

Growing Sun-Loving Turf in the Shade

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It has been estimated that about 25% of all turf in the U.S. suffers some degree of shade stress. Grasses used for turf evolved under relatively well-lit conditions, and do not grow well if there is too much shade. Sunlight quantity and quality both affect turf health. Insufficient quantity reduces the amount of photosynthesis which occurs, reducing the amount of roots and tillers the turf plants can make. Sunlight which first has to pass through trees or other obstructions has reduced quality, which forces the grass to develop excessive amounts of the hormone gibberellic acid (GA). Too much GA causes weak, spindly turf plants which are less tolerant of traffic and disease pathogens. Consequently, turf management for shaded conditions is different than management for turf in full sun.

Mowing practices need to provide more leaf area for photosynthesis; low mowing heights are not good. Turf uses much less water in the shade compared to full sun. Irrigation should be performed infrequently, as leaves tend to stay wet for longer periods in the shade, allowing more disease to develop. Fertilization should be applied just as often as in full sun, but at half the rate. Research shows that certain grasses grow best when fertilized with liquid forms of nitrogen, other grasses grow best when fertilized with granular forms.

Growth regulators are available for use that inhibit the plants' production of GA. While there are many types of growth regulators on the market, only the following three active ingredients will effectively reduce GA production: paclobutrazol, flurprimidol, and trinexapac-ethyl. The first two are primarily root-absorbed and must be watered-in for best effect. These are most easily combined with a fertilizer; yes, the turf should still be fertilized! Trinexapac-ethyl is a foliar-absorbed compound.

Pruning shade-causing trees and bushes can help increase the amount of sunlight and air circulation to turf in shaded conditions. The right grass must also be planted. Kentucky bluegrass and perennial ryegrass are the most commonly used lawn grasses in the northeast, but both are poorly adapted to the shade. Fine fescues, including creeping red fescue, hard fescue, and Chewing's fescue, are slow-growing but well adapted to dry, shaded conditions. For moist shaded conditions, supina bluegrass (*Poa supina*) will provide the best chance of maintaining turf cover.

QUESTIONS

Sufficient quantity of sunlight is needed for _____.

Quality of sunlight refers to the ratio of _____ wavelengths.

Photosynthesis results in the production of _____ by turf plants.

Kentucky bluegrass in the shade prefers *granular* or *liquid* nitrogen fertilizer carrier?

The excessive GA produced by turf in the shade can be reduced by applying what?

What is the most shade-tolerant cool-season grass for moist shaded soils?

Dry shaded soils?