

Trade show and vendor demos sponsored by SFMANJ Rutgers Adelphia Research Farm, Adelphia, NJ

By Debbie Savard, SFMANJ and Brad Park, Rutgers University



APPLYING GYPSUM - when is it really needed?



by Dr. David D. Minner

Gypsum (CaSO_4) is often applied but seldom needed on Iowa [or New Jersey] 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 not typically found in Iowa [or New Jersey].

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 how this is actually accomplished by gypsum. 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^+) and attach themselves to the negatively charged soil particles. These positively charged nutrients are called cations. The CEC is simply a measure of how many negative sites are available to attract the positively charged nutrients or cations.

Soil aggregation is another term you will need to understand to follow this discussion. Small individual soil particles are clumped together to form aggregates or "soil crumbs." Calcium - gypsum

is a source of calcium - can cause this granulation to initiate in a process called flocculation, 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 larger voids between the "soil crumbs." The larger voids or macropores improve water infiltration.

Now, back to gypsum. The CEC sites in sodic soils are dominated by Na. Other cations that help soil aggregation, such as Ca^{++} and Mg^{++} , are displaced by Na^+ . The excessive sodium reverses the process of aggregation and causes the "soil crumbs" to disperse into individual soil particles. 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. When wet, sodic soils are slick, sticky, and have poor drainage. When dry they become quite hard. Gypsum is correctly used to remedy this situation caused by excessive sodium in the soil. The Ca^{++} in gypsum (CaSO_4) displaces Na^+ on the exchange site. The Na^+ reacts with sulfate (SO_4^-) to form sodium sulfate (Na_2SO_4); a highly water soluble material that is leached from the soil.

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2012 Sports Field Managers Expo Program

TUESDAY, DECEMBER 4, 2012

AFTERNOON SESSION

1:00 – 1:45 **Establishing pest threshold levels on school grounds**

Don Savard, CSFM, CGM, Salesianum School, Wilmington, DE

1:45 – 2:15 **Turf selection to minimize pesticide inputs on school sports fields and grounds**

Vickie Wallace, University of Connecticut

2:15 – 2:45 **Cultural strategies to reduce weed encroachment on school sports fields and grounds**

Dr. Roch Gaussoin, University of Nebraska

2:45 – 3:00 **SFMANJ Field of the Year Presentation**

3:00 – 4:00 **The NJ School IPM Law: What you need to know to comply**

Dr. Roy Meyer and Tim Boyle, NJ Dept. of Environmental Protection, Pesticide Control Program

4:00 – 7:00 **Trade show**

WEDNESDAY DECEMBER 5, 2012

MORNING SESSION

7:30 - 8:30 **Early bird sports field managers**

Networking roundtable

8:30 – 9:00 **Annual Business Meeting**

9:00 – 9:30 **The year in review**

Brad Park, Rutgers University

9:30 – 10:15 **Sports field management at Hammonton High School**

Frank LoSasso, Hammonton BOE

10:15-11:00 **Best management practices for high traffic sports fields**

Vickie Wallace, University of Connecticut

11:00-11:30 **Cultivation practices for sports fields**

Dr. Doug Karcher, University of Arkansas

AFTERNOON SESSION

2:30 – 3:00 **Management of sports fields & grounds in Monroe Township, NJ**

Virgil Caputo, Monroe Township, NJ

3:30 – 5:00 **Tales from the Minor Leagues**

*Ryan Hills, Trenton Thunder
Will Reardon, Newark Bears
Dan Purner, Somerset Patriots*



Making Plans for NEXT YEAR

Continued from page 8

evaporation and plant transpiration (evapotranspiration). Does your soil absorb the water being delivered, or is there runoff and puddling? Is the distribution uniform or are there both saturated and dry spots? Does the time of day that you irrigate promote plant health or plant disease? An irrigation audit is a useful tool to measure how efficiently your irrigation system and watering program is working. For information on how to conduct an irrigation audit, visit the Irrigation Association website: www.irrigation.org. Not only does smart irrigation promote better turfgrass health, it saves money and does not waste your time.

Fertilizer certification and School IPM laws have been getting plenty of attention in New Jersey (and elsewhere) lately. Take the time to read and completely understand what is being asked of you. While there are some new guidelines to follow, you will still be allowed to perform the tasks of feeding turf and managing weeds, insects and diseases. Regularly scheduled soil tests and scouting for problems allows you customize your program to your environmental conditions. Based on my sports field's soil test results, I have been able to eliminate Phosphorus and Potassium from some fertilizer applications without sacrificing quality and saving lots of money. "P" and "K" are expensive. Why buy it if you don't need it?

The end of the year is a good time to ask yourself how well you interacted with and treated the people around you. These include your family, coworkers, bosses, user groups and the people who sell to you and provide you with services. If your relationships with any or all of those people are damaged, look inward and try to find some understanding of the problem and what part you might have played. I can attest (from firsthand experience) that some of my damaged relationships improved when I reached out and made amends.

Lastly, what have you done for yourself lately in terms of personal and professional development? Have you taken a class, or read a book lately. Personal development keeps you sharp and competitive. It energizes you and gives you personal power. Remember, if you are not pedaling, you are coasting, and if you coast long enough, you are headed downhill.

Don Savard, CSFM, CGM is a Certified Sports Field Manager (CSFM); Certified Grounds Manager (CGM), Sports Turf Manager, Salesianum School, Wilmington Delaware; Past-President, SFMANJ; and current member of the SFMANJ Board of Directors.



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2012-2013 CALENDAR OF EVENTS

Turf Trade-Sponsored Field Day
September 26, 2012
Kingsway Regional High School
Woolwich Township, NJ
856.478.6704

SFMANJ Fall Field Day
November 8, 2012
Middlesex County Vo-Tech High School
East Brunswick, NJ
856.514.3179
www.sfmanj.org

NJ State League of Municipalities
November 13-15, 2012
Atlantic City Convention Center
Atlantic City, NJ
609.695.3481
www.njslom.org

New Jersey Green Expo
December 4-6, 2012
Trump Taj Mahal
Atlantic City, NJ
973.812.6467
www.njturfgrass.org

STMA Annual Conference
January 15-19, 2013
Daytona Beach, FL
800.323.3875
www.stma.org

2013 Rutgers NJAES OCPE Courses
Organic Turfgrass Management
January 29, 2013

Reducing Pesticide Inputs & Exploring Organic Options for
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February 12, 2013

Baseball & Softball Skin Surface Selection & Management

February 20, 2013

Two-Day Athletic Field Maintenance

February 21-22, 2013

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In Loving Memory of

KARL A. "CHUCKIE" SINGER, JR.

SFMANJ member and former member of our Board of Directors passed away on Saturday, September 8, 2012 at the Bayonne Medical Center at the age of 54.

Chuckie was the Coordinator of Maintenance Services for the Bayonne Department of Public Works. He had also served his country proudly in the United States Army.

Chuckie was very active in the Bayonne Little League and the Bayonne PAL, both as a coach and manager. He was a NJ State Official for baseball and basket-ball and was also a member of the Screen Actors Guild of NYC.

Chuckie was laid to rest on September 14, 2012 at the Holy Cross Cemetery in Bayonne, NJ.

*Our hearts go out to Chuckie's family
in this time of sorrow.*



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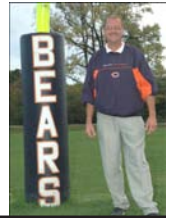
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FALL PREPARATION AND FIELD MANAGEMENT



Surface Athletics works closely with other industry professionals to provide relevant information to organizations like the *Sports Turf Managers Association of New Jersey*. If you're just getting started on your fall turf maintenance program, we have a few tips to share, courtesy of Ken Mrock, head groundskeeper of the Chicago Bears. The complete list of turf tips is available at <http://www.turf.com/howto/fall-preparation-and-field-management>.

Tip #3: Establish a seed bank

Begin overseeding your turf prior to the start of the season. Overseed weekly, but at lighter rates (as opposed to a heavy overseeding only once or twice a season). This allows for the establishment of a 'seed bank', through which you always have new germination to take the place of turf that is damaged from foot traffic.

Tip #4: Aeration is the key to quality turfgrass



Soil compaction is one of the most common causes of weak turf on athletic fields. It is caused by soil particles being squeezed together by high traffic. Compaction reduces the rate at which water moves through the soil, and decreases air space. This prevents grass roots from functioning normally, so they become shallow and eventually die. The result is weak turf with little density and is more subject to injury. Aeration on a regular basis will help combat such problems.

Tip #6: Topdress with Field & Fairway

On fields where you have existing turf and your grade is what you desire, core aerify in 3 to 4 directions to bring up as much growing medium as possible. Then, apply Field & Fairway at a rate of 750 lbs./1000 ft² across the entire area. Use a chain link drag, broom,



or mat drag to break up soil cores and to move your conditioner into the aeration holes. Field & Fairway is an ideal amendment because it doesn't break down over time, providing long-term benefit to your root zone. By aerifying and topdressing regularly, the Field & Fairway will allow the cores to break up much easier after each aeration, keeping the growing medium friable, and allowing it to effectively store nutrients and water.

Tip #7: Sharpen mower blades or reels



Poorly sharpened mower blades can be extremely damaging to the turf, causing the grass to be ripped instead of being sheered. Be sure to establish a mowing routine that keeps the grass at a manageable and playable height, while never removing more than 1/3 of the leaf blade. If 2" is the desired height, mow before the grass reaches 3".

Tip #9: Promote effective turf repair and recovery

Spot treat worn or muddy areas by dumping and raking Field & Fairway Emerald. The green coloring of the product provides aesthetic benefit, while the ceramic particles effectively soak up moisture and provide solid footing even through heavy rains. This is ideal treatment for high traffic areas between the hashes on a football field, or in a soccer goal mouth.

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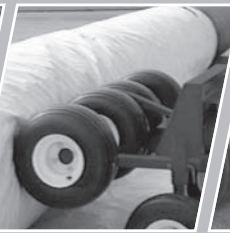
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"SAFE PLAYING FIELDS":

What does it really mean?

Continued from page 5

Part 2

The educated field manager is moving away from blanket spray applications and beginning to treat the field within the field. Every field is different with its own needs and requirements. They need to be treated accordingly. Having a field history report for each field is a great help. In fact it is part of the law for schools. Having a hard copy pest sighting log is too. This is a portion of the law where I have fallen short in the past. Having a field's history in my head or in a notebook does not fulfill the requirements of the School IPM Law.

Moving forward, I have created field log binders for all of our sports fields. It will allow me to track problems and make decisions with all of the information right in front of me. It has taken a long time to get to this point and it wasn't always easy. IPM is a twelve month process that may take some time to implement. A large part of our turf management plan for this

year is based on what took place last year. Sometime you need to look back to move forward. This process may seem like a lot of work to some, but the truth of the matter is Integrated Pest Management is here to stay. For some of us it is the law.

As I see it, the most important product or tool in providing quality turf isn't something you can buy. It rides on a mower, monitors pests, checks soil conditions and usually is the first one in and the last one done every day. Sports turf managers around the state and the country are getting educated and doing whatever it takes to provide truly SAFE PLAYING FIELDS.

Rich Watson is Sports Field Manager, Pine Hill Public Schools, Pine Hill, NJ and member of the SFMANJ Board of Directors.

Other members of the Pine Hill Public Schools Sports Field and Grounds staff include, Greg Bunting, Bill Loftus, Tom Crosby, and Carmelo Anguilla.

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APPLYING GYPSUM - when is it really needed?

Continued from page 12

Removing Na⁺ and replacing Ca⁺⁺ on the exchange site reduces deflocculation and allows natural aggregation of particles that eventually restores soil structure. Gypsum is very useful when soil structure deteriorates because of high Na⁺.

The **misconception** arises when there is a belief that gypsum can improve structure and drainage in any heavy clay soil, even those not necessarily affected by Na⁺. A Na⁺ impact on soil structure that requires the application of gypsum only occurs on a small percentage of sports field soils. A soil test will determine the need for gypsum application. The problematic symptoms of sodic soils are very similar to those of heavily trafficked clay soils that are not affected by Na⁺; both are hard and have poor structure and drainage. To add confusion, gypsum is often advertised as a "soil softener" material. Most soil scientists agree that gypsum will not be useful for improving poor permeability due to problems of soil texture, compaction, hardpans, claypans, or high water tables. Most sports field managers should not anticipate a reduction in compaction and improved drainage by using gypsum. Even with this misconception, there are situations where gypsum is useful in sports fields.

Gypsum (CaSO₄) can be used to supply Ca. When pH is above 6.7 and Ca is deficient, gypsum instead of lime (CaCO₃), should be used to supply Ca. Lime applied to an already high pH would further increase pH and may lead to iron deficiency. Gypsum supplies Ca without increasing pH. A suggested target range for Ca in the plant is 0.4 to 1.2%.

Many water supplies are often high in Na⁺. Sand based systems irrigated with high Na⁺ water may have excessive Na⁺ on the exchange complex. Since sands do not deflocculate, the high Na⁺ in this case will not result in reduced drainage. Sands retain their macroporosity through particle size arrangement rather than by aggregation of particles. The high Na⁺ irrigation water can easily displace Ca⁺⁺ and make it deficient in sandy soils with low CEC. Gypsum can be used in this case as a source of Ca⁺⁺. Testing both soil and plants associated with sand based sports turf has revealed that apparently adequate levels of Ca⁺⁺ in the rootzone have produced apparently deficient levels of Ca⁺⁺ in the plant. Application of gypsum in these situations increased plant calcium and improved turf growth (Dr. David York, personal communication 1998). Calcium availability, uptake, and effect on turfgrass performance in athletic fields continues to be evaluated.

Sodium Chloride (NaCl) is commonly used as a deicer for roadways and sidewalks. Soil Na levels may be elevated in grass areas adjacent to paved surfaces treated with NaCl for deicing. Gypsum may be helpful to remove excessive Na from the soil in this situation.

Dr. David D. Minner is Extension Turfgrass Specialist, Iowa State University; and past Board Member, Sports Turf Managers Association (STMA).



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