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SALT SOURCES IN IRRIGATION WATER

Nearly all water used in the U.S. is derived from surface water or groundwater. The salt content of these water sources varies widely, and the amount of salt that enters the irrigation system can vary significantly. This salt can be a problem for crops and soil, and it can also be a problem for the environment.

▶▶ Some surge-related flooding could directly induce salinity problems in fall primary tillage of cropland in the eastern U.S.

▶▶ The salt content of water used in irrigation is a key factor in determining the salt content of the soil.

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Parameter Label **# of samples** **Range** **Average**

Parameter Label	# of samples	Range	Average
Water pH	14	6.8 - 8.8	7.5
Water Hardness	14	15 - 210	75
Water Sulfate	14	0 - 15	3.5
Water Chloride	14	0 - 15	3.5
Water Sodium	14	0 - 15	3.5
Water Calcium	14	0 - 15	3.5
Water Magnesium	14	0 - 15	3.5
Water Potassium	14	0 - 15	3.5
Water Bicarbonate	14	0 - 15	3.5
Water Sulfate	14	0 - 15	3.5
Water Chloride	14	0 - 15	3.5
Water Sodium	14	0 - 15	3.5
Water Calcium	14	0 - 15	3.5
Water Magnesium	14	0 - 15	3.5
Water Potassium	14	0 - 15	3.5
Water Bicarbonate	14	0 - 15	3.5

ANTHROPOMETRIC MEASUREMENTS OF SALTS IN IRRIGATION WATER

Conductivity is a measure of the ability of a solution to conduct electricity. It is a function of the concentration of ions in the solution. The higher the concentration of ions, the higher the conductivity. Conductivity is a useful measure of the salt content of water.

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On the cover:

Casey Griffin, director of field operations for the MiLB Albuquerque Isotopes, works the base paths in preparation for another season in New Mexico. Griffin says overseeing a \$250,000 renovation project within his first month as director was "an extremely intense and rewarding opportunity."

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*There must already be a national sports turf member from your facility or commercial member from your company before you may sign up in the Associate category.

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From the Sidelines

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Compost and your fields

I thought it might be a good idea to share some information on using compost on sports turf as a rootzone mix or topdressing; this topic may become more important to you if the trend of banning pesticides continues to grow (pun intended).

According to the abstract of a paper titled "Organic Land Care Practices in Maintaining Sustainability of Athletic Field Turf," presented at last fall's big agronomist conclave in Tampa by William M. Dest, University of Connecticut, and Jeffrey S. Ebdon, University of Massachusetts, there is increased interest in organic land care practices in lieu of using conventional practices that use pesticides and standard fertilizer compounds. "However, as the conversion from conventional practices to organic methods takes place, there is no science-based information related to its use on turf sustainability and field safety," say the authors.

To remedy that, they conducted research beginning in 2010 examining the long-term effect on turfgrass sustainability, playing quality characteristics and soil quality using an organic land care system compared to a conventional maintenance system using Integrated Pest Management. Re reported results through 2012, the authors say the only difference in turf quality between the organic and conventional treatments was in 2011 at a 2.52 inch mowing height "because of the ingress of crabgrass into the organic plots thus providing a significantly lower rating than the conventional treatment that received a post application of herbicide to control the crabgrass." They reported that wear injury was significantly greater at this mowing height during the Fall of 2011 and 2012 compared to the 1.25 inch height because of continuing crabgrass competition which was absent on the 1.25 inch mowing height plots.

"This also affected slower spring recovery at the higher mowing height," they wrote. "There was no difference in root biomass between the

organic and conventional management systems taken from samples in 2012. Infiltration rates were not significantly different between the two systems in 2011 and 2012."

Here's how to get started on compost applications, courtesy of a Sports Turf Managers Association Bulletin:

Consult schools, campuses, or your own facility to obtain raw materials for composting. Common raw materials used include:

- Coffee grounds
- Animal manure – poultry, horse, cattle
- Leaves
- Grass clippings and yard waste (Try to avoid using plant waste treated with herbicides, as this could be problematic in finished compost. Always read the pesticide label to see if clippings from treated turf can be used for compost.)
- Wood chips and sawdust
- Clean paper, cardboard, and shredded newspaper
- Food waste from dining facilities excluding dairy products, fats, grease, lard or oils, meat or fish bones and scraps

These materials can be combined into piles, rows or vessels at appropriate proportions to reach a 30:1 (or less) carbon to nitrogen ratio. Organic materials that contain nitrogen include grass clippings, food waste, coffee grounds and manure. Organic materials that contain carbon include dry leaves and woody materials. The pile should be kept out of direct sunlight and moisture content should be carefully monitored so the pile does not become too wet or dry.

To reach a finished product, mature compost requires proper aeration, consistent particle size, sufficient moisture, and high temperatures. The time frame for proper decomposition varies depending on if all of these factors are met and also the method used (piles versus in-vessel). Some sports fields will have multiple piles in various stages of decomposition so compost is available when needed. ■

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President's Message

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Value! Value! Value!

Have you purchased bath soap lately and noticed the smaller size of the bars while also noticing the price continues to increase? Have you received a dollar-off coupon where you only get to use it if you buy more than one? In this day and age of receiving less for more, it is reassuring to know that your STMA membership provides you with more value for your dues dollars. You have more than 25 committees and sub-committees plus a task group working to find ways to enhance your membership. From certification...to the conference...to educational bulletins...to awards...to public relations, you have these and many more resources to help you succeed. People and organizations place different values on different things. It is the hope of your Board of Directors that STMA offers a membership that you find value in and that you use.

There are also resources that enhance your value as a professional and your value to your organization. Members are receiving their 5- and 10-year recognition pins. This shows commitment to the profession and dedication to providing well-maintained and safe facilities. By staying a part of STMA, members help us improve our value so we can continue being the "go-to" resource for you.

Another value-added recognition program is "Field of the Year". This is an opportunity for you and your facility to gain recognition for the outstanding work you do. A few years ago STMA recognized that there were other sports (lawn tennis, rugby, polo, horse racing)

that needed a category of awards, and it was added to bring value to your membership. The application is available at STMA.org, so take advantage of this great program. We have also made some positive changes to the Innovative Awards so that both commercial members and general practitioners benefit.

Another value of membership is the opportunity to benefit from, and interact with, the SAFE Foundation. Your support of SAFE leads to better awareness about field safety. SAFE produces resources like the Mound Building/Home Plate Maintenance and Infield Management videos. SAFE is creating many more educational videos. Please check out its new website, SafeFields.org, and see the value SAFE adds to your membership.

The last value I will mention is the ability to pick up the phone or send an email to any sports turf manager or commercial member to discuss issues you may be having at your facility. What a benefit it is to know that I can call Troy with the Arizona Cardinals, Abby with Wake Forest University, Jody with the Blue Valley School District, Sarah with the city of Phoenix, or Lynda with Hunter Industries and receive help to do my job better. STMA members are known for giving back to the profession. Our ability to network with members across the country and across disciplines is an invaluable benefit of membership.

While someday our prices may increase, it is with the hope that we will continue to add value, continue to be a bargain and to make STMA the organization that you cannot do without. ■



FOOTBALL MAINTENANCE FOR COOL-SEASON HIGH SCHOOL FIELDS

For as long as I can remember, I have spent most of my winters going to continuing education classes. I can recall many great talks about baseball field maintenance for all different levels of competition. There are many sources of information about the craft of maintaining baseball fields. However, when it comes to the sport of football, I don't recall many talks or articles about maintaining a high school field or any other type of football field.

» Our maintenance program doesn't begin and end with the football season but rather focuses on a yearlong approach. **The new season begins as the old one ends.**

I hope maintaining a cool-season natural grass football field is not becoming a dying art. It is an art, you know. Taking a beautiful turf canvas in pleasant September weather and keeping it safe and playable as the temperatures drop through Thanksgiving takes an artist's touch. A couple of years ago I spent some time talking with Tony Leonard of the Philadelphia Eagles about this subject on our way back from the STMA Conference in Daytona. Even at the highest level of completion, Tony is often asked "Why can't you grow grass on that field"?

During our discussion, I found out that there are many reasons why it is difficult. Sharing the stadium with Temple University, dealing with shade issues, hosting many non-football related events and maintaining turf in a very narrow set of hash marks are just a few of the

hurdles that Tony and his crew face. In addition, the pro game is played by the largest athletes in all of sport. The fact that they play the bulk of the game in a small area of the field causes a variety of maintenance problems. Tony has adjusted by changing his field over to bermuda grass during the warm weather months. This allows him to get through most of the season on a very durable surface. As the weather cools the bermuda is removed to the depth of 1.5 inches and thick cut bluegrass sod is installed to finish out the late season schedule with good turf cover. This process has been very successful for Tony and the Eagles.

While this may be a good answer on the professional level, what about those of us on the high school or park and rec level? Are there answers to the problems we deal with on our football fields or are we facing a future with plastic football fields as the solution? I don't claim to have all of the answers, but we have had a lot of success with the maintenance of our football fields at Overbrook. Our maintenance program doesn't begin and end with the football season but rather focuses on a yearlong approach. The new season begins as the old one ends.

ENJOY AN EARLY SPRING

Spring is a very important time for football fields. The fall season really wears out most fields and springtime is usually the time that significant recovery can take place. This process can be slowed by lacrosse but recovery must be taken into consideration regardless. March 1 in New Jersey is the first day you can apply fertilizer **legally** and we do; at least .5 lbs of N per 1000 sq. ft. are applied through an application of ammonium sulfate. This provides food for the new turf planted at the end of last season and promotes growth of established turf also.

In addition to an early application of N, there must be a concentrated effort made to begin mowing to remove dormant turf and promote new growth. It is tempting to allow football fields to lie dormant in early spring. There are a lot of other things going on and football is not one of them. Don't fall in to this trap. The quicker your turf is actively growing, the quicker it has the ability to establish and endure the stress of drought and pest pressures that are coming later in the spring and summer. Fertilizer is provided on an as needed basis during the spring with the intention of not applying more than .5 lbs N per 1000 sq ft. per month.

AERATION

Aeration is something that is very important but commonly overlooked. In our case, we have a core aerator but have no good way to clean up the messy cores. In addition to the mess, coring during the football season may not always provide the results you are looking for. Problems occur during the season if you open up a worn field by coring. Sometimes because of a busy schedule there is not enough time for the field to recover before the next game is played. This can cause a poorly rooted field to suffer damage even though that was not the intention.

At Overbrook we have found a nice window of opportunity right

after Memorial Day. Early June is after our spring season and usually before the weather gets too hot. The fields seem to really respond well at this time of year. The turf is actively growing and our activities are limited. We try to make up for the few coring opportunities that are available by using our slicing aerator when we are seeing signs of compaction. This aerator provides us the ability to open things up without disturbing the playing surface. It is a very valuable tool that also aides us in our fall over seeding program by providing a nice seedbed. Another added benefit of slice aerating is the ability to find grub damage quickly during August and early September. It is much better for us to find grub damage and treat it, rather than an injury occurs due to field conditions. Ultimately, it is up to the turf manager to find the right time and aerator for your site.

SUMMER STRESS

Summertime is a time of rest for our football turf. We are lucky that there is very little activity during the summer months until football camp opens around August 15. Our cutting height is raised to 3 inches and mowing frequency is set at 3 to 4 times weekly. The thinking is that I don't want to put any extra stress on the turf. Higher cutting heights do cause other issues though. Suppressing dollar spot with nitrogen often causes brown patch to develop when the weather conditions are right.

In an attempt to break this cycle we tried an organic-based product. It is not a pure organic product but rather a bridge product that is easy to use and can be applied at workable rates. The results last year were very interesting. We had both diseases pop up last summer but in very small amounts and with no noticeable damage. I am going to use this product again this summer to see if we can obtain similar results. Fungicides are not part of our maintenance program so we are constantly making adjustments to see if we can suppress disease without their use. With that in mind, our irrigation routine is based on need not schedule. This sounds like common sense but it gets complicated with tricky summer weather. The fields are checked daily for soil moisture and then irrigated or not based on this information. I have found that it is ok to get a little dry over the summer. Proper water management is crucial for surviving summer heat and humidity. Please don't set your timer box and forget it.

THE SEASON BEGINS

Football season at Overbrook starts around the middle of the month but it actually begins for us around August 1. This is when the fields are laid out. Before the fields are painted we cut in a football pattern consisting of end zones cut in the same direction and every 5 yards cut in the opposite direction. This is done to burn the pattern in without having to waste paint before field use begins. The weather has been pretty unpredictable over the past couple of years. We have had wet weather that causes a lot of damage due to the repetitive nature of football practice. Our coaches do a great job of moving around but sometimes damage is inevitable.

After a wet practice we will sometimes use a light roller to push down damaged turf and broadcast perennial rye seed. This process



▲ Carmelo Anguilla running a mower.

is used in wet or dry conditions in order to keep up with field damage. Seed is the great equalizer in this equation. It allows us to keep some turf cover. Summer camp is different from our regular practices during the school year. Practices are longer and are held 6 days a week for around 3 weeks. In addition to seeding, managing moisture is probably the key to surviving this time of the season. During warm weather irrigation is run just after practice to help the turf recover and allow plenty of time to dry before the next practice. A wet field can be ruined in a single practice. Monitoring your field during this period is very important. Your practice field is going to be used all year long. If no maintenance is done, it will be a very long and bare season.

GAME ON

It always amazes me how much more energy and time we spend on our game fields. The team spends much more time on the practice field but the game field garners all of the attention. At Overbrook we have a very good situation when it comes to our stadium field. One of the reasons the field holds up as well as it does is the fact that it really is just a football field for games. Our coaching staff has even volunteered to move their Friday practices to the practice field in order to preserve conditions on the game field. The Overbrook marching band has their own practice area at the back of our school that allows them to practice whenever they want. They do however practice on the game field for longer periods of times than I would like during the competition portion of their season. It does force us to aerate more and keep an extra eye on the area of the field that they practice on over and over again. I guess the best advice is to have a good relationship with your coaches and administrators to make your life easier.

Cooperation is great but you need a good plan going in to the week of a football game. Start by looking at the weather forecast to set up a painting and mowing schedule. Typically we will cut Monday, Wednesday and Friday for a Saturday game with painting reserved for Thursday and Friday. Our cutting height is a little higher than most fields (2.5-3 inches). We counter that by using a light roller on game day to provide a smooth flat surface. In order to keep our sidelines straight, they are cut a quarter inch shorter that morning before rolling. As the season progresses we begin to broadcast perennial rye seed before our games. This allows the athletes to work the seed in with their cleats.



▲ Bill Loftus filling divots.