STOP THE INSANITY

Examining the components of a proper infield mix instead of adding more

By Scott Bills

As a Certified Sports Field Manager, I consult with dozens of municipalities, schools, and private sports organizations each year regarding problems with ball fields. If I only had a nickel for every time I heard, "My infield mix doesn't dry out," 'My infield mix turns to concrete in the summer," "My infield mix is like a sand box," or "How do I keep weeds from growing in my infield?" Sound familiar?

Despite all of the inventions and historic moments in the last century—curing polio, sending a man to the moon, developing the Internet—no one has determined what makes a quality infield mix.

Photos: Scott Bills

In 2007, two major-league baseball head-groundskeepers had serious problems with their infield skin surfaces. After calling most of the major manufacturers of infield materials, the only answer was to completely tear out the mix and start from scratch. Unfortunately, time and expense didn't allow for that option. Convinced they could somehow salvage or "amend" the mix they already had, they continued their inquiries. The symptom of both fields was "chunking out." In other words, the infields would not stay together without a lot of moisture. Their experiences working with many materials told both groundskeepers they needed more clay.

A SCIENTIFIC BREAKDOWN

Persistence led them to Grant McKnight of The Natural Sand Company. For several years, McKnight had been trying to figure out why there wasn't an agreed-upon standard for infield mixes. He concluded that, because there was not a single source of ingredients that could be reproduced nationally, the industry relied on regional sources. After numerous conversations with the two prominent groundskeepers, McKnight felt it was time to reach out for additional help. He contacted Dr. Norm Hummel, one of the country's most respected soil scientists, of Hummel and Company.

The Natural Sand Company owned a natural source of clay, plus a sand source that could be screened to meet specific standards. Before any amendment could be formulated to help these fields, Hummel needed to know the analyses of the existing infield mixes on each field. He provided a report indicating the percentage of sand, silt, and clay, a breakdown of the sand gradations from fine to coarse, plus the ratio of silt to clay. After consulting with Hummel and discussing the test results with each groundskeeper, McKnight manufactured an amendment for each field. The prescription was to blend a specific amount of amendment into the top 2 to 3 inches of existing infield mix. The goal was to reduce the overall amount of sand (specifically fine sand), increase the amount of clay, and reduce the ratio of silt/clay to less than one.

A SOLID ANSWER

After installing the amendment, both groundskeepers noticed a significant improvement in the performance of their infields. The fields were staying together, they were able to absorb and hold moisture longer, the playing surface was consistent throughout the infield, and overall maintenance requirements were greatly reduced.

As a result of those two success stories, now 18 of 30 major-league teams have either amended their existing infields, or in the case of the new Miami Marlins stadium, installed the product within the complete profile.

In the past, local sports-field managers were fearful of installing the same type of infield mix used in professional stadiums.

Through continued research and understanding the resources available to each groundskeeper, now specific infield mix blends and amendments can be installed on college, high school, and municipal ball fields. More importantly, the fields can be improved without having to completely replace the existing infield mix, or spend $500 to $600 per ton on conditioners.

TOO MUCH SAND

But the title of this article is "Stop The Insanity." So far, it doesn't sound so insane. I'll get there.

Although I am mostly familiar with field issues in the Mid-Atlantic and Northeast regions of the country, believe me, there are infield problems in all 50 states.

In the Mid-Atlantic and Northeast regions, most of the indigenous infield mixes that are produced have too much sand, too much fine sand, too much silt in relation to the amount of clay, and not the right type of clay. Most of these producers find a source of sand that has some percentage of silt and clay. These materials are harvested, not engineered. Since most of these companies are large sand producers for other industries like masonry, concrete, asphalt, and glass, sands with too much silt and clay become waste. Well, a person much smarter than I figured out that if someone screened the material, kept it somewhat consistent, and gave it a fancy name related to the game of baseball, that person could add $30 to $40 per ton and sell it as infield mix.

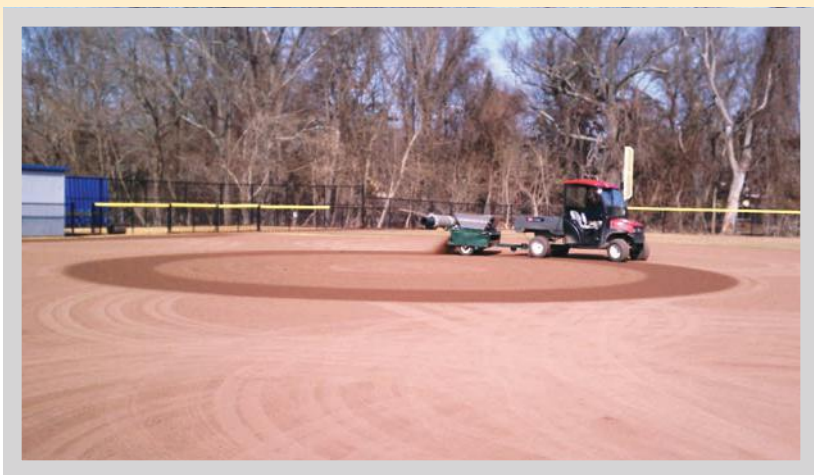
So, over the years, engineers and architects have specified these materials because that's what was available. Now with a little more knowledge, people have figured out these high sand and high silt mixes cause a lot of problems on fields.

But because these materials have characteristics that don't allow them to manage moisture efficiently, are easily moved during grooming or from wind and water erosion, and are relatively cheap, fields have been ruined.

Here are some examples:

Case Study #1

I was asked to look at a field for a local Little League in an upscale town. The field had such a significant lip that an infielder actually hurt his back and neck when he tripped chasing a pop fly into the outfield. I was asked to contact the township engineer and discuss my recommendations. Before calling him, I checked the depth of the infield mix and found the area behind second base was 19 inches deep. I didn't need to survey the field to determine there were grade problems. While on the phone with the engineer, he advised me they were planning to build a new softball field in town. I joked and told him there was enough infield mix on this field to build three new fields.



Here's the insanity—while on the phone with the engineer, I could hear a back-up beeper in the background. Following the sound, I realized it was a tri-axle backing into the park maintenance yard. Reluctantly, the engineer admitted it was a load of infield mix. After doing some quick math, this 11,000-square-foot infield had 15 inches of infield mix it didn't need. At a conservative cost of $40 per ton, that was about $30,000 of wasted money, not including the labor to install the material over the years and now with a potential lawsuit.

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Case Study #2

I was asked to survey ball fields for a county park system. I am sure when the fields were originally designed and constructed, the grades allowed for water to drain off the infields. Well, after about 10 years of buying sandy infield mix through the county co-op purchasing system and grooming from the inside to the grass edges, the county had over 40 ball fields that were essentially bowls or saucers. Not one infield allowed for surface runoff. Here's the insanity—the grass lips were so severe that one worker admitted the county had purchased an $8,000 trencher to cut through the lips to help get water off the fields after a heavy rain. In addition, the worker informed me that over $20,000 was spent each year on drying agents and another $18,000 on the same infield mix.

Case Study #3

I recently visited a Little League complex in central New Jersey. My first observation was that the fields had major grading issues. As in Case Study #1, I checked the depth of the infield mix. My probe is 12 inches deep; I didn't hit bottom (see picture).

While inspecting the first field, I noticed all of the bottom rails of the backstop and player bench fences were buried by about 6 to 8 inches, and a considerable amount of infield mix had washed into the dugouts. Here's the insanity—while walking from field to field, I noticed tire-track damage from double gates in the outfield fence towards the infields. Not only was the league adding infield mix it didn't need, it was damaging the turf to do it. Assuming there were at least 12 inches of infield mix on each field (actually there was more), these four infields had about 1,200 tons of excess infield mix. Again, using a conservative cost of $40 per ton, this equates to $48,000 of wasted money. Now let's throw in tens of thousands of dollars to fix the fields.

"We can't solve problems by using the same thinking we used to create them." —Albert Einstein

Ultimately, we need to change our way of thinking. Albert Einstein said it best: "We can't solve problems by using the same thinking we used to create them."

More importantly, there is a practical solution to this problem. It has been tested at the highest level of play and is available to improve all Little League, recreational, high school, and college fields. Plus, there are groundskeepers who have changed their thinking and are practicing better techniques to reduce unnecessary expenses.

Let's stop the insanity. **PRB**

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