

TURFAX™

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Research Summary

Shade Effects on Rooting


The stress problems associated with shaded turfs are readily recognized in terms of thinning of the turf, turf injury from increased disease activity, and more erect elongated narrow leaves. The effects on below-ground root growth are not as readily evident.

This author recently conducted detailed root profile assessments on 108 putting greens within close proximity of one another. As may be expected, substantial variations in rooting depth and root health were observed. Assessments were then made as to the probable causes of the reduced root depth and health. **In 10% of the putting greens with shallow rooting of less than 2 inches (50 mm), the problem was associated with morning shade having a duration of at least three to four hours. Typically these shaded greens had major rooting depth reductions in the order of 50 to 60%.** It was very striking and an obvious cause-and-response situation.

The approach to solving this problem is to raise the cutting height. This allows increased capture of the limited available light, which thereby supplies the carbohydrates needed for root growth. Improved shoot density also may be observed. In order to sustain putting green speeds comparable to the other non-shaded greens which are being mowed at a closer cutting height, a strategy of appropriate rolling can be utilized to provide the uniformity of ball roll distance across all greens of an 18-hole golf course. **James B Beard, International Sports Turf Institute.** 

Ask Dr. Beard

Q *In your scientific papers concerning the benefits of turfgrasses, you do not discuss the release of oxygen from grasses during photosynthesis that supports human respiration. Why?*

A It is correct that green, growing turfgrasses have a modest release of oxygen through their stoma that might be available for use in human breathing-respiration activity. Many scientists have promoted this oxygen release as a major benefit of turfgrasses. My assessment has led to a different conclusion. **One must remember that more than 20% of the atmosphere is composed of oxygen.** Thus, there is a question as to just how relevant this turfgrass oxygen release is in terms of "real world" human physiological functions. It is most probably minimal, and thus I have chosen not to list it in my publications and lectures as a benefit of turfgrasses. 

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