

The Science of Soil Free Turfgrass Sod (Part 1)

Once a curiosity, soil free turfgrass sod is now widely accepted as the standard for establishing turf on applications for USGA specification root zone materials, such as golf course greens and sports fields, when rapid results are desired. To better understand the reasons for the success of soil free turfgrass sod we have to look at the science behind it.

During the 1970s, Ben Warren of Palos Park, Illinois developed a process to hydraulically wash harvested turfgrass sod or soil free turfgrass sod. Back then, this technology and process was before its time. However, in the 1990s the Australian firm StrathAyr perfected the process and successfully patented and commercialized it internationally.

Today, Manderley Turf Products is the exclusive provider of the StrathAyr™ process for soil free turfgrass in Canada. We have supplied and installed soil free turfgrass to many of Canada's prestigious golf courses and high profile sports fields.

Mismatched soil particles and issues

Before soil free turfgrass, the only way to establish turf on high sand root zones, such as USGA specification greens and high drainage athletic fields, was to seed and grow in the stand of turf.

Turfgrass managers attempted to shortcut the process by using turfgrass sod but they were quick to learn the downfalls. The differential in the particle sizes between the fine soil in the turfgrass sod and the larger sizes found in the high drainage root zone material often created a perched water table at the sod layer. This water table actually inhibited the movement of water through the sod. Sports surfaces that were built to be free draining were essentially "capped" by the sod soil layer.

This capping often restricted the turfgrass sod from rooting properly. Drainage problems were exasperated when the original turfgrass sod soil layer was top dressed with the same material as the profile beneath it. This additional layer caused the eventual formation of a stratification layer of dissimilar particle sizes. Over time if not corrected, the lack of drainage caused by the stratification would lead to anaerobic conditions beneath the surface resulting in a black layer.

The benefits of soil free turfgrass sod

Through a lot of trial and error, the problems associated with establishing turfgrass sod were better understood and a solution became apparent: remove the soil layer from the turfgrass sod, thereby eliminating any drainage restrictions. Now free of any soil particles, the soil free turfgrass sod matched the sand profile exactly. With further research and commercial use of soil free turfgrass, other benefits were realized:

- * it was lighter and therefore easier to transport and work with,
- * it was more suited to refrigerated transport, and
- * most amazingly, it established roots much more quickly.

The enhanced rooting ability of soil free turfgrass has been demonstrated in several scientific studies comparing soil free turfgrass with sod with soil. These tests have shown as much as a 260 percent increase in root biomass at 21 days after transplant.

The maximum root depth was also found to be 60 percent greater. This greatly enhanced rooting is caused by two factors. First, the elimination of the attached soil layer requires the turfgrass sod to initiate roots into the soil layer quickly for nutrition and water. Second, the vigorous process of washing the soil from the turfgrass sod stimulates the lateral stems in the turf to produce more root initiation points.

Over the years, a growing number of golf superintendents and sports field managers have come to recognize the benefits of using soil free turfgrass and have benefited from its attributes, namely the ability to establish a greens and field surface in very little time. It is an excellent way to finish time-pressured grow-ins or make renovations timelines acceptable to the members and players.



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