haas has received approval to change the label of its Eagle herbicide to reduce the recommended application rate. The rate change makes Eagle more cost-effective without compromising its ability to protect turf against dollar spot and other diseases.

The new labeling reduces the 14-day application rate from 0.6 to 0.5 oz. per 1,000 sq.ft. Another new option allows users to apply eagle at 1.2 oz. per 1,000 sq.ft. on 28-day intervals.

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Smart-Lite saves energy

The new Coleman MH4000SL Smart-Lite light tower uses a single-cylinder, 9-hp Yanmar diesel engine. It eliminates some of the components of traditional light towers and gets the same performance from a smaller engine using 1/3 less hp. and 1/3 less fuel.

The unit's air-cooled engine requires no radiator, and the custom-designed generator has no ballast system. Features include a heavy-formed, welded-steel chassis; four 1,000-W, wide-area, metal halide floodlights; a 4-kW, single-phase, brushless generator; and a 55-hr. continuous run time.

Yanmar Diesel America Corp.
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Tommy Gate adds option

Tommy Gate, manufacturer of the Tommy Lift hydraulic lift gate, introduces a new option for its traditional cable series: the extruded aluminum platform. The platform is heat treated



and consists of Grade-A, extruded-aluminum components that interlock for added strength. The rust-free, streamline design is lightweight and easy to close. This option is available on more than 70 models of the traditional cable series.

Tommy Gate Company
Circle 203 on postage-free card

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The Sports Turf Managers Association (STMA) is an organization of professionals representing all segments of the sports turf industry. Our members work to combine the science of growing grass and the art of maintaining sports turf to produce playing fields that are both safe and aesthetically pleasing.

STMA provides members with a variety of benefits, including: education through regional institutes and conferences; support for sports turf research; facilities tours; a national awards program; access to the STMA National Conference and Exhibition; complimentary subscriptions to Sports Turf Manager and sportsTURF Magazine; and much more.

If you're serious about the sports turf industry, then it's time to become a member of STMA. Join today!

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For more information, contact STMA Headquarters at 800/323-3875

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This equipment enables managers to better determine when to aerate. It quickly and accurately determines soil gas concentrations of oxygen, carbon dioxide, methane, and hydrogen sulfide. If the carbon dioxide concentration in the soil is 0.03% and the oxygen concentration is 20.95%, there is no need for aeration. When the concentrations of these gasses deviate from these values, it is time to aerate.



Dodd Stadium made a concerted effort to maintain 20.95% oxygen and 0.03% carbon dioxide in its turf's root zone.

Courtesy: SubAir

There are still many questions that remain unanswered. More research into the myriad of variables involved in root zone management is certainly warranted. However, the bottom line remains the same: where air, moisture, and nutrients are present in desired quantities, root growth and plant vigor will be strong. □

Dave Potts is an engineer and Mike Schaefer a soil scientist for SubAir of Deep River, CT. Will Schnell is stadium superintendent of Dodd Stadium in Norwich, CT.

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Work Schedule: Monday-Friday, 7:00 am-3:30 pm. The University of Delaware is seeking a motivated individual with a background in sports turf maintenance and management. Candidate must have a high school or vocational school diploma or equivalent. Candidate must possess a minimum of five (5) years of experience in maintenance and management of secondary school, collegiate and/or professional athletic fields. Candidate must possess extensive knowledge of all aspects of athletic field maintenance, including but not limited to growing characteristics, proper cultural practices, recognition of and appropriate treatment of diseases, pests and weeds, technical equipment, irrigation equipment and NCAA requirements for layout and marking of playing surfaces on both natural turfgrasses and synthetic turf fields. Duties include scheduling work, coordinating the activities of others and overseeing and participating in all aspects of athletic field maintenance. Must possess or be able to obtain within 90 days of hire a Commercial Drivers License with at least a Class B endorsement. Candidate must possess and maintain a valid Certified Pesticide Applicators license in turf and ornamental category as required by the Federal Insecticide, Fungicide and Rodenticide Act. Candidate must be able to work with all levels of personnel in a professional manner and establish good working relationships with supervisors, co-workers, students, staff and guests.

Sports Turf Technician-Assistant

Work Schedule: Tuesday-Saturday, 9:30 am-6:00 pm. The University of Delaware is seeking a motivated individual with a background in sports turf maintenance. Candidate must have a high school or vocational school diploma or equivalent. Candidate must possess a minimum of three (3) years of experience in maintenance of secondary school, collegiate and/or professional athletic fields. They must possess a minimum to three (3) years of experience in the operation of commercial or industrial size grounds care equipment. Candidate must possess extensive knowledge of all aspects of athletic field maintenance (both natural turf and synthetic surfaces), technical equipment, irrigation equipment and NCAA requirements for layout and marking of playing surfaces. Duties include participating in all aspects of field maintenance. Must possess or be able to obtain within 90 days of hire a Commercial Drivers License with at least a Class B endorsement. Candidate must possess and maintain a valid Certified Pesticide Applicators license in turf and ornamental category as required by the Federal Insecticide, Fungicide and Rodenticide Act. Candidate must be able to work with all levels of personnel in a professional manner and establish good working relationships with supervisors, co-workers, students, staff and guests.

Please send resume and references to Scarlett Swayne, University of Delaware, Facilities Administration, 222 S. Chapel St., Newark, Delaware, 19716. Deadline: June 22, 1998.

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Entries will be judged in three categories: professional diamonds; college diamonds; and school, municipal or park diamonds.

Send the information below to enter:

1. Age of baseball diamond (year of installation).
2. Geographic location (city and state).
3. Description of maintenance program.
4. Operating budget for baseball diamond.
5. Irrigation: None _____ Manual _____ Automatic _____
6. Total number of maintenance staff for field.
7. Does baseball field have lighting for night games?
8. Number of events on baseball diamond per year.
9. Types and number of events on diamond other than baseball?
10. How many months during the year is the field used?
11. Why you think this field is one of the best?
12. **IMPORTANT:** Send two sets of color slides or prints.

Deadline for entries: Entries must be postmarked no later than October 30. Selection of winners will be made by the Awards Committee of Four Major League Head Groundskeepers.

Mail entries to:
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Pregermination?

Have questions? Send them to Dave at: ISU, Hort. Dept., Ames, IA 50011.

by Dr. Dave Minner

I've heard about using pregerminated seed for fast establishment. How do you prepare this faster-growing seed? Will it help provide grass in the worn areas of my field?

This is a nifty little trick-of-the-trade that has been modified by many sports turf managers. The following information comes from Mike Andresen, sports turf manager for the Iowa State University Athletic Department.

Preparation

1. Begin the pregermination process four or five days before you plan to apply seed to the field.
2. Put a 50-pound bag of seed into a large, water-tight container. We keep four 50-gallon plastic trash cans on hand and mark them 'for pregermination only'. The woven-plastic seed bags that seed typically comes in are perfect for pregermination.
3. Fill the container with water so that the seed is completely immersed. Add four ounces of Pana-Sea to each container with the seed and water. We do this in our heated shop so that everything equilibrates to about room temperature (70°F).
4. Recommendations specify a 12-hour soak cycle, followed by a 12-hour drain cycle, followed by another 12-hour soak cycle. For convenience, we remove the bags each morning and allow them to drain during the eight-hour work day. Before the end of the work day, we set up another soak cycle for that night.

There have been times when we forgot about the bags and allowed them

to soak for two or three days. Even then we obtained a good germination.

Application

Pregerminated seed can be applied to a field by hand or with conventional seeding equipment. It's important to remember that root growth of pregerminated seed has already begun. This can't be reversed. You must use the seed within about five days of the start of the soaking process.

The seed must be dried before it's fed into spreaders or seeding equipment. Open the bags and spread the seed on a concrete floor with rakes. Calcined clay materials such as Turface can be used to speed the drying process and make it easier to seed. Remember, seed left in equipment will continue to grow and will clog the system. The tubes in drill seeders are particularly vulnerable.

Divot repair

Seed can also be combined with sand to make a divot mix that can be placed in specific areas of the field by hand. This isn't as time-consuming as it sounds, and it can make a big difference in starting new grass as a field begins to show wear during the playing season.

Here are a few pregerminated divot-mix combinations using a five-gallon bucket to measure your sand:

- Kentucky bluegrass: 0.2 lb. pregerminated seed per bucket
- Perennial ryegrass: 1.0 lb. pregerminated seed per bucket
- Bluegrass/ryegrass mix (30/70%

by weight): 0.5 lb. pregerminated seed per bucket

Dump a bucket of sand on a concrete surface and spread a layer one inch thick. Spread the appropriate amount of seed over the sand by hand. Use rakes and flat shovels to roll the pile together and mix in the seed. If the seed is too wet, add some Turface to soak up the water and make it easier to handle.

It's best to use the divot mix right away, since you will have one-inch roots in about three days. Simply fill the divots with the sand/seed mixture and pack it down with your foot. Spread a 1/4-inch layer of the divot mix over thin areas. Supply adequate irrigation to keep the seedlings alive during establishment. This practice can be done during the playing season or in the off-season. It is a very simple and effective tool in the continual fight to keep grass cover on the field. □

David D. Minner, Ph.D., is an associate professor with the Department of Horticulture at Iowa State University. He also serves on STMA's Certification Committee. To answer any turf question that's been on your mind, contact Dave at: ISU, Hort. Dept., Ames, IA 50011; or call (515) 294-2751, fax (515) 294-0730, or e-mail dminner@iastate.edu

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