

Q&A



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Questions?

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What's an inch of sand worth?

Our high school is considering a new synthetic field vs. renovating our existing native soil field. We have cost estimates for the synthetic field but I don't think we can afford it. My athletic director wants me to put together some cost estimates and performance criteria for improving a natural grass field. They are unhappy with the worn out grass and muddy games that we have been having over the past few years. We have native soil and irrigation but no real sub-surface drainage. The crown is still there but years of wear have made the middle of the field and sidelines puddle with only slight rain. Can you give me some general guidelines and estimates for various sand-type systems and the performance we should expect?

The recent wave of synthetic fields constructed at the high school level have certainly inspired natural grass field suppliers to develop better fields at a lower cost. I'll work my way from the most expensive to the least expensive and give a few comments on maintenance and expected field performance. A newly installed synthetic field ranges from \$600,000 to \$1 million with a typical annual maintenance cost of \$5,000 to \$22,000. They can be built in 30 to 90 days and immediately ready for play as soon as the glue is dry and the infill is placed.

Next is the sand-based field at \$400,000 to \$600,000. This is similar to a USGA putting green construction containing a 4-inch gravel drainage blanket and 12-inch sand rootzone. Anticipate an internal drainage rate of 10 inches

per hour and no puddles on the field a half hour after the rain has stopped. The cost of sand and trucking is a significant part of any sand-type field. We found that reducing the sand depth still provided satisfactory drainage and substantially reduced the overall cost of field construction.

Next is the sand-cap field at \$200,000 to \$300,000 which uses a 4-6 inch pad of sand placed directly on topsoil fitted with drains on 15-20 foot centers. A wide gradation of sand, with particles distributed across a range of sizes, containing 90% sand/10% silt+clay, is important to optimize stability and drainage.

North Scott High School in Eldridge, IA has a 12-inch sand-based soccer field and a 4-inch sand-cap football field; both are maintained for 15 to 17 cents per square foot. Sand-cap fields can be built in 20 to 40 days. The North Scott field was seeded on May 1 and completely ready for play by the end of August. From my perspective the 12-inch sand-based fields and the 4-6 inch sand-cap fields provide the same level of performance, playability, and required management inputs. The 12-inch sand-base may be more appropriate for professional and college fields where some forced air systems, maximum drainage, synthetic stabilization, and possible use of 2-inch thick-cut-sod may be used. Anticipate an internal drainage rate of 5 inches per hour and no puddles on the field a half hour after rain has stopped.

Athletic field and golf course turf has been topdressed for years to build up a layer of sand over na-

tive soil. Michigan State University's turfgrass team of Kowalewski, Crum, and Rogers have solidified this concept with the Spartan Cap system, \$60,000 to \$100,000, that does not require excavation or the field being taken out of play. This built-up sand-capped system uses drain lines placed on 20-foot centers or less, followed by aggressive sand topdressing. The goal is to apply 2 inches of sand topdressing in 2 years by topdressing in the off season, i.e. May through August for football. Use aeration methods that do not mix the existing field soil with the sand topdressing layer.

Some of you already have an inch or more of accumulated sand on your fields but have never installed drain tiles. Simply put in the drains, backfilled with sand or gravel, and continue to topdress with sand to develop the 2-inch Spartan Cap System. Anticipate the field to absorb a half inch rain without puddles on the field and expect the field to be ready for play after a rain in half the time compared to a native soil field without a built-up sand cap. Once the cap has reached 2 inches or more this should eliminate muddy games, but my advice is to continue with topdressing until you achieve a 4-inch depth so you can have a larger drainage reservoir and to facilitate use of a 4-inch hollow tine aeration.

Necessity is the mother of invention and thanks to a push from the synthetic industry the creative use of sand on athletic fields has developed several low cost and effective renovation techniques for grass fields. ■