

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

by seeding directly into the seedbed prepared by vertical renovation. Results of the bentgrass control aspect of the study are summarized in Table 9.

Reestablishment may be accomplished by several modifications of this technique. This renovation program allows for a quicker, less costly program, as well as leaving a mulch-type protective cover for seedling establishment, especially on banks or slopes. While results are extremely promising, glyphosate is not yet registered for this use.

Table 9. Chemical Control of Bentgrass Infestation.

Herbicide Treatment	Application Rate (Lb/A)	% Injury	Weed Control Rating		
			% Burndown	Regrowth Control	%
			5/29	6/8	7/6
Paraquat	1/4	0	100	100	64
Glyphosate	1/2	0	64	68	50
Glyphosate	1	0	85	85	100
Glyphosate	1 1/2	0	79	84	96
Glyphosate	2	0	94	96	98
(Glyphosate) ₂	1 + 1/2	0	82	88	98
(Glyphosate) ₂	1 + 1	0	85	98	100
Dalapon	10	0	20	25	68
Amitrol	4	3	28	30	48
No Treatment	--	0	0	0	0

STOP 6

J. M. Vargas, Jr., and R. Detweiler

Systemic Fungicide Control of Sclerotinia Dollar Spot

This study consists of an evaluation of systemic fungicides applied at (a) two week intervals and (b) as needed. The study was conducted on Toronto creeping bentgrass, replicated 3 times in a randomized block design. The plots were 4 x 4 ft and surrounded by a six inch untreated border in an attempt to have inoculum adjacent to all plots. The fungicides were applied with a John Bean Spartan sprayer and a 3 nozzle boom on wheels that covered a 4 foot swath. The applications were made for the two week interval study on June 11 and 27; July 2, and 16; and August 2, 14, and 27. The "as needed" study was treated on June 11 and August 2. The results can be seen in Tables 10 and 11. They show that all fungicides except Acti-dione plus thiram plus chloroneb and U-34-910 controlled Sclerotinia dollar spot when applied every two weeks. The "as needed" study shows the first treatment that was applied on June 11 lasted