

## **MAINTAINING TURF IN SHADE: A TOUGH ENVIRONMENT!**

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Maintaining cool season turfgrasses in shaded areas is one of the most challenging aspects of turf management. What makes maintaining turf difficult in shade is that how the turf grows in shade is entirely different than how it grows in full sun. Maintaining shaded turf requires an understanding of the environmental and growth changes that occur to turf when developing a management program.

The most noticeable environmental change on shaded turf is the reduction in light. Light is necessary for plants to carry on photosynthesis (the conversion of radiant energy into a usable form, ATP). Thus, shaded plants do not have the carbohydrate (how the energy, ATP, is stored) reserves that plants growing in full sun have. In addition, the quality of light the turf is receiving changes and is of poor quality. Light quality refers to the proportions of particular wavelengths within the light spectrum. The wavelengths of blue, red, and to some extent green provide energy for photosynthesis while far-red triggers morphological responses. Changes in proportion of red to far-red changes how a plant grows and its health. In shade there is an excess of far-red in comparison to red, which results in plants producing thin, delicate leaves with a rapid vertical growth. A poor root system is associated with these plants. The combination of reduced photosynthesis, and a more succulence, makes shaded plants susceptible to traffic and disease.

Besides the reduction in light quantity and changes in light quality, the microenvironment is considerably different than what is found on a sunny green. Shaded turf has reduced airflow that promotes higher humidity levels. High humidity reduces the evapotranspiration (ET) rate, and thus the cooling of the turf. Shaded turf tends to remain wetter than those that are exposed to air movement. High summertime temperatures combined with wet humid conditions are not conducive to turfgrass growth especially at low heights of cut.

Below are some general precautions for your shaded turf realizing that not all suggestions are feasible or applicable.

### Mowing considerations:

- Raise the mowing height (if possible). Traffic or wear stress is a significant problem on greens under stress (lack of tillering, growth, etc. reduces the ability of the turf to withstand or recover from traffic). Raising the height increases the wear tolerance of the turf.
- Minimize quick or sharp turns. Considerable wear and damage occurs to collars where the mowers are turned or spun around. Slow down!

### Irrigation:

- Avoid overwatering in the shade. Generally the evapotranspiration (ET) rates are lower in shaded environments resulting in a wetter condition. A wet condition favor disease and also reduces the wear tolerance of the turf and increases the potential for compaction.
- Check the irrigation heads to make sure they are turning. Often times problem show up with heads when the turf severely wilts around the head. During the summer stress period, this is not the best time to detect if a head is not turning.

- Check soil moisture levels. Periodically using a soil probe to visually evaluate the soil moisture levels is a good routine practice.

Fertilization:

Fertilization suggestions are difficult to make but below are a few general recommendations.

- On shaded turf that is beginning to thin avoid the temptation to apply nitrogen at rates to promote recovery and “filling-in”. Excessive rates of nitrogen can actually make the situation worse.
- When fertilizing apply more frequently and at reduced rates to minimize burning.
- Iron and potassium should be used to provide color and some enhanced wear tolerance to the turf.