

Ground contours & grass

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NEW GOLF COURSES in Southeast Asia are often built with a sand-cap. And the grasses used here over the past two decades on most new courses have been hybrid bermudagrass or seashore paspalum.

In this presentation, I suggest that sandcapping at construction is particularly problematic if one wants to have a design with a running sward on which the ball will bounce and roll. And I also make the point that using grasses well-adapted to this climate such as manilagrass or tropical carpetgrass can result in swards that make the best use of ground contours as designed by course architects.

For more links,¹ and the slides for the presentation, go to the online handout at http://seminar.asianturfgrass.com/201503_contours.html.

Soil vs. sandcapping

GOLF COURSE PUTTING GREENS are generally constructed with a sand rootzone. The purpose of this is not for drainage, but rather for resistance to compaction and for a rapid infiltration rate. Once the putting green is constructed with a sand rootzone, it requires regular maintenance to remove and dilute organic matter that accumulates at the surface.

O'Brien and Hartwiger² described the importance of managing the organic matter accumulation:

The long-term health of putting greens depends on maintaining sand as the primary medium. If organic matter accumulates beyond a reasonable degree, the physical benefits of sand are diminished and putting green physical properties decline along with the health of the turf.

When other areas of the course, such as fairways, are sand-capped at construction, this same organic matter accumulation problem will occur. But now, instead of trying to manage the organic matter accumulation on one to two hectares of putting green surface, it is now work – and costly, disruptive, time-consuming work at that – that must be done on ten or twenty or even more hectares across the golf course.

An alternative, and one that I suggest will result in better playing conditions, with the ball better able to bounce and roll over the interesting ground contours of the property, is to install an excellent drainage system and then do a bit of sand topdressing to establish a 3 to 5 cm layer of sandy material at the surface. This coarser material, overlying finer material underneath, will allow water to percolate freely. However, organic material – a finer material –

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¹ The articles and video mentioned and shown in the presentation all have direct links from the online handout.

² From their GSR article *Aeration and Topdressing for the 21st Century*.

overlying a coarser sandcap, results in a perched water table at the surface. A perched water table at the soil surface is not conducive to good golfing swards.

Grass selection

LOOK AT THE GRASS growing on golf courses in Southeast Asia, and one notices a few things:

- manilagrass (*Zoysia matrella*) invades and can take over turf that was planted as bermudagrass or seashore paspalum.
- manilagrass doesn't die, and tropical carpetgrass (*Axonopus compressus*) doesn't die, but seashore paspalum and bermudagrass can die more easily.
- seashore paspalum dies most readily when it is starved of water. Keeping the grass and soil dry is great for ground contours and resultant playability, but not so good for seashore paspalum.
- bermudagrass suffers a slow death when it is kept dry and when fertilizer is supplied in small amounts; the bermudagrass thins out and various weeds invade. One can get the bermudagrass back, if herbicides are applied, but then this thinning and weed invasion cycle repeats itself.
- using grasses such as manilagrass and tropical carpetgrass that don't die when irrigation is withheld and when fertilizer is reduced allow for a dry, firm, running sward on which golfers can utilize the ground contours inherent in the design of the golf course.

A dry, firm, running sward can be produced with bermudagrass or seashore paspalum in this climate. However, I would argue, and observations on golf courses throughout the region would support my argument, that to create such surfaces with bermudagrass or seashore paspalum would require more maintenance inputs. That is, it takes more work, more cost, more fuel, more fertilizers, more water, and so on to create the same surfaces with bermudagrass and seashore paspalum as it does to produce the same playing surface with manilagrass and tropical carpetgrass.³

³ See the slides and all the referenced articles at http://seminar.asianturfgrass.com/201503_contours.html