

## GROWING GRASS IN THE SHADE

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Most plants do not grow well in a shade environment. This is especially true for turf. All plants require sunlight for photosynthesis to make the energy and compounds they need to sustain life. Low light intensity reduces the plants ability to photosynthesize at maximum efficiency. In addition, most of the time the shade is provided by trees which not only reduce the amount of sunlight reaching the turfgrass plant, but also compete directly with the turf for water and nutrients.

Most people envision trees as having a deep root system because of the long tap roots seen on overturned trees. Consequently, they believe the tree is feeding deep down in the soil profile. Actually, the large tap root serves to store nutrients and anchor the tree. The feeder roots that supply the tree with water and nutrients are near the soil surface.

No grass species really grows as well in the shade as it does in open sunlight. Even species like the fine leaf fescues and *Poa trivialis* which are considered shade tolerant, do not do as well in the shade as they do in full sunlight.

What is the answer? The solution to the problem is really simple: cut down the trees. However, on most golf courses it takes something just short of an act of congress to cut down a single tree never mind a group of trees.

Morning sun versus afternoon sun. The most critical sun for healthy turf is morning sun. If turfgrass doesn't receive morning sun, it will not do well. I don't know why this is. I have asked many people and never received a satisfactory answer. Some have suggested it is because the turf remains wet longer. This is true! But how does that cause the turf to decline? Some have suggested that because it remains wet longer it is more susceptible to disease. But we have never found any disease associated with the decline of the turfgrass growing in the morning shade. Regardless of the reason, that fact remains that turfgrass that doesn't receive morning sun doesn't do very well.

I don't know how many times I have had people say "but it receives sun all afternoon" This is true but it is the lack of morning sun that makes the difference. The opposite is also true; the turf that receives the morning sun but not the afternoon sun will do just fine.

The other factor that confuses identifying the lack of morning sun as the cause of the turf decline is that it doesn't show up until late July or August. This is due to the morning sun being higher in the sky in May through early July. This allows sunlight to reach the turf during the morning, especially where the trees are further back from the green or tee. As the sun rises lower in the morning sky in late July through fall, these trees now cast a shadow over the green or tee causing the turf to decline.

Is there a difference in shade tolerance among grass species? Yes! Creeping bentgrass does not do well without the morning sun. Creeping bentgrass greens and tees that are established in sites that don't receive the morning sun are doomed to failure. Since annual bluegrass is shade tolerant, one would be better off in the case of greens to collect the clippings from an annual bluegrass fairway and establish the green that lacks morning sunlight to annual bluegrass. I know this will be greeted as heresy by most turfgrass "experts". But short of cutting down the trees, what is the alternative? More importantly, what is the green going to become eventually. You guessed it, annual bluegrass. The only difference is this will be a slow painful process taking many years. During that time, the golfers will be playing on a combination of dead creeping bentgrass, "dead dirt" and clumps of annual bluegrass dispersed amongst live and dead creeping bentgrass. That always makes for great putting! Followed by, you guessed it, an annual bluegrass green.

For tees there is the option of planting perennial ryegrass. It does quite well under shade conditions. However, yearly over seeding is required.

Even for annual bluegrass greens growing in the shade or lack of morning sunlight, root pruning of the trees surrounding the green is important in helping the green to survive.