Effects of Light Quality and Quantity on Development of Improved Tall Fescue Cultivars in Shade. (C05-wherley130906-Oral)

Authors:

- B.G.Wherley* - *Ohio State University*
- D.S.Gardner - *Ohio State University*
- J.D.Metzger - *Ohio State University*

Abstract:

Turf development as affected by the reduction in red/far-red (R/FR) ratio of foliage shade has not been fully investigated. Two Festuca arundinacea cultivars ('Equinox' and 'Plantation') of differing shade tolerance were established under low photosynthetic photon flux (PPF) in 10% of full sunlight with high (>1) and low (<1) R/FR ratios in order to distinguish between developmental effects of low R/FR ratio (light quality) and low PPF (light intensity) typical of natural shade environments. Field and growth chamber studies were conducted in 2001-2002 at Ohio State University in Columbus, OH. Under low PPF, high R/FR ratios significantly increased tillering rates, leaf width, and chlorophyll concentrations. Growth chamber data suggest that high R/FR ratios have little effect on root mass under low PPF. The results indicate that while some aspects of turf development in shade are affected by R/FR ratios, others are primarily influenced by low PPF.

Corresponding Author Information:

Benjamin Wherley
Ohio State University
2001 Fyffe Ct. HT 216
Columbus, OH 43210

phone: 614-292-4590
e-mail: wherley.5@osu.edu

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