



LIGHT REQUIREMENTS FOR CREEPING BENTGRASS PUTTING GREENS

BY USGA GREEN SECTION

- Shade commonly reduces turf quality on golf courses.
- A minimum daily light integral of 30 moles of photosynthetically active radiation per square meter per day is suggested for creeping bentgrass putting greens maintained at 0.125 inch in the transition zone.
- Portable light meters can help superintendents determine if their putting greens are receiving enough sunlight.
- Regular applications of a growth regulator or a turf pigment that blocks ultraviolet light, or a mixture of the two products, improved creeping bentgrass cover grown under afternoon shade.

Shade commonly reduces turf quality on golf courses. While researchers have estimated minimum daily light requirements for several warm-season grasses, less work has been done for cool-season grasses and there are no established values for creeping bentgrass putting greens. Researchers from the University of Arkansas recently completed a two-year field study to estimate the minimum daily light

integral (DLI) necessary for acceptable quality of creeping bentgrass putting greens maintained at 0.125 inch in the U.S. transition zone. The researchers compared creeping bentgrass grown in full sun to that grown under 70-, 80- or 90-percent morning shade and 70-, 80- or 90-percent afternoon shade. The plots were also treated with either a growth regulator, a turf pigment to block ultraviolet light, a tank-mix of the two products or left untreated.

Averaged over both years of the study, the researchers estimate 30 moles of photosynthetically active radiation per square meter per day as the minimum DLI for acceptable quality creeping bentgrass putting greens in the transition zone. Afternoon shade was more detrimental to creeping bentgrass quality than morning shade in the first year of the study, but this result was not consistently observed and is contrary to historic observations. The growth regulator and turf pigment applications did not affect creeping bentgrass cover under morning shade, but significantly improved cover of creeping bentgrass under afternoon shade.

Additional Information

[Short Video from the University of Arkansas](#) (video)

[Full Video from the University of Arkansas](#) (video)

[Determining Precise Light Requirement for Various Turfgrass Systems](#)

