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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, Cook College, Rutgers University in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public. Articles appearing in these proceedings are divided into two sections.

The first section includes lecture notes of papers presented at the 1999 New Jersey Turfgrass Expo. Publication of the New Jersey Turfgrass Expo Notes provides a readily available

source of information covering a wide range of topics. The Expo Notes include technical and popular presentations of importance to the turfgrass industry.

The second section includes research papers containing original research findings and reviews covering selected subjects in turfgrass science. The primary objective of this section is to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

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IMPACT OF CULTURAL MANAGEMENT PRACTICES ON THE DEVELOPMENT OF GRAY LEAF SPOT IN COOL-SEASON TURFGRASSES

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Although known as a pathogen of St. Augustinegrass (*Stenotaphrum secundatum*) in the southern United States since 1950, gray leaf spot has recently become an extremely destructive disease of perennial ryegrass (*Lolium perenne*) and, to a lesser extent, tall fescue (*Festuca arundinacea*) in the Northeastern and Mid-Atlantic States. The disease, caused by the fungus *Pyricularia grisea* (Cooke) Sacc., is favored by prolonged periods of high humidity (>95%) and warm air temperatures (>25°C). Major epiphytotics of gray leaf spot occurred with increasing frequency in 1991, 1995, and 1998. To date, however, little is known about the influence of management practices on the development of gray leaf spot in cool-season turf.

The goal of the current study was to evaluate the impact of nitrogen (applied as urea) rate (0, 0.7, 1.4, and 2.7 kg nitrogen/90 m²), cutting height (1.3, 1.9, 3.8, 6.4, and 8.9 cm), and clipping removal on the incidence and severity of gray leaf spot in perennial ryegrass and tall fescue turf in the field over a 3 year period. Three perennial ryegrass cultivars (Manhattan III, Palmer II, and SR 4200) and two cultivars of tall fescue (Jaguar II and K-31) were selected for evaluation. Turf was established on a Norton loam with a pH of 6.1 to 6.4 in three separate locations at the Turf Research Farm in North Brunswick, New Jersey. The sites were inocu-

lated each year with either a conidial suspension of *P. grisea* (250,000 conidia/m²), infested clippings (7 g/ft²), or infested transplants. Data was collected for turf quality and severity of gray leaf spot.

The effect of nitrogen rate on gray leaf spot was both cultivar and year dependent. In 1997 when disease intensity was low to moderate, disease severity decreased (22 to 69%) with increasing nitrogen rate; however, in 1998 and 1999 when disease intensity was high, disease severity was positively correlated with nitrogen rate. Throughout the three-year study, lower cutting height consistently resulted in a lower incidence of gray leaf spot. Compared to the 8.9 cm mowing treatment, disease severity decreased 52, 66, and 45% for the lowest cutting heights used in 1997 (3.8 cm), 1998 (1.3 cm), and 1999 (1.3 cm), respectively.

The removal of clippings reduced the incidence of gray leaf spot up to 41% in 1997 when disease intensity was low. At high disease intensity (1998 and 1999), however, the influence of clipping removal on disease development was negligible. In general, the tall fescue cultivars were significantly less susceptible to gray leaf spot than the perennial ryegrass cultivars evaluated in this study.

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