In The News

Oregon Sends Seed to Rose Bowl

Oregon didn't send a football team to the Rose Bowl this year, but its seed played an important role in preparing the field. Turf Merchants sent a specially designed Oregon Grown grass seed to Pasadena for the annual game.

The Mixture, known as Special FX, caters to Southern California's unique climate needs. It is used in warm climate areas to overseed dormant bermudagrass turf for winter months. The mixture contains Froghair intermediate ryegrass grown by Malpass Farms of Harrisburg, Ore., and Evening Shade perennial ryegrass grown by Golden Valley Farms of Silverton, Ore.

The Special FX Mixture produced a thick green grass, which covered very quickly to meet the challenge of game day. When the hot weather returns, the playing surface will transition the mixture out in favor of its native bermudagrass.

TPI Will Reward Thousandth Member

To help reach its goal of increasing world-wide membership to 1,000 by summer, Turfgrass Producers International (TPI) has announced a campaign that will reward the thousandth member with a year's free membership. The member who brings in the new recruit will also be rewarded with a $1,000 cash prize.

The "GO for the Grand" campaign encourages current members to enroll potential turfgrass sod producers in TPI. The member who recruits the most new producers will be recognized as the "Top Recruiter," and any member who brings in even a single Class A recruit will be honored with the title, "Grand Recruiter."

Winners will be announced during TPI's Summer Convention and Field Days July 16-18 in suburban Washington, D.C. For membership materials, call: (800) 405-TURF or fax (847) 705-9898.

U.C. Davis Will Hold Two Day Course

The University of California Extension - Davis, in cooperation with the U.C. Cooperative Extension, is offering a two-day course that will focus on current techniques and research results pertaining to sports turf management. The program will be of special interest to sports turf managers, park and recreation site managers, school grounds managers, horticultural consultants, and other professional turf and landscape managers.

Sessions will include three hours of pest control advisors (D.P.R.) and eight hours of Certified Crop Advisor. 1.2 U.C. Extension Continuing Education Credits are pending.

For further details, write to: University Extension, University of California, Davis, CA 95616; or call: (530) 757-8899 or (800) 752-0881.

STMA Awards Scholarships

The STMA recognizes that the future of this industry lies in the education, dedication and commitment of upcoming students. The not-for-profit organization attempts to spread its wealth of industry knowledge by disseminating scientific, educational and practical knowledge about the science of growing grass and the art of maintaining sports turf.

To further the cause of education, STMA awarded the following scholarships for 1998:

- In the category of two-year community colleges or technical programs: Ryan Kaspitzke, a freshman in turfgrass management/sports turf at the Michigan State University Institute of Agricultural Technology.
- In the category of four-year college or university programs: Raechal Elizabeth Sager, a senior in horticulture/turf management at the University of Wisconsin - Madison.
- In the category of graduate programs: Andrew S. McNitt, a graduate student specializing in soil science/athletic field surface characterization at Penn State University.

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

What's the Scoop on Gypsum?

I have always been told that gypsum can improve soil structure in heavy clay soils. Is this true?

by Dr. Dave Minner

Gypsum ($CaSO_4$) is often applied, but seldom needed on sports fields. The classic misunderstanding with gypsum arises from its association with improving water movement and soil structure on sodic (high sodium) soils that are typically found only in semi-arid climates.

Gypsum is correctly used on sodic soils that have undergone a process of deflocculation. In this case, gypsum will likely improve soil structure and water infiltration. A brief review of soil cation exchange capacity (CEC) and soil aggregation may help you understand the process.

Aggregation and deflocculation

There are many negatively (-) charged sites on the surface of clay particles. Some of the more important nutrients are positively charged (calcium: Ca^{++}, magnesium: Mg^{++}, iron: Fe^{++}, and potassium: K^{+}). These nutrients attach themselves to the negatively charged soil particles.

Positively charged nutrients are called cations. The CEC is simply a measure of how many negative sites are available to attract these positively charged cations.

Small individual soil particles are clumped together to form aggregates, or "soil crumbs." Calcium can initiate this granulation in a process called flocculation, and gypsum is a source of calcium. However, flocculation alone does not make aggregates stable.

Organic matter and other viscous microbial products stabilize soil aggregates. In a well aggregated soil, there are large voids between the soil crumbs. The large voids, or macropores, improve water infiltration.

Now back to gypsum. The CEC sites in sodic soils are dominated by sodium (Na). Cations that help soil aggregation, such as Ca^{++} and Mg^{++}, are displaced by Na^{+}. Excessive levels of sodium reverse the process of aggregation and cause soil crumbs to disperse into individual soil partcles.

The deflocculation that occurs in sodic soils results in a very tight arrangement of individually dispersed soil particles saturated with Na^{+}. Macroporosity is greatly reduced, and water infiltration slows to near zero.

Wet sodic soils are slick, sticky and have poor drainage. When dry, they become quite hard. Gypsum is correctly used to remedy these problems caused by excessive sodium in the soil.

Gypsum application

The Ca^{++} in gypsum ($CaSO_4$) displaces Na^{+} on the exchange site. The freed Na^{++} reacts with sulfate ($SO4^{-}$) to form sodium sulfate (Na_2SO_4), a highly water soluble material that is leached from the soil. Removing Na^{+} and replacing it with Ca^{++} on the exchange site reduces deflocculation and allows natural aggregation of particles. This eventually restores soil structure.

Gypsum is very useful, but *only* when soil structure deteriorates because of high Na^{+}. This applies to a very small percentage of sports turf soils. The belief that gypsum can improve structure and drainage in *any* heavy clay soil is a misconception.

Unfortunately, the symptoms that indicate problems in sodic soils are very similar to those of heavily trafficked clay soils that are not affected by Na^{+}. Both situations create hard turf with poor structure and drainage. To add confusion, gypsum is often advertised as a "soil softener." Only a soil test will determine if there is a true need for gypsum application.

Most soil scientists agree that gypsum will not improve poor permeability due to problems of soil texture, compaction, hardpans, claypans, or high water tables. Though gypsum offers other benefits to sports turf, sports turf managers should not rely on it to reduce compaction and improve drainage in their fields. ❑

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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