COMPETITIVE EFFECTS OF PERENNIAL RYEGRASS AND CHEWINGS FESCUE ON BERMUDAGRASS SEED ESTABLISHMENT

by

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(ABSTRACT)

Perennial ryegrass (*Lolium perenne* L.) is widely used as a fairway turf on golf courses throughout the transition zone. The transition zone represents the geographical areas between the temperate and subtropical climates, where neither warm season nor cool season grasses are well adapted. The late-spring establishment of seeded bermudagrass could potentially enhance summer quality of a perennial ryegrass fairway during periods of extreme summer stress. Studies were conducted over two years on both perennial ryegrass and chewings fescue (*Festuca rubra* L. ssp. *commutata* Gaud.) areas to assess the competitive effects of each species on bermudagrass seed establishment. The use of fungicides, herbicides and a plant growth regulator, as well as a cultivation treatment prior to seeding, were evaluated for their effects on bermudagrass establishment, turfgrass quality, disease incidence and summer annual grass control. Turfgrass treated with preventative fungicide applications of propiconazole and chlorothalonil maintained high density and turf quality which inhibited successful establishment of bermudagrass during either year. Bermudagrass establishment in 1996 was moderately successful in plots not treated

with fungicides; however, due to disease severity, turfgrass quality was unacceptable. MSMA applications did not influence turfgrass quality or bermudagrass establishment. Crabgrass populations were too low to ascertain the efficacy of either MSMA (1996) or oxadiazon (1997) on summer annual grass control. Oxadiazon followed by activated charcoal prior to bermudagrass seeding did not adversely affect bermudagrass establishment. In 1996, trinexapac-ethyl slightly enhanced bermudagrass seed establishment, but the competitiveness of perennial ryegrass prohibited establishment success.

During 1997, glyphosate was evaluated as a means of eliminating competition and increasing bermudagrass establishment. Glyphosate applied in small strips across existing stands of perennial ryegrass and chewings fescue significantly increased bermudagrass establishment. Preplant aerification and vertical mowing increased bermudagrass establishment, but slightly reduced turfgrass quality. Overall, bermudagrass establishment into existing stands of turfgrass was successful only where glyphosate was strip-treated over plots to eliminate competition or under circumstances where disease pressure reduced competition from the existing turfgrass.

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