

# Do Fairways Need A Sand Cap?

Fig.1: Spreading seed on a sandcapped fairway at Shanghai.

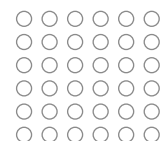


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*Must grass for golf courses always be grown only on sand? Talk to almost most professionals who deal with turf matters and they will almost always agree that sand is the ideal surface upon which to grow grass. However, one expert begs to differ - he is Micah Woods of the Asian Turfgrass Center who happens to believe otherwise and sets out to prove his case with some sound reasoning.*

Six months ago, I heard an interesting comment about the turfgrass research facility being developed by the Asian Turfgrass Center. We had started to plant 33 different grass types on native soil (formerly paddy fields) near Bangkok, intending to maintain this area as a fairway turfgrass trial. We had already established these same grasses in a sand rootzone. A visitor remarked that the particular trial of turf on native soil would be the one they would like to see the outcome of, because they were not sure that these grasses could grow in anything other than sand. I was surprised to hear this, because plants will almost always grow better in soil than in sand.

There seems to be a misapprehension about suitable soils for golf courses in Asia. It is common to use sand as a growing medium for fairways (Figure 1). But this is a substantial cost, and it may not be necessary, at least during the construction phase of a golf course. In fact, I believe that many golf courses would see better and more consistent playing conditions if the fairways were not sandcapped during construction, but were regularly topdressed with sand instead.



The benefits of good drainage and a sandcapped fairway are well-known: firm surfaces, playability during rainy weather, and resistance to compaction. It is for these reasons that the standard method for building golf course putting greens includes a sand rootzone. But just having a sandcap in the fairways is no guarantee of firm surfaces (Figure 2). There must be surface contour and in some cases underlying tile drainage to move excess water out of the fairways. I have seen many cases where sandcapped fairways are littered with persistent wet areas.

For a new course with 125,000 square meters of fairway area, capped with sand to a depth of 15 cm, approximately 28,000 tons of sand are required. Fairway sand prices vary widely depending on location, but in general can be expected to range from USD \$10 to \$50 per ton. Assuming a cost of \$20 per ton, an initial outlay of \$560,000 on sand would be necessary. This does not include the cost of spreading the sand, nor the more likely scenario in which not only the fairways are sandcapped, but also the course's rough areas. Thus many courses spend a significant portion of the construction budget on sand.

Not only does sandcapping increase course construction costs, it will also increase maintenance expenses. Sand holds less water than other soil types, thus increasing the amount of water that must be applied to the turf, along with increased electricity to pump the water and more labor cost to water dry areas. Sand also holds very few nutrients, and more frequent fertilizer applications are

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Fig.1: Sandcapped fairways can still have wet areas that require additional subsurface drainage.

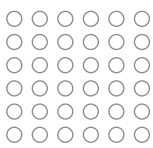


Fig.3: Thatch buildup above a sandcapped fairway.

required for courses with sandcapped fairways. There is also thatch to worry about, because turf that is watered and fertilized frequently, as sandcapped fairways invariably must be, will tend to develop thatch (Figure 3). Uncontrolled thatch defeats the very purpose of sandcapping; thatch is a layer of undecomposed organic matter that holds water and creates soft conditions at the fairway surface.

For new courses constructed in Asia, I rarely hear anyone question the need to plate fairways with sand. But there is a program that may achieve even better results than fairway sandcapping at a fraction of the cost. This is regular sand topdressing. Courses must still be built with good surface drainage, and tile drainage must be installed to remove water from the lowest areas. But rather than installing a layer of sand under the turf at the outset, sand can gradually be added at the surface, over time, through topdressing. This topdressing program can accomplish a number of things, all leading to better playing conditions. Sand applied as topdressing will firm the surface, effectively reduce the water table in relation to the turfgrass surface, dilute thatch, and create a smoother playing surface. Irrigation and fertilization costs can be reduced, the amount of aeration and verticutting can be reduced, and course conditions will improve over time. Furthermore, the cost of sand can be spread over many years.

A course with 125,000 square meters of fairways might be typically constructed with sand 15 cm deep, requiring about 28,000 tons of sand. A topdressing program that applies 1.5 cm of sand annually

would spread that initial sand cost out over 10 years, but would improve the surface quality each year. What I often see instead is a tremendous initial investment in course construction, and then declining quality over time. The positive results from heavy sand topdressing of fairways are well-documented, and a detailed description of the technique (along with its advantages and disadvantages) can be found in an article written by Larry Gilhuly for the Green Section Record in 1999. This article can be downloaded as a pdf file at <http://tinyurl.com/2s7332>.

The first golf course I worked at, Waverley Country Club in Oregon, employed heavy fairway topdressing on only the 17th hole, which was on the lowest part of the property, on heavy clay soil, adjoining a river. After starting the fairway topdressing program on only this hole, the results were profound. The 17th hole suddenly went from being the wettest hole on the course to the one with the best playing surfaces. This fairway topdressing program has subsequently been implemented throughout the course.

I expect similar results would be found in Asia. It would make sense, from both a financial and a turfgrass quality perspective, to consider the possible advantages of this sand topdressing method, rather than assuming a need to cover the topsoil with sand before any grass is planted. And what of the 33 grass types planted in the native soil at our research area? They are performing just as well, if not better, than in the adjacent plots grown in sand. ☺