Trees, Turf and Shade
A Relationship That Makes a Difference

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The interrelationships between the sub-systems of a golf course are significant and demand the consideration of those who manage the resources and assets. The immediate "jump out at you" relationship is between trees and turf.
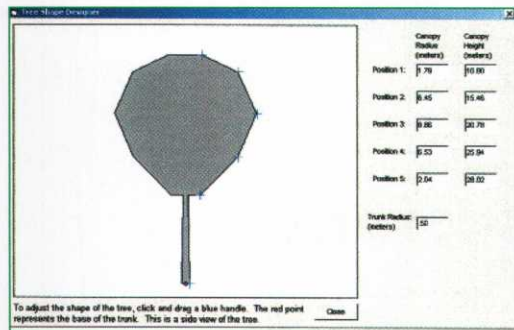
The most common questions/concerns routinely confronting StrataPoint centers on the compatibility of turf and trees. Course superintendents are under constant pressure to maintain a system that is highly unnatural.

The negative effects of shade on growing turf are well known. As all trees mature across the golf course shade becomes an increasing difficult issue. Too often members only remember the small tree that was planted many years ago, forgetting that this tree is dynamic and always changing. Emotional attachments frequently get in the way of making decisions for the good of the course. So, what can be done with these trees that are producing too much shade and to which golfers have an emotional attachment? The answer has to be found in informing, educating and objectivity based on fact.

Environmental Facts

The overarching fact is that too much shade inhibits having quality turf. Shade reduces the quality of light available to turf and the length of time it is available.

Of course, any solution to the problem requires knowing the existing conditions. Since trees are contributors in the problem, knowing the biology and habits about trees is vital to understanding how to manage them. A thorough investigation of conditions is fundamental to knowing alternative solutions.

The quantity of light that penetrates the tree canopy to the turf depends on size, height, spread and crown density of the trees. The distance from the impacted area, geographic location in relation to the sun's position (which in turn varies by season and time of day), and the tree species all impact turf growth. Trees that grow on the south and east sides of the turf tend to be more troublesome because trees block the morning sun, which is critical to turf health.

The duration of light reaching the turfgrass depends on several factors. Sunrise and setting at different angles from the horizon at any specific date or time. The size and location of the trees and their relationship to the angle of the sun all play significant roles.


While all of these aspects play a role in the tree-turf relationship. The question still becomes one of how to deal with so many variables when seeking a solution to the problem. This is where technology can be extremely helpful.
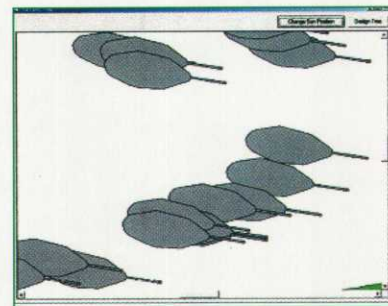
Technology Advancements

Shade profiling software that simulates sun patterns and tree canopy structures make decisions not only fact but offer visible results to unsure members. Simulation and analysis of shade profiles can be viewed on the computer screen while changing certain variables (height, crown density and width) and viewing the results before any field work occurs. Rerunning the simulation as many times as needed and comparing the different possibilities (removing, pruning, or planting) can and should be part of any scenario.

GIS and other software packages currently in the market have made these results real for any superintendent with shade issues. Using GPS/GIS for a one-time data collection and the integrated database approach pays off with a view of the larger picture. Once the information is compiled the scenario described above can be used repeatedly on multiple sites across the golf course.
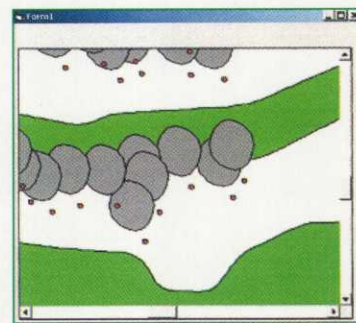
As you would expect, Shade profiling accommodates all of the customizing the user needs when defining alternative solutions and testing the effects. Using the Shade profiling capability of a comprehensive management tool offers great advantages to golf course management. Every step toward bringing all functions into one application package brings course managers closer to having it all within view.