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Supplemental fertilization should be utilized to enhance rather than to interfere with the natural growth tendencies of the plant. Understand that top growth wants to slow down at this time so there is not much benefit in over fertilizing in an attempt to push more shoot growth. A visual inspection of the turf quality and color at this time is a good indicator of the need for additional nitrogen fertilization; off color turf is a good indicator that some nitrogen fertilizer would be beneficial.

Late season fertilization is sometimes confused with dormant fertilization. Dormant fertilization is just that. It is fertilizer applied after top growth has ceased and the turf has gone dormant. The benefits of this application are generally realized in the spring when the turf begins to green up. Caution should be exercised when making dormant applications just as with any other application. Although volatilization into the air is less likely at this time due to cooler temperatures, surface runoff and leaching of soluble nutrients are typically more likely with this application than with other applications. It is important from an environmental standpoint to use solely slowly available nitrogen products because the turf is not active enough for uptake of water-soluble sources

Turf that has not received a dormant application should be fertilized early in the spring at or prior to spring green up while soil temperatures are still cool and root production is still the priority to the plant.

Throughout the execution of your fertility program, aeration and compaction relief of the soil should receive

as much or more attention. **The more intense the usage of your field, the more frequent and intense your aeration program should be.** Without oxygen the turf cannot hope to efficiently utilize the nutrients you provide.

Its not rocket science, its only natural.

Not unlike turf, the sports field manager needs to plant his roots in a growth medium that will allow for his development and success. He too needs to cultivate and perpetuate his survival in the industry. An active membership in the Sports Field Managers Association of New Jersey provides this opportunity to its members. ▲

“Caveat Emptor” Buyer Beware

By Jim Hermann, CSFM

What is a quality product? A quality product is a product that accomplishes the purpose for which it is designed and does this in a manner, which conforms to the product description or label. A quality product is a true representation of the label description. If the product does not carry a label it should be a true representation of the manufacturer or supplier’s written or verbal description.

As an educated consumer, it is the responsibility of every person involved in purchasing to gain the knowledge necessary to make educated decisions on the purchase of products used in his or her profession

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It is the legal obligation of every supplier and manufacturer to promote his or her product in a manner, which truly represents the product.

When you purchase a pesticide or fertilizer product, the product packaging must include a label. The label is a description of the product's components along with corresponding percentages. This label is bound by law to be an accurate description of the contents.

Many products do not provide a description of their components on an attached label. Many infield amendments are an example of this. Infield amendments can be calcined clay, vitrified clay, diatomaceous earth or any number of other materials. If the product literature or packaging does not disclose what the product is derived from you should ask your supplier. By knowing what the material is, you are in a better position to make the necessary comparisons and purchasing decisions.

These products are extensively discussed and referenced in articles written by accomplished sports field managers. These articles mention the positive attributes of these products and many times the negatives. This is the time you will observe these materials being described objectively and impartiality. The problem is, these products are rarely mentioned by product name. They are typically mentioned by their generic name such as calcined clay, vitrified clay, diatomaceous earth etc. In order to gain knowledge and benefit from these articles you need to know what product they are writing about. You need to be able to connect the generic name with the trade name. Another suggestion is that you should always be aware of who wrote the article and what was his or her intent. Just like when selecting a nitrogen product, always consider the source.

Infield mixes are another product that receives much interest and discussion. I am many times asked the question "what infield mix should I buy"? This is not a question that is easily answered. There are many variables that need to be considered when making the decision on the selection of infield mix. Some of the questions you need to ask yourself are:

1. What is my budget?
2. What is the level of play on my infield?
3. What level and intensity of maintenance can I provide?

The American Society for Testing and Materials "ASTM" has recently completed the "Standard Guide for Construction and Maintenance of Skinned Areas on Sports Fields" In this article; no attempt will be made to give a complete overview of this publication. What I am going to provide are some of the benefits and clarification I gained from the ASTM specifications based on my understanding of infield mixes.

First, I was pleased that the publication agrees with the belief that the skill of the sports field manager is a greater contributing factor to a high quality skinned area than the materials used to construct these areas. I contend that a knowledge and understanding of the way a specific infield mix responds to certain maintenance technique is paramount in effective infield management.

The ASTM standards provide a broad base of acceptability as it pertains to the sand, silt and clay composition of a specific infield mix. Sand size particles can range from 70 – 85% of the mix and silt and clay size particles can range from 15 - 30% of the mix. The sand sized portion of

the infield mix should have a minimum of 85% passing through a 4 MM sieve and retained on a number 140 sieve.

There are some sports field managers that do request a physical analysis of their infield mix prior to purchase but rarely if ever do they request a sieve analysis of the sand portion of that mix. It is important to understand that if the sand portion of a mix is too fine, the sand begins to take on the moisture holding characteristics of silt and clay. A mix comprised of too fine a sand portion along with silt and clay will have the potential to stay water logged when it reaches "field capacity". This is the point at which all gravitational water has drained from the mix. This type mix is very difficult to maintain, especially under wet rainy conditions or in a wet location.

The other extreme would be to have a mix on the sandy side of the acceptable standard with a coarser than acceptable sand portion. This mix would have a tendency to be very dry with less than an acceptable level of stability. The majority of pore space between the sand particles would be too large to hold an acceptable level of moisture at field capacity. There are stabilizer products available to bind sandy infield mixes together but these products require consistent moisture to remain effective.

Once you have a basic understanding of the characteristics exhibited by different sand sizes it becomes important to understand how different portions of the proper sand affect the stability of a mix.

Along with a consideration for the moisture holding characteristics of a particular mix, the stability of that mix is also of utmost importance. A mix on the clayey side of the specifications is going to be more stable and better suited to a higher level of play. It will be less likely to translocate under the pressures of aggressive play. Along with this increase in stability comes an increase in moisture holding characteristics caused by the larger number of small pore space between the individual infield mix particles. Clayey mixes respond favorably when proper moisture levels can be maintained through periodic wetting and covering of the field when not in use. A mix of this caliber will inevitably become excessively hard under dry conditions if proper maintenance is not performed periodically. It will also be more difficult than a sandier mix to maintain in a playable condition under wet rainy conditions.

Just like clayey mixes have positive and negative characteristics, sandy mixes also have good and bad characteristics. Because they are inherently less stable than clayey mixes they are better suited to a less aggressive lower level of play. These mixes have the potential to translocate within the playing area more easily and move away from the high traffic areas causing low areas or depressions. These low areas have the potential to collect water. For this reason there is a greater need to maintain the skinned area grade and "lip" or interface between the skinned area and the turf. It should not however be assumed that a clayey mix will eliminate the need for this maintenance.

With a greater portion of larger pore spaces, sandy mixes do not retain as much moisture and are sometimes easier to maintain in wet rainy conditions.

It must be understood that any mix with sand, silt and clay distribution that falls within the ASTM guidelines will have the potential to pond or retain excessive moisture if adequate surface drainage is not maintained irregardless of what conditions are provided in the sub base below the mix.

The ASTM standards do reference subsurface drainage within the skinned area. This drainage is provided primarily to remove subsurface water. Drainage of this type is very inefficient for removing surface water due to the inherently poor infiltration characteristics of most quality infield mixes. A gravel drainage blanket below the infield mix has the potential to cause the infield mix to remain wetter due to the creation of what is known as a false or perched water table. More moisture is held in the infield mix because it does not move efficiently from the finer pores of the top mix into the larger pores of the gravel blanket. This increase in moisture can be of great benefit at higher maintenance levels where moisture is maintained at very specific levels for the utmost in playability.

In light of what has been reviewed, a potentially disastrous scenario might be a sandy infield mix blended with very fine sand, covering a gravel drainage blanket. The fine sand has water holding characteristics similar to silt and clay. These characteristics are magnified when used in conjunction with the perched water table created by the gravel drainage blanket. You might end up with a very wet field.

I would not consider a subsurface gravel drainage blanket or drainage system unless a higher level of care could be maintained or unless there was the potential for subsurface water accumulation below the mix due to poor soil conditions and drainage characteristics of the entire playing field. A better course of action might be to provide a sand slit drain just beyond the perimeters of the skinned area within the turf area. This drain would be brought to the surface to eliminate the potential for standing water at the interface between the skinned area and the turf. A drain of this type would also minimize the potential for the accumulation of water within the skinned area providing proper slope is maintained.

Although I am personally apposed to the use of infield amendments, due to the prolific abuse of these products I have witnessed throughout my career, I must give credit where credit is due. Infield amendments such as calcined clay have made a tremendous contribution to the maintenance of quality infield skin areas. The benefits of these materials are derived primarily from their ability to absorb and retain controlled amounts of moisture thereby extending the duration of time between periodic wettings. If these materials are continually and indiscriminately applied to problem areas of the infield skin, they will destroy the integrity of an otherwise quality infield mix. Let me explain.

If you refer back to the ASTM standards, the recommended range of acceptability for sand size particles within the infield skin is 70 – 85%. If continual over application of amendments modifies this range beyond the acceptable limits, without the benefit of water this infield mix will react like any other mix that contains too much sand.

If you have the budget to amend your infield skin with calcined clay, start with a clayey mix of 60 – 65% sand, 30 – 35% clayey material and bring your sand size portion of the mix into the acceptable limits of the ASTM standards with the application of calcined clay. Be sure the product has the proper particle size. If you must use calcined clay or some other material as a drying agent, remove it when a buildup of material becomes evident.

As you can see by all the information that has been provided, maintenance becomes very site and material specific. There is an exception to every rule. The same Sports Field Managers Association of New Jersey

product can react differently in different locations due to different environmental factors. A sandy mix may need to be rolled to create a firmer footing where a clayey mix may need to be scarified to create a softer top. Understanding your specific infield skin area is the key.

Remember, no one can diagnose your infield skin problems without a sand, silt, clay and sieve analysis of your infield mix, along with an inspection of the entire field to diagnose other contributing factors.

There is no replacement for proper maintenance. Establish and maintain surface drainage. Periodically broom, blow or wash the "lip" to minimize buildup. Create and maintain a line of communication and cooperation with the leagues that use your field. Provide training in proper infield grooming and maintenance to all those involved in grooming your fields.

There is no product available that will eliminate proper maintenance. Educate yourself and your people on proper maintenance technique in addition to the proper usage of these materials and you will see your fields improve.

Individual reprints of the ASTM Standards Publication 2107 may be obtained by contacting ASTM at 100 Barr Harbor Drive, PO Box C700 West Conshohocken Pa. 19428-2959 or 610-832-9585 (phone) or service@astm.org (e-mail) or thru the ASTM website (www.astm.org) You can also receive the publication by accessing the STMA website at WWW.sportsturfmanager.com

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