STOP 4

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Investigations of Turfgrass Wear Tolerance and Cultural Effects

An extensive investigation has been conducted of the turfgrass characteristics associated with wear tolerance, and the effects of cultural, environmental, and genetic factors on turfgrass wear tolerance. It is supported by a grant from the USGA Green Section. A portable, mechanical apparatus capable of reliably reproducing and comparing the effects of wear was developed for use in these investigations. Results indicate that the wear simulator can be effectively utilized to compare relative differences in turfgrass wear tolerance.

The relative wear tolerance of seven cool-season turfgrass species was determined by four methods of evaluation for both sled (foot-like) and wheel (vehicular) wear injury. Manhattan perennial ryegrass was the most tolerant to wheel wear; Kentucky 31 tall fescue and Merion Kentucky bluegrass ranked second; Pennlawn red fescue and Italian ryegrass were intermediate; while Cascade chewings fescue and rough bluegrass ranked lowest among the species examined.

An investigation of the nitrogen and potassium effects on wear tolerance of Toronto creeping bentgrass turf was initiated in the spring, 1972. Potassium fertilization was found to improve turfgrass wear. The potassium levels in the tissue (dry weight basis) increased with increasing potassium fertilization rates. Increasing potassium application rates had no effect on shoot density and percent relative turgidity, but did result in increased mat accumulation. Results also indicate that judicious nitrogen fertilization is necessary for improved turfgrass wear tolerance. Excessive application rates can result in a succulent, hydrated turf that is more prone to wear injury.

STOP 5

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Reestablishment of Bentgrass Infested Turf with Nonselective Herbicides

Bentgrass becomes a serious turfgrass weed when found in Kentucky bluegrass or fescue turfs. It cannot be selectively controlled in established turfs with the herbicides now available. The use of nonselective herbicides requires complete reestablishment of the turf. Present nonselective herbicides include dalapon (10 lb active ingredient per acre) or amitrol (4 lb active ingredient per acre). Reestablishment must be delayed 4 to 5 weeks after treatment with amitrol and 6 to 8 weeks with dalapon.

An experimental herbicide, glyphosate, offers excellent potential as a control measure for bentgrass without residual effects and delay in reseeding. Its rapid movement into vegetative tissues provides effective control. Because of the lack of soil residue, turfgrass reestablishment may be initiated immediately.

Plots were established on a bentgrass infested (80 to 95% bentgrass) Kentucky bluegrass sod. Initial herbicide treatments were applied on May 14, 1973, followed 20 days later with selected repeated applications. Four days following the final applications the reestablishment program was initiated. The area was vertically mowed and the dead plant debris removed. Reseeding was accomplished